PY2014 Finance Residential Market Baseline Study Report (Volume II)

California Public Utilities Commission
Energy Division

March 2016

Prepared by

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Prepared under the direction of the **Energy Division** for the

California Public Utility Commission

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The Finance Residential Baseline Market Study effort is covered under CPUC Contract 12PS5093 between Opinion Dynamics and the California Public Utilities Commission (CPUC). Dunsky Energy Consulting is a subcontractor to Opinion Dynamics for this work. The study is covered under work order ED_O_FIN_3.

Opinion Dynamics

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1. Introduction to Volume II

This volume of the report provides detailed chapters on each of the six primary research efforts that supported this Residential Demand and Supply Market Baseline Study: the homeowner survey, credit score analysis, secondary research on financial products, financial institution interviews, contractor survey, and mystery borrower analysis. Each of these research efforts are designed to provide early insights on the residential financing market. The memos that make-up the content of this volume were submitted to the California Public Utilities Commission (CPUC), Investor Owned Utilities (IOUs) and the California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA) prior to the development of the integrated report (Volume 1). In addition to the early feedback memos, this volume also includes the data collection instruments used in each research effort.

2. Demand-Side

2.1. Residential Homeowner Survey

2.1.1. Methodology

The survey targeted homeowners to probe interest and use of financing for energy efficiency measures. This survey was conducted via telephone with experienced telephone interviewers. The survey instrument was thoroughly pre-tested to ensure questions are reliable, consistent, and well-understood.

3.3.2.1 Survey Instrument

The Opinion Dynamics and Dunsky Evaluation Team (Evaluation Team) implemented computer-assisted telephone interviewing (CATI) surveys with 1,298 residential homeowners across the PG&E, SCE/SCG and SDG&E territories. The Evaluation Team conducted the surveys from February 2, 2015 through March 22, 2015, and spent an average of 16 minutes with each customer. The primary goals of the survey were to determine (1) what energy related home upgrades customers have taken in the past two years, (2) the proportion of customers who have taken actions that used financing, and (3) barriers that customers face when obtaining financing and when making energy efficiency upgrades.

Key questions in the survey covered:

- Market for Finance
  - Projects that would qualify to use finance
  - Current use of financing
  - Need for financing
  - Finance Terms
- Awareness of financing
- Perceived accessibility of financing
- Potential incremental effects of financing
- Targets of financing
- Demographic and household characteristics

3.3.2.2 Survey Sample Design

For the residential baseline effort, we completed 1,298 interviews to help inform program planners about statewide baselines and allow us to estimate change over time[1] (pre and post roll out of the Statewide Finance Pilots). Overall, the sampling strategy is designed to allow us to provide results that are representative of the entire state of California, covering the territories of all four IOUs; PG&E, SCE, SCG, and SDG&E. The sample was stratified by IOU territory, but sampled proportionally to the populations in the IOU territories.

1 The more stringent requirement is to be able to estimate change over time and as such, this requirement is the basis for the sample design calculations.

The sample for this effort was drawn from the 2013-2014 Consumer Information System (CIS) managed by Itron. We used the latest (2009) Residential Appliance Saturation Study (RASS) and the 2010 Census information to produce our total population sizes for each IOU territory. Our original plan called for stratification by IOU territory and by availability of Property Assessed Clean Energy (PACE). We used RASS for the total residential populations within the IOU territories, and Census data to determine number of homeowners in each IOU territory.

Note that for this analysis, we are not including master-metered accounts as it is unclear what proportion of those accounts represented homeowners. We also combined the SCE and SCG territories by starting with the SCE territory and adding the additional population receiving gas from SCG, but not receiving electricity from SCE. Table 1 shows the homeowner population in each of the IOU territories.

Table 1. Populations by IOU Territory

IOU Territory		N
Population Ns for Homeowners		6,365,107
IOU Territory	PG&E	2,642,426
	SCE/SCG	3,065,566
	SDG&E	657,115

Our sample design calls for proportional representation of each IOU. This means that the effective sample size (ESS) will be the same as the actual sample size. Table 2 shows the sample sizes for each of the IOU territories.

Table 2. Sample Size by IOU Territory

IOU Territory		n
Population Ns for Homeowners		1,298
IOU Territory	PG&E	537
	SCE/SCG	627
	SDG&E	134

3.3.2.3 Survey Response Rate

We called a total of 57,261 customers to obtain 1,298 completed interviews. Almost 37% of the customers could not be reached because they did not answer their phone, only their answering machine picked up despite repeated attempts, or the phone number we had was incorrect. We terminated calls with customers who were not homeowners.

The survey response rate is the number of completed interviews divided by the total number of potentially eligible respondents in the sample. We calculated the response rate (Response Rate 3 (RR3)) using the standards and formulas set forth by the American Association for Public Opinion Research (AAPOR).[2] The formulas used to calculate RR3 are presented below. The definitions of the letters used in the formulas are displayed in the Survey Disposition table. The response rate for this survey was 4%.

$$E = (I + R + NC) / (I + R + NC + e)$$

$$RR3 = I / ((I + R + NC) + (E*U))$$

2 Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys, AAPOR, 2011. http://www.aapor.org/AM/Template.cfm?Section=Standard_Definitions2&Template=/CM/ContentDisplay.cfm&ContentID=3156

We also calculated a cooperation rate, which is the number of completed interviews divided by the total number of eligible sample units actually contacted. In essence, the cooperation rate gives the percentage of participants who completed an interview out of all of the participants with whom we actually spoke. The cooperation rate for this survey was 13%. We used AAPOR Cooperation Rate 1 (COOP1), which is calculated as:

$$COOP1 = I / (I + R)$$

Respondents were classified as ineligible mostly because the given phone numbers were not working, or were simply wrong numbers. Table 3 presents the final survey dispositions.

Table 3. Survey Dispositions

Disposition	Total
Completed Interviews (I)	**1,298**
Eligible Non-Interviews	**18,950**
Refusals (R)	8,505
Mid-Interview terminate (R)	0
Respondent never available (NC)	8,532
Language Problem (NC)	1,913
Not Eligible (e)	**17,846**
Fax/Data Line	603
Non-Working/disconnected	11,028
Wrong Number	1,560
Business/Government	2,788
Duplicate Phone Number	83
No Eligible Respondent	1,784
Unknown Eligibility Non-Interview (U)	**19,167**
No Answer	10,514
Answering Machine	7,634
Busy	396
Not Attempted or Worked	470
Call Blocking	153
Total Participants in Sample	**57,261**

2.1.2. Detailed Residential Homeowner Survey Results

This section captures our findings from the Residential Baseline Homeowner Survey.

The Evaluation Team conducted a homeowner general population survey to capture a snapshot of the overall landscape for energy efficiency financing for homeowners in California prior to the roll-out of the residential Statewide Finance Pilots. The survey results will document a baseline for key metrics as defined in the 2013-2014 EM&V Finance Roadmap related to energy efficiency financing for residential customers (see Table 4). Future studies will seek to measure change from the established baseline.

Table 4. Demand Side: Baseline Metrics

#	Baseline Metrics
1	Awareness of financing products
	• *Awareness of energy efficiency-specific financing products*
	• *Awareness of conventional financing products*
2	Percentage of homeowners implementing upgrades
	• *In the market in general*
	• *In IOU-specific programs*
	• Percentage *of measure per upgrade– in the market in general*
	• Percentage *of measure per upgrade – in IOU-specific programs*
3	Percentage of homeowners who use financing for upgrades
	• *In the market in general*
	• *In IOU-specific programs*
	• Percentage *of measure per upgrade– in the market in general*
	• Percentage *of measure per upgrade – in IOU-specific programs*
4	Perceived accessibility of financing (barriers)
5	Percentage of homeowners who perceive first-cost as a barrier

Note: This table only presents the baseline metrics collected through the survey.

We conducted the baseline survey via telephone with experienced interviewers between February 2, 2015 and March 22, 2015. We also augmented the completed surveys with the credit score proxy data from Experian (Scorex Plus) based on zip+4 data. Below we discuss the high level findings from the survey effort and a summary of the baseline metrics established.

Homeowner Characteristics

We interviewed 1,298 homeowners within the IOU territories (based on IOU territory population proportion); 537 PG&E homeowners, 627 SCE/SCG homeowners, and 134 SDG&E homeowners. Notably, we compared some of these homeowner characteristics of the survey respondents to the overall CA homeowner population. While there are some differences across the characteristics, the results were not weighted as the differences between the results with and without weights were not statistically difference. See Table 17 for additional details.

- 98% of homeowners own and live in the residence, while 2% own the residence and rent it out
- We spoke with both male (53%) and female (47%) homeowners
- 32% of homeowners were between the ages of 21 and 54 years, and 55% were over the age of 55 years
- The majority live in detached single family homes (78%)
- Most of the homeowners are highly educated with a college degree or higher (61%), with an additional 20% with some college but no degree
- About a third of the homeowners have an annual income of over $100,000 (28%), about 25% have an income between $50,000 to $100,000

- About 17% of the homeowners fall into the low-income category[3] [4]

- Homeowners' proxy credit scores are[5]:
  - Easy Access (score of >700 – qualify for all programs) – 70%
  - Some Access (score between 640-699 – qualify for the Statewide Pilots and the local programs) - 22%
  - Limited Access (score between 580-639 – qualify for the Statewide Pilots but not the local programs) – 7%
  - No Access (score below 580 – do not qualify for any programs) – 1%

Notably, given the length of the survey, we rotated some questions so not all 1,298 homeowners interviewed answered all questions. In addition, due to some of the skips in the survey, not all homeowners get certain questions (for example, only those who used financing to purchase an upgrade would get the finance question battery). As such, the bases used for calculating the percentages vary.

Demand Side Baseline Metric Findings

Below we present the high level findings, followed by a summary of key metrics.

Metric 1: Awareness of financing products

When asked about baseline levels of awareness, a large percentage of homeowners were aware of finance offerings[6]:

- Overall aided awareness of any financing: 35% of CA homeowners mentioned being aware of some form of financing through either the local governments, regional programs, or PACE. Over time, we expect this awareness to increase after pilot intervention.
  - The 35% includes 11% who have some/limited access to financing (based on proxy scores) and 6% who are low-income households
- The overall awareness is estimated through the following:
  - 12% are aware of PACE financing
  - 21% are aware of financing offered by local governments, cities, municipalities, or non-profits
  - Awareness of Regional Offerings[7]:

3 Note that we explore differences between low income and other populations in the sections below.
4 Notably, these low-income respondents are a subset of the low-income population, as the survey only focuses on single-family residents and does not include those in multi-family dwellings.
5 Notably, the proxy score distribution is similar to the population distributions discussed in the Credit Score Analysis chapter.
6 Homeowners were asked questions about their awareness of finance and rebate/incentive offerings by their specific utility as well as their awareness of general finance and rebate/incentive offerings.
7 The survey asked about awareness of regional programs if the survey respondent lived in a zip code where the programs are offered. Some of the other regional programs with very small n's are not shown here.

- In Southern California (SCE/SCG territory), 19% were aware that the SoCalRENs offer or promote some form of financing
- In the Bay Area (PG&E territory), 13% were aware of the California Home Finance Authority Homebuyers Fund (CHF)
- In Santa Barbara County (some PG&E and SCE/SCG territory), 9% were aware of the financing offered by the county

- 6% are aware of both local government programs *and* regional programs, and 7% are aware of both PACE *and* regional programs.
  - Overall awareness of any rebates: 69% of CA homeowners mentioned being aware of some form of rebates or incentives through either the IOUs or local governments.
  - 65% of homeowners are aware of rebates/incentives offered through the IOUs
    - Note that awareness of IOU rebates is higher amongst PG&E homeowners than SCE/SCG and SDG&E homeowners (73%, 60% and 60%, respectively).
  - 23% of homeowners are aware that the local governments, etc. offer rebates/incentives
    - Note that this was higher amongst SCE/SCG and SDG&E homeowners than PG&E homeowners (23%, 25%, and 18% respectively)
- 30% of the CA homeowners mentioned being aware of both some form of financing and some form of rebates
- 70% of the CA homeowners felt that they knew where to go to obtain a loan
  - This percentage was significantly lower amongst low-income homeowners at 51%

Metric 2: Percentage of homeowners implementing upgrades[8]

- 40% of CA homeowners responded with a "yes" when asked about making an upgrade in the past two years (see Table 5).
- After removing those who built a new home, did general remodeling of the home, or could not respond to what upgrade was made, **36% of CA homeowners made an upgrade in the past two years.**
- About one-fourth of the 36% of homeowners who made an upgrade received an IOU rebate – which means **8% of CA homeowners received an IOU rebate for their upgrades**

Table 5. Upgrades Made in the Past Two Years

	# of homeowners	% of homeowners
Yes - Able to Specify Upgrade	**464**	**36%**
Yes - Built a new Home/Remodeled/Unable to Specify Upgrade	58	4%

8 The survey asks the homeowners to respond to each of the following upgrades made to their home in the past two years: built a new home, remodeled, weatherization, renewables, cooling or heating systems, water heating, refrigerator/freezer, clothes washer/dryer/dishwasher, and windows.

	# of homeowners	% of homeowners
No	770	59%
Don't Know/Refused	6	0.5%
Total	**1,298**	**100%**

- **Single v multiple upgrades:** overall 8% of homeowners made one upgrade, 9% made multiple upgrades at the same time and 19% made multiple upgrades but at different times
  - On average, homeowners made 3 upgrades in the past two years
  - The most common upgrades were appliances such as washing machines, dryers, dishwashers, refrigerators, or freezers[9] (see Table 6)
  - Over half of homeowners self-report that they paid a higher price to get a more energy- efficient appliance/equipment than the standard efficiency option available to them; for example, 63% of homeowners who upgraded their refrigerator/freezer, paid a higher price

Table 6. Upgrade Types (multiple responses)

	Number of homeowners	Overall percentage of CA homeowners (n=1,298)	Percentage of homeowners who made an Upgrade (n=464)	Paid more for a high efficient upgrade
Installed or replaced a washing machine, dryer, or dishwasher	266	20%	57%	66%
Installed or replaced a refrigerator/freezer	195	15%	42%	63%
Installed or replaced a water heater	170	14%	39%	66%
Weatherized Home	180	13%	37%	
Replaced windows	161	12%	35%	
Installed or replaced heating systems	148	11%	32%	57%
Installed or replaced central or large cooling systems	138	11%	30%	68%
Installed or replaced renewable energy sources	94	7%	20%	
Installed other measures (not in the list above such as new roof, pumps, doors etc.)	43	3%	9%	

- 81% of overall projects performed (by household – which could include multiple upgrades) are above $2,500 – which means that over the past 2 years, 29% of CA homeowners are implementing projects over $2,500 (see Table 7)

Table 7. Approximate Cost of Overall Project, by Household (n=464)

	# of homeowners	% of homeowners who made an Upgrade (n=464)	Overall % of CA homeowners (n=1,298)
Less than $2,500	77	17%	6%
$2,501 or more	378	81%	29%
Don't Know/Refused	9	2%	1%

9 Only about 5% of the homeowners only upgraded their refrigerator/freezer or clothes washer/dryer/dishwasher. The remaining 31% might have purchased these appliances but did so with another upgrade.

- Looking at the upgrades individually, most of the standalone appliance upgrades cost less than $2,500 while weatherization, renewables and larger cooling and heating systems are more expensive (see Table 8). Thus as noted above, the multiple upgrades are increasing the costs to be over $2,500.

Table 8. Per Upgrade Costs (Proportion amongst those that made each upgrade)

Upgrades	Approximate Cost of Upgrade[a]			
Installed or replaced a refrigerator/ freezer (n=195)	73% 21%	<$2.5K $2.5-$7.5K	3% 1%	$7.5K-$20K > $20K
Installed or replaced a washing machine, dryer, or dishwasher (n=265)	79% 17%	<$2.5K $2.5-$7.5K	1% 0%	$7.5K-$20K > $20K
Installed or replaced a water heater (n=169)	80% 14%	<$2.5K $2.5-$7.5K	1% 0%	$7.5K-$20K > $20K
Installed or replaced heating systems (n=147)	24% 44%	<$2.5K $2.5-$7.5K	23% 2%	$7.5K-$20K > $20K
Installed or replaced central or large cooling systems (n=136)	21% 45%	<$2.5K $2.5-$7.5K	27% 3%	$7.5K-$20K > $20K
Weatherized Home (n=166)	41% 24%	<$2.5K $2.5-$7.5K	17% 10%	$7.5K-$20K > $20K
Replaced windows (n=157)	26% 43%	<$2.5K $2.5-$7.5K	24% 4%	$7.5K-$20K > $20K
Installed or replaced renewable energy sources (n=86)	22% 12%	<$2.5K $2.5-$7.5K	31% 30%	$7.5K-$20K > $20K

[a] Note: this is the price for each of the upgrades and not the overall project (which could have multiple upgrades). The percentages for upgrades under $2,500 may seem high, however, we speculate these upgrades could be smaller installations rather than big projects.

Metric 3: Percentage of homeowners who use financing for upgrades

- Amongst the 464 homeowners who made an upgrade in the last 2 years, one-fifth used some type of financing (excluding those homeowners who only used a credit card)
  - Extrapolating to the homeowner population in CA, **7.4% of CA homeowners used financing for an upgrade in the last 2 years** (see Table 9)
  - Homeowners could have used more than one type of financing, including credit cards – typically one type of financing covers about half of the project cost
  - The top sources for financing were financing through the retailer (3%) and financing through their contractors (2%)
  - About 1% of all upgrade financing are through PACE financing

Table 9. Financing Types

Financing Type	Percentage of Total Population who made an Upgrade and Used this Type (n=1,298)	Percentage of Homeowners who made an upgrade and Used Some Sort of Financing (n=96)
Used some sort of Financing	119 of 1,298 homeowners made an upgrade and used some sort of financing (including credit cards)	

Financing Type	Percentage of Total Population who made an Upgrade and Used this Type (n=1,298)	Percentage of Homeowners who made an upgrade and Used Some Sort of Financing (n=96)
	96 of 1,298 homeowners made an upgrade and used some sort of financing (excluding those who only used a credit card) • 21% among homeowners who made an upgrade • 7.4% among all 1,298 homeowners	
Financing through a retailer	3%	42%
Financing through contractor	2%	29%
Secured loan (equity line of credit/Mortgage loan)	1%	18%
Unsecured (personal loan)	1%	18%
PACE	1%	14%
A loan through family member/friend	0.5%	6%
Special EE Financing	0.4%	5%

- About one-fourth of the 7.4% of homeowners who made an upgrade and used financing received an IOU rebate – which means **1.9% of CA homeowners used financing and received an IOU rebate for their upgrades** (Note that this excludes homeowners who used only credit cards as their source of financing)
  - These households used a range of financing to fund their upgrade; financing through the retailer (n=8), unsecured loans (n=8), and through the contractor (n=7) were the most popular. About 9 households used a credit card along with some other form of financing.
- **Single vs multiple upgrades:** overall 1.1% of CA homeowner population made one upgrade, 2.6% made multiple upgrades at the same time and 3.6% made multiple upgrades but at different times
  - On average, homeowners have made 3 upgrades in the past two years
  - Given the theory behind the finance pilots of encouraging customers to undertake larger and more in-depth EE projects (encourage demand), we would expect the average number of upgrades amongst pilot participants to increase over time.
- Single vs multiple use of financing sources:
  - Of the 96 household who used financing, 51% made multiple upgrades and used multiple sources of financing while 31% made multiple upgrades and used a single source of financing (see Table 10)

Table 10. Sources of Financing by Number of Upgrades (n=96)

	Single Finance Type	Multiple Finance Types
Single Measure	5%	7%
Multiple Measures	31%	51%
Don't Know	5%	

- Thus, homeowners are generally using multiple sources for financing the upgrades and one source generally covers about half of the overall costs, with credit cards generally being the second source (see Table 11)
- The median interest rates are lowest for a secured loan (4.5%)

Table 11. Use of Financing (n=96)

Financing Type	Percentage of Total Price Covered by Financing Type (Average)	Interest Rate (Median)	Loan Term (Average Months)
Financing through a retailer	36%	7.5%	27
Financing through contractor	59%	7.0%	42
Secured loan (equity line of credit / Mortgage loan)	56%	4.5%	30
Unsecured (personal loan)	51%	5.5%	34
Special EE Financing	56%	7.0%	35
Note: those who used a credit card reported a median interest rate of 10% to cover approximately 52% of the total project cost.			

- The type of financing is somewhat dependent on the overall amount of the upgrade
  - As expected, bigger projects use more sources of financing (see Table 12). However, some smaller projects also tend to use multiple sources, for example 15% of projects that were between $2,500-$7,500 used two or more sources of financing

Table 12. Project Cost by Financing Source (n=96)

Cost of Upgrade	Single Source	Two Sources	Three or more Sources	Total (n=96)
Less than $2,500	0%	5%	1%	6%
$2,500 to less than $7,500	9%	11%	4%	25%
$7,500 to less than $20,000	10%	10%	3%	24%
More than $20,000	16%	10%	13%	39%
Don't Know/Refused	6%			

- Majority of financed purchases below $7,500 are through the retailers (21%)
  - Financed upgrades that cost more than $7,500 tend to go through a contractor (22%), through the retailer (21%) or a bank/credit union type loan (15% secured and 15% unsecured)
- Of those homeowners who used only two sources of financing (n=36), two-thirds used credit cards (n=24) and a little over half used financing through a retailer (n=20)
  - Some homeowners also used financing through a contractor (n=7), secured loan (n=4), unsecured loan (n=4), and PACE (n=3)
- Of those homeowners who used three or more sources of financing, nearly two-thirds used credit cards and financing through their contractor. Three-fourths used financing through their retailer

- Some homeowners also used secured loan (n=4), unsecured loan (n=7), and PACE (n=3)

Table 13. Percentage Breakdown of Financing Type and the Cost of Upgrades (n=96)

Financing Type	Less than $2,500	$2,500 - $7,500	$7,500 - $20,000	More than $20,000	Don't Know / Refused	Total (n=96)
Financing through Retailer	4%	17%	13%	8%	0%	42%
Financing through Contractor	1%	6%	6%	16%	0%	29%
Secured Loan	0%	2%	4%	11%	0%	18%
Unsecured Loan	1%	2%	2%	13%	0%	18%
Special EE	1%	0%	1%	9%	1%	13%
PACE	0%	1%	1%	4%	0%	6%
Loan through family/friend	0%	1%	2%	3%	0%	6%
Other	1%	2%	3%	3%	0%	9%

Metric 4: Perceived accessibility of financing (barriers)

- Access to Financing and Ease of Obtaining Financing: 41% of all CA homeowners feel that it would be *very or somewhat difficult* to obtain a loan[10]
  - 16% said they think qualifying for a loan would be very difficult, and another 26% said it would be somewhat difficult
  - Majority of these homeowners fall into the low income category – 31%
  - Almost all of these homeowners have only some or limited access to credit – 39%
  - The primary reasons why homeowners thought it would be difficult to obtain a loan are not enough earnings (28%), concerns that the process for obtaining a loan will be too long or require a lot of paperwork (15%), and concerns about low credit/FICO scores (14%)
    - Homeowner quote: "I'm on social security limited income I don't have excellent credit I usually get high interest rate"
    - Homeowner quote: "The complexity of filling out forms and finding loans. It's just a lot of work"
- 62% feel that the interest rates available to them are too high[11]
  - This is significantly higher for low-income homeowners compared to other homeowners (72%)
  - Those with some/limited access to credit were significantly more likely to say that the interest rates available to them are too high (69%)

Other Interesting Findings:

- 19% of homeowners noted that at some point in the past they were rejected from receiving a loan

10 Notably, we also analyzed this question after removing the customer who noted having used financing to fund their upgrade project. Of the 1,202 customers who did not use financing, the percentage remained at 41% feeling it would be very or somewhat difficult to obtain a loan.
11 This percentage increases to 67% after removing the households who only use credit cards as their type of financing.

- Homeowners stated that the they were rejected for the loan due to not having good credit (31%), enough earnings (22%) or not having credit history (13%)
- This is significantly higher for low-income homeowners (34%)
- This is significantly higher for those with some and limited access to credit (24% and 35%, respectively)

- Survey results indicate that more customers will make upgrades if they can get a combo of rebates and attractive financing rather than just the financing alone[12]
  - 54% of homeowners stated they are very or somewhat likely to make an upgrade if they received a rebate for 20% of the upgrade
    - 16% have some or limited access to credit, and 9% are low-income households
  - 42% stated they were very or somewhat likely to make an upgrade if they received a 6% loan and a rebate for 20% of the upgrade
    - 14% have some or limited access to credit and 9% are low-income households
  - 28% of homeowners stated they are very or somewhat likely to make an upgrade if they received a loan at 6% interest
    - 10% have some or limited access to credit and 7% are low-income households
    - The primary reasons for not taking a loan were because homeowners did not see a need for it (28%), thought the interest rates were too high (22%), and they in general did not like borrowing money (15%)
  - 30% and 34% of homeowners stated they are very or somewhat likely to make an upgrade if they received a loan repayable on their property tax or their utility bill, respectively

Metric 5: Percentage of homeowners who perceive first-cost as a barrier

All Homeowners (n=1,298):

- 54% of homeowners strongly or somewhat agreed that cost is why they might not buy a high efficiency item. About one-third of these homeowners stated that a 6% loan would help them overcome this barrier[13].
  - Thus, when extrapolating to CA homeowners, **a loan could help 13% of homeowners overcome the high upfront costs for purchasing a high efficiency item**. Notably, these are self-reported results based on a hypothetical scenario.

12 The survey questions asks respondents to indicate whether they would be not at all likely or very likely (using a 1-7 scale) to make improvements over $2,500 to their home to save energy if different financing or rebates were available to them. The aided options were: (a) low cost loan at 6% interest rate, (b) rebate equal to 20% of the cost, (c) loan repayable on their property tax, (d) loan repayable on their utility bill, and € low cost loan at 6% interest rate and a rebate equal to 20% of the cost.
13 Notably, the survey question did not specify a loan term.

  - Upfront cost seems to be a larger barrier than lacking the information needed to make a decision (40%), getting cooperation from others in the household (25%), time (i.e., too busy – 18%) (based on survey questions asking about each of these being a barrier)

- Approximately one in four (27%) homeowners said they are somewhat or very likely to make future home upgrades that cost over $2,500 within the next two years and are open to the idea of financing the home upgrade

Amongst Homeowners who made a home upgrade and used financing (n=96 or 7.4%):

- 64% did so because they prefer making monthly payments rather than an upfront payment.
  - This helps validate some of the marketing strategies for the finance programs of selling finance as "monthly payments" and not a "loan or debt".
- Doing "more" with financing:
  - 74% of finance users indicated that the financing allowed them to do a larger upgrade or purchase higher quality equipment than what they would have done on their own
  - 77% of finance users did not have the entire amount available in cash for the purchase and thus used financing
  - 88% of finance users thought financing was the most convenient/easiest option for them
- 57% said they would have been very or somewhat unlikely to complete the upgrade without the financing

Amongst Homeowners who made a home upgrade but did not use financing (n=385 or 30%, including those who only used a credit card):

- 11% noted that if they has been able to receive a loan at 6% they would have made more upgrades
  - There were significant differences in the proportion of homeowners with limited access to credit who would have used a 6% loan to make more energy saving upgrades compared with homeowners with some or easy access (28% compared to 15% and 8%, respectively)

Amongst Homeowners who did not make a home upgrade (n=803, or 62%):

- 30% of homeowners considered making upgrades but did not
  - Nearly two-thirds indicated that it was the upfront cost that prevented them from making upgrades.
  - There were significant differences in the proportion of low-income homeowners who stated the upfront costs prevented them from making upgrades (83%)
  - Those with limited access to credit stated the upfront costs prevented them from making upgrades (83%)

Summary of Metrics

Table 14 below summarizes the main baselines established for each of the baseline metrics.

Demand-Side

Table 14. Demand Side: Baseline Metrics Established Through the Survey

#	Baseline Metrics	Baseline Established	Notes
1	**Awareness of Financing Products**		
	Awareness of energy efficiency-specific financing products	35% - aware of some form of EE financing[14]	This is overall awareness of any aided questions asked about local government, regional and PACE programs
	Awareness of conventional financing products	70% knew where to go to obtain a loan • Lower for low-income homeowners at 51%	
2	**Percentage of homeowners implementing upgrades**		
	In the market in general	36%	
	In IOU-specific programs (with rebate)	8%	
	Percentage of measures per upgrade – in the market in general	8% single upgrade 9% multiple upgrades at same time 19% multiple upgrades at different times Average of 3 upgrades per home	This provides the spilt for the 36% of upgrades by homeowners
	Percentage of measures per upgrade – in IOU-specific programs (with rebate)	1% single change 2% multiple changes at same time 5% multiple changes at different times Average of 2 upgrades per home	This provides the spilt for the 8% of upgrades with rebates by homeowners
3	**Percentage of homeowners who use financing for upgrades**		
	In the market in general	7.4%	This does not include those using only credit cards (1.8%)
	In IOU-specific programs (with rebate)	1.9%	
	Percentage of measure per upgrade – in the market in general	1.1% single upgrade 2.6% multiple upgrades at same time 3.6% multiple upgrades at different times Average of 3 upgrades per home	This provides the spilt for the 7.4% of upgrades with financing by homeowners
	Percentage of measure per upgrade –in IOU-specific programs (with rebate)	0.0% single upgrade 0.8% multiple upgrades at same time 1.1% multiple upgrades at different times Average of 4 upgrades per home	This provides the spilt for the 1.9% of upgrades with financing and rebates by homeowners
4	**Perceived accessibility of financing (barriers)**	• 41% feel that it would be difficult to obtain a loan • 62% felt interest rates available to them are too high	

14 Notably, the CA Strategic Plan notes that other parties along with the Statewide Pilots are responsible for increasing awareness, i.e. the Statewide Pilots alone cannot move the market for this metric.

Demand-Side

#	Baseline Metrics	Baseline Established	Notes
5	**Percentage of homeowners who perceive first-cost as a barrier**	13% say the high upfront costs for purchasing a high efficiency item is a barrier	

We compared the survey respondent's characteristics with those of the overall CA homeowner characteristics. However after applying the weights, the results were within the confidence intervals specified for each of the metrics. Hence the overall findings remain unchanged.

Table 15. Demand Side: Baseline Metrics Established through the Survey, weighted by Age, Education and Income

#	Baseline Metrics	Baseline Measurement Description	Overall	Confidence Interval at the 95% Level	Weighted by Age	Weighted by Education	Weighted by Income
1	**Awareness of Financing Products**						
	Awareness of energy efficiency-specific financing products	Aware of some form of EE financing	35%	±2.59	34%	35%	35%
	Awareness of conventional financing products	Knew where to go to obtain a loan	70%	±2.49	67%	69%	70%
2	**Percentage of homeowners implementing upgrades**						
	In the market in general		36%	±2.61	34%	36%	36%
3	**Percentage of homeowners who use financing for upgrades**						
	In the market in general		7.4%	±1.42	7.2%	7.6%	7.3%
4	**Perceived accessibility of financing (barriers)**	• Feel that it would be difficult to obtain a loan • Felt interest rates available to them are too high	41% 62%	±2.68 ±2.64	45% 63%	41% 63%	40% 62%
5	**Percentage of homeowners who perceive first-cost as a barrier**	Say the high upfront costs for purchasing a high efficiency item is a barrier	13%	±1.83	15%	13%	13%

Table 16 below shows the metrics by IOU. Notable, there are no significant differences across the IOU territories on these key metrics.

Table 16. Demand Side: Baseline Metrics Established Through the Survey, by IOU

#	Baseline Metrics	Baseline Measurement Description	Overall	PG&E	SCE/SCG	SDG&E
1	**Awareness of Financing Products**					
	Awareness of energy efficiency-specific financing products	Aware of some form of EE financing	35%	32%	37%	40%

#	Baseline Metrics	Baseline Measurement Description	Overall	PG&E	SCE/SCG	SDG&E
	Awareness of conventional financing products	Knew where to go to obtain a loan	70%	68%	71%	75%
2	**Percentage of homeowners implementing upgrades**					
	In the market in general		36%	35%	36%	38%
	In IOU-specific programs (with rebate)		8%	7%	8%	10%
3	**Percentage of homeowners who use financing for upgrades**					
	In the market in general		7.4%	6.3%	8.5%	6.7%
	In IOU-specific programs (with rebate)		1.9%	2.2%	1.8%	1.5%
4	**Perceived accessibility of financing (barriers)**	• Feel that it would be difficult to obtain a loan • Felt interest rates available to them are too high	41% 62%	41% 61%	41% 63%	41% 59%
5	**Percentage of homeowners who perceive first-cost as a barrier**	Say the high upfront costs for purchasing a high efficiency item is a barrier	13%	29%	26%	22%

Additional Details on Homeowner Characteristics

As noted previously, there are some differences across the characteristics of the overall CA homeowner population and the survey respondents (see Table 17).

Notably, there are some differences between the CA population and the survey respondents - (a) presence of don't know/refused responses from the survey respondents (which were distributed proportionally into the other categories for the purpose of estimating the weights), (b) the CA homeowner population includes all residential customers whereas the survey respondents includes single-family residential customers (no changes made), and (c) the homeowner population includes all CA residents whereas the survey respondents only includes IOU customers (no changes made).

Thus, while there are some differences across the characteristics, the results were not weighted as the differences between the results with and without weights were not statistically difference.

Table 17. Homeowner Characteristics for the CA Population and Survey Respondents

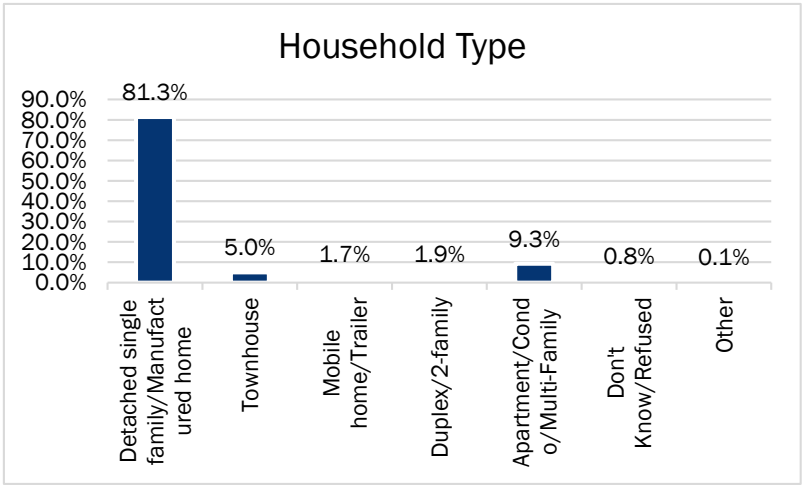
	Percent of CA Homeowner Population [a]	Percent of Survey Homeowner Sample	Difference between Sample and Population	Weights
Age				
Under 35 years	8.40%	9.04%	0.6%	0.93
35 to 44 years	17.20%	12.64%	-4.6%	1.36
45 to 54 years	24.20%	18.17%	-6.0%	1.33
55 to 64 years	22.80%	25.20%	2.4%	0.90
65 to 74 years	14.80%	20.37%	5.6%	0.73
75 to 84 years	8.90%	10.36%	1.5%	0.86
85 years and over	3.70%	4.21%	0.5%	0.88
Highest Education				
Less than high school graduate	10.80%	2.71%	-8.1%	3.99
High school graduate (includes equivalency)	16.20%	12.98%	-3.2%	1.25
Some college or associate's degree	32.40%	20.86%	-11.5%	1.55
Bachelor's degree or higher	40.60%	63.46%	22.9%	0.64
Household Income				
Less than $9,999	2.90%	2.81%	-0.1%	1.03
$10,000 to $19,999	5.40%	4.92%	-0.5%	1.10
$20,000 to $49,999	20.10%	23.69%	3.6%	0.85
$50,000 to $74,999	16.70%	16.47%	-0.2%	1.01
$75,000 to $99,999	14.30%	15.56%	1.3%	0.92
$100,000 to $149,999	19.60%	17.67%	-1.9%	1.11
$150,000 or more	21.00%	18.88%	-2.1%	1.11

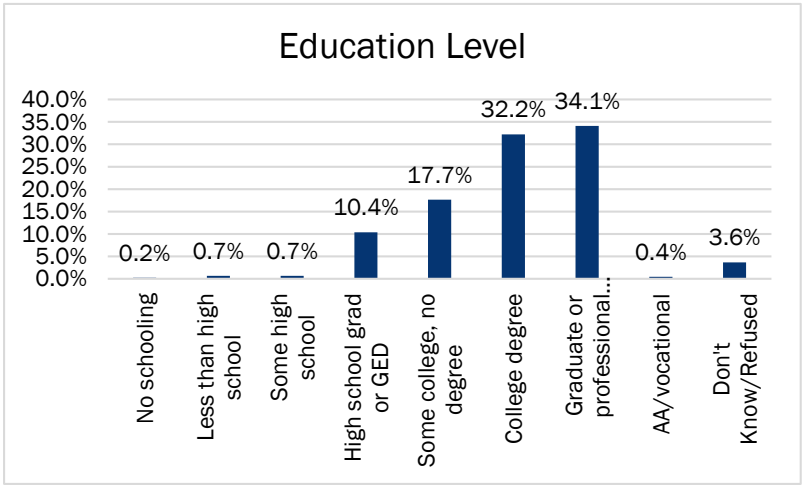
[a] Source: 2013 American Community Survey 5-year estimates for California homeowners

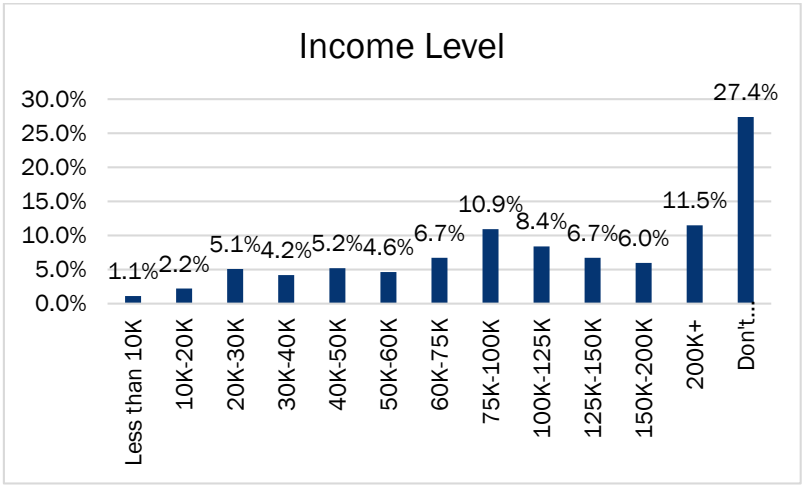
2.1.3. Demographic Characteristics by FICO Score

This section provides the detailed demographic and housing characteristics by the four credit score categories; Easy Access (scores of 700 or higher), Some Access (scores between 640 and 699), Limited Access (scores between 580 and 639) and No Access (scores less than 580).

Figure 1. Demographic Characteristics for Customers with Easy Access







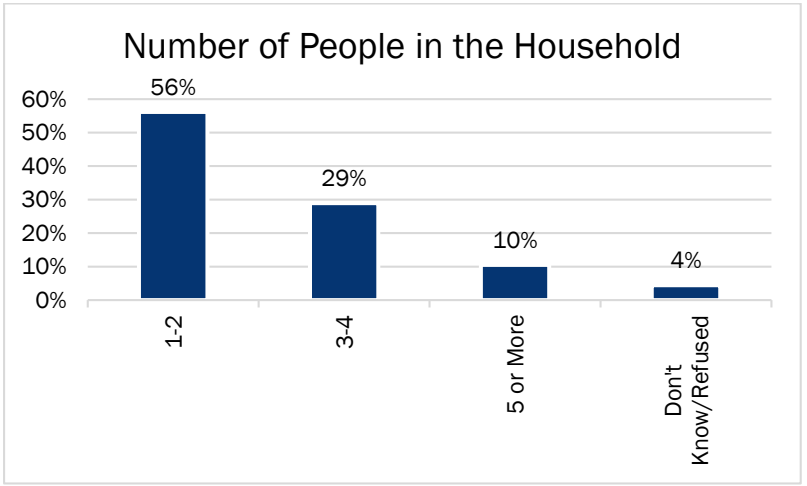
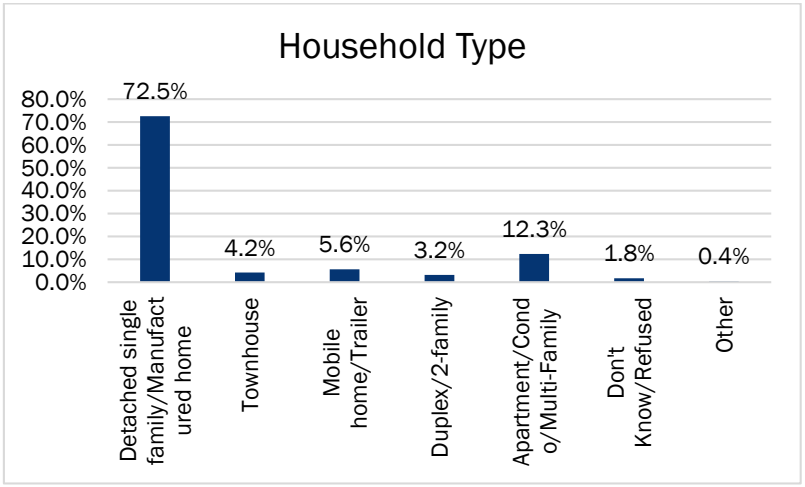
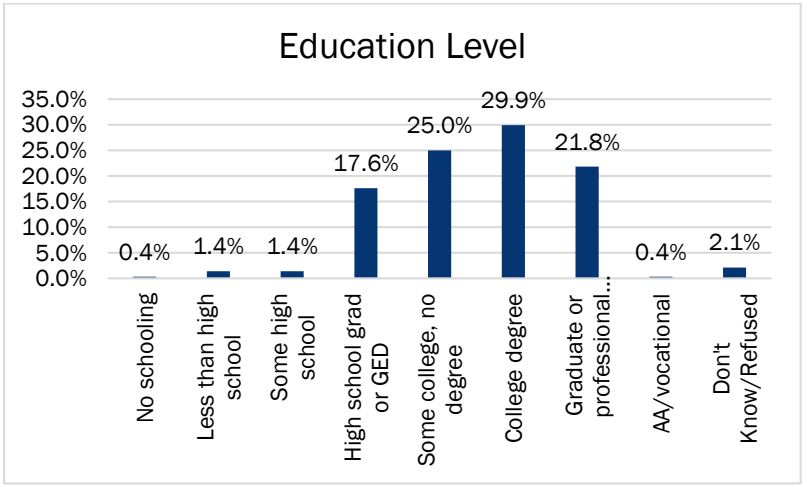
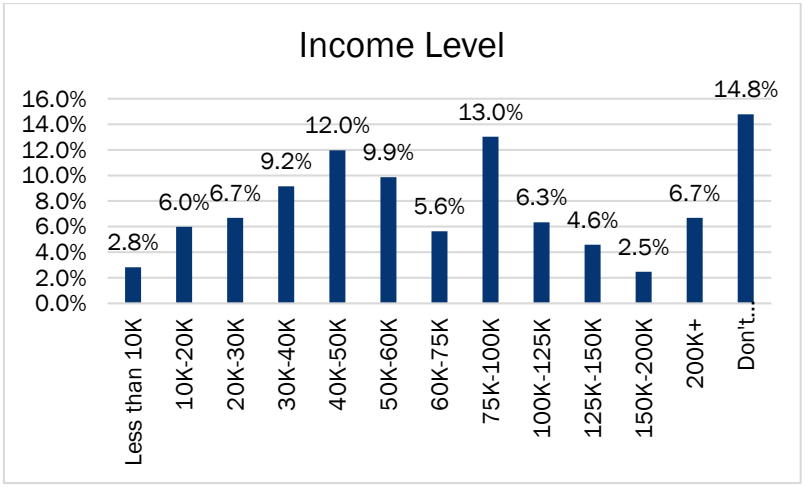


Figure 2. Demographic Characteristics for Customers with Some Access







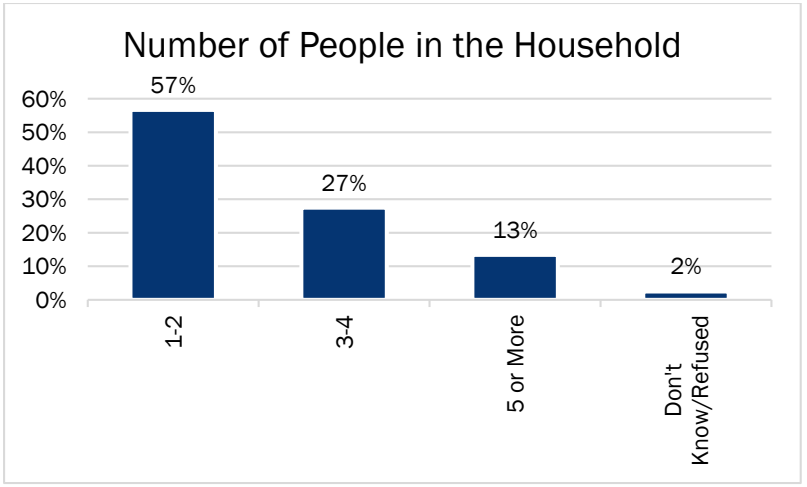
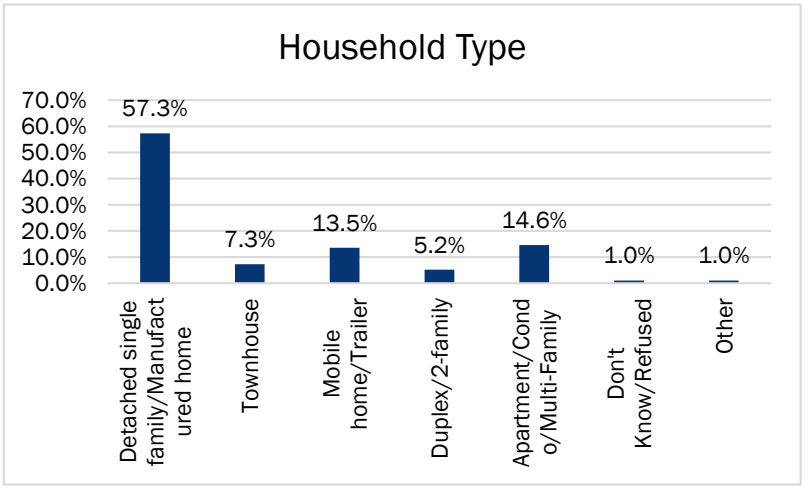
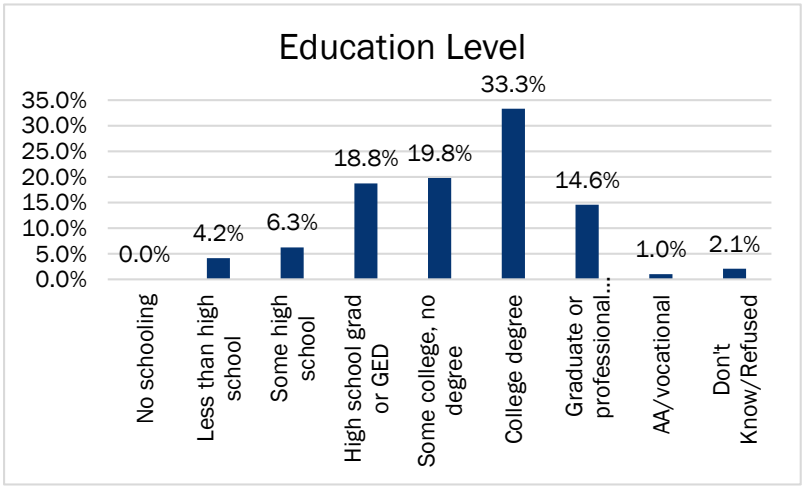
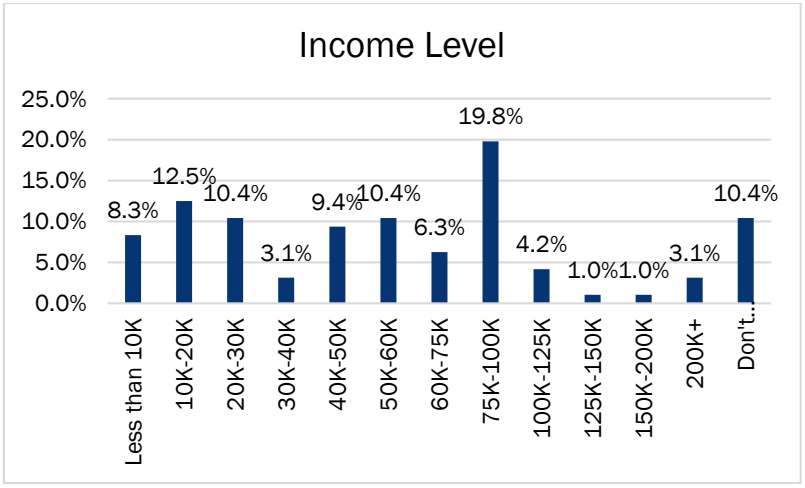


Figure 3. Demographic Characteristics for Customers with Limited Access







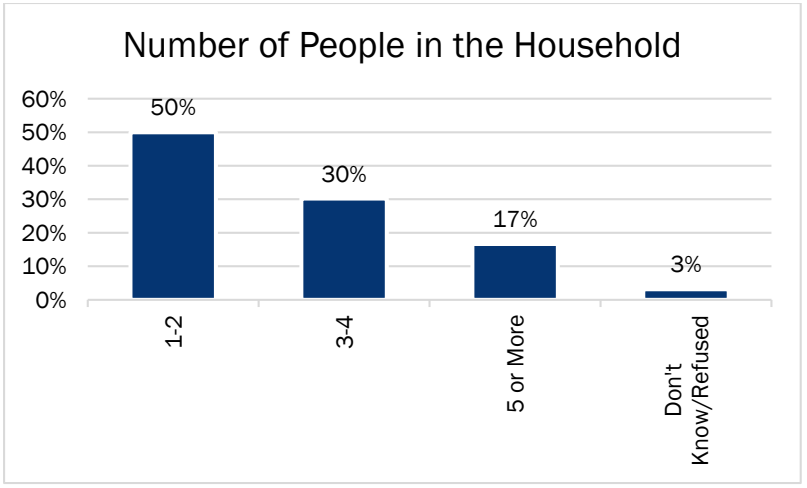
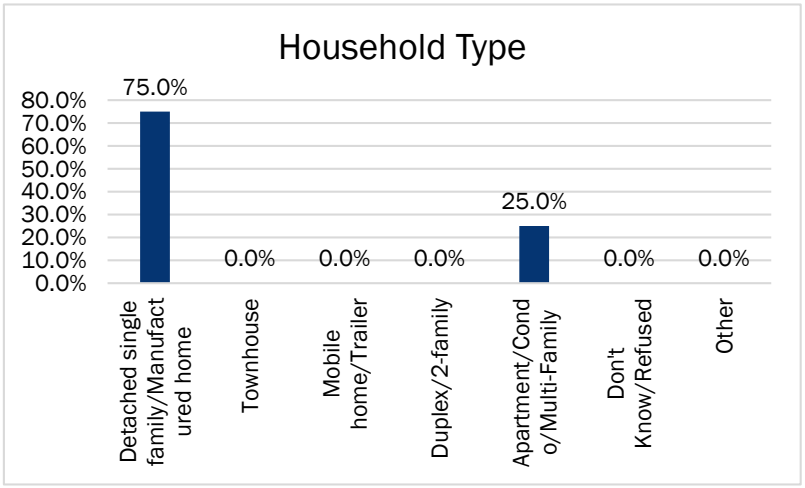
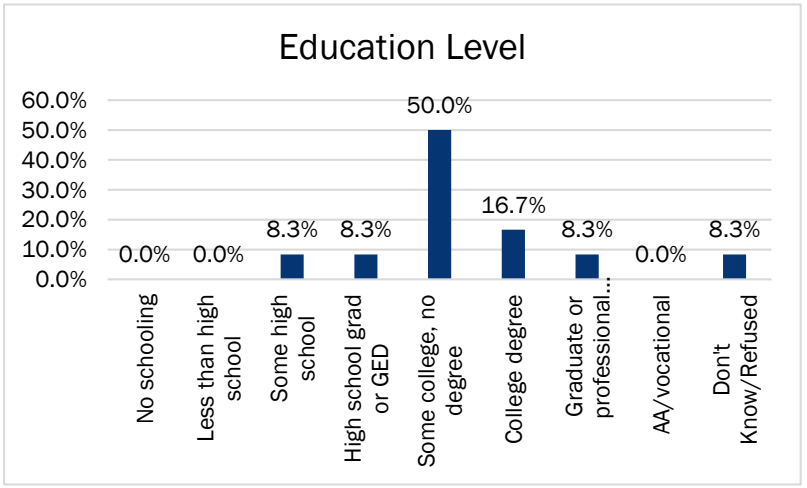
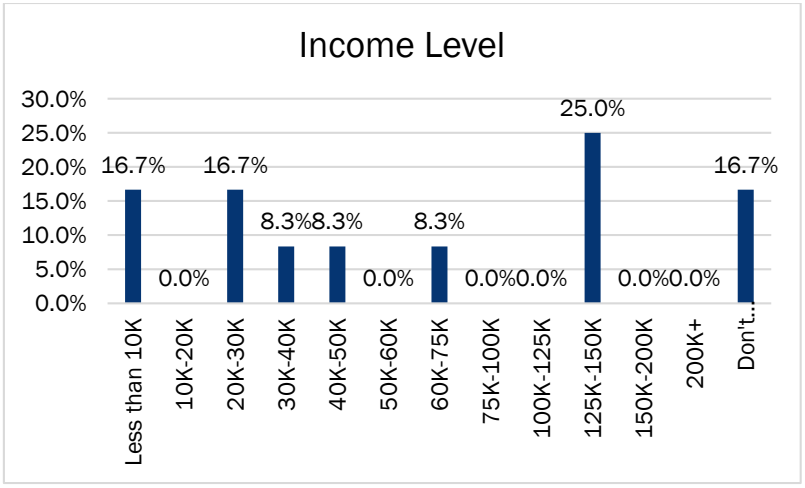
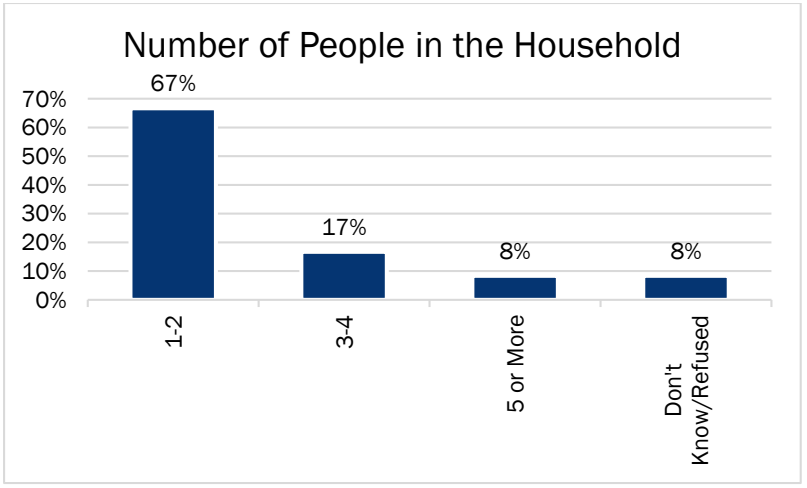


Figure 4. Demographic Characteristics for Customers with No Access









2.1.4. Residential Homeowner Data Collection Instrument

INTRODUCTION

Hello, my name is ____ and I'm calling on behalf of the California Public Utilities Commission. We are conducting a brief survey to understand how residential customers make energy saving improvements in their homes. May I please speak with <CONTACT NAME> about energy use in your home? **[If not available, either schedule call back or then thank and terminate]**

IF NEEDED: My questions should take about 15-20 minutes to complete. Your responses will be kept strictly confidential.

SCREENER

S1. Are you, or is anyone in your household, an employee of <UTIL> or the CPUC?
1. (Yes) **[THANK AND TERMINATE]**
2. (No)
8. (Don't Know) **[THANK AND TERMINATE]**
9. (Refused) **[THANK AND TERMINATE]**

S2. Do you own or rent the home at **<ADDRESS>**?
1. (Own)
2. (Own and rent out to someone else)
3. (Rent) **[THANK AND TERMINATE]**
8. (Don't know) **[THANK AND TERMINATE]**
9. (Refused) **[THANK AND TERMINATE]**

D1. In what year were you born? [NUMERIC OPEN END; 9998=DON'T KNOW, 9999=REFUSED]

For the remainder of this survey, please think about your home at **<ADDRESS>** and not any other properties that you might own.

AWARENESS OF REBATES/FINANCING

Establishes awareness of various financing and rebate options for comparison purposes, and to allow us to track over time. This includes statewide, REN/local, PACE and others.

AW2a. Did you know that <UTIL> will offer financing for making energy savings upgrades in your home in 2015?
1. (Yes)
2. (No)
8. (Don't Know)
9. (Refused)

AW2b. Are you aware of any local governments, cities, municipalities or non-profit organizations that offer financing for making energy savings upgrades in your home?
1. (Yes)
2. (No)
8. (Don't Know)
9. (Refused)

[ASK IF AW2b=1]

AW2c. Who offers this financing? [OPEN END]

AW4. Property Assessed Clean Energy or PACE is a municipal government loan for energy efficiency or renewable energy upgrades for homes. 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 PACE loans?
1. (Yes)
2. (No)
8. (Don't Know)
9. (Refused)

AW5 (a-e). Did you know that the <SEE UTIL & CITY, then IMPLEMENTER NAME> offers financing for making energy savings upgrades in your home?
1. (Yes)
2. (No)
8. (Don't Know)
9. (Refused)

UTIL	City	Implementer Name
IF UTIL = PG&E & CITY=	Alameda, Alpine, Amador, Butte, Calaveras, Colusa, Contra Costa, El Dorado, Fresno, Glenn, Humboldt, Kern, Kings, Lake, Madera, Marin, Mariposa, Mendocino, Merced, Monterey, Napa, Nevada, Placer, Plumas, Sacramento, San Benito, San Joaquin, San Mateo, San Francisco, San Luis Obispo, Santa Barbara, Santa Clara, Santa Cruz, Shasta, Sierra, Solano, Sonoma, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, and Yuba	**AW5a**. California Home Finance Authority Homebuyers Fund
IF UTIL = PG&E, SCE/SCG & CITY=	Buellton, Carpinteria, Goleta, Guadalupe, Lompoc, Santa Barbara, Santa Maria, Solvang, Arroyo Grande, Atascadero, Grover Beach, Morro Bay, Paso Robles, Pismo Beach, San Luis Obispo, Camarillo, Fillmore, Moorpark, Ojai, Oxnard, Port Hueneme, Santa Paula, Simi Valley, Thousand Oaks, Ventura	**AW5b**. Santa Barbara County
IF UTIL = PG&E & CITY=	Belvedere, Corte Madera, Fairfax, Larkspur, Mill Valley, Novato, Ross, San Anselmo, San Rafael, Sausalito, Tiburon, Richmond	**AW5c**. Marin Energy Authority
IF UTIL = PG&E & CITY=	Hayward	**AW5d**. City of Hayward and the Bay Area Regional Energy Network
IF UTIL = SCE/SCG or SDG&E		**AW5e**. Southern California Regional Energy Network

AW3a. Did you know that <UTIL> offers rebates and incentives for making energy saving upgrades in your home?
1. (Yes)
2. (No)
8. (Don't Know)
9. (Refused)

AW3b. Are you aware of any local governments, cities, municipalities or non-profit organizations that offer rebates and incentives for making energy saving upgrades in your home?
1. (Yes)
2. (No)

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

AW6. Have you ever participated in a Demand Response program? [IF NEEDED: Demand response programs are those where consumers reduce or shift their electricity usage during peak periods in response to time-based rates or other forms of incentives]
1. (Yes)
2. (No)
8. (Don't Know)
9. (Refused)

ENERGY SAVING IMPROVEMENTS MADE

We will use this section to understand who is already taking single or multiple actions that would qualify for loans through the Finance Programs (of energy efficient measures).

E1a. Have you made any major energy efficiency purchases or upgrades in your home in the past two years? These could include changes such as weatherization, installing or replacing cooling or heating system or other major household appliances.
1. (Yes)
2. (No)
8. (Don't Know)
9. (Refused)

[ASK IF E1a=1, ELSE SKIP TO E6A]

E1B_1. In the past two years, have you built a new home?
1. (Yes) [SKIP TO IF3]
2. (No)
8. (Don't Know)
9. (Refused)

E1b. I am going to read a list of major energy saving changes that some people take to save energy in their home. For each, please let me know if you made this change to your home in the past two years? [RECORD FOR EACH -- 1=Yes, 2=No, 98=Don't Know, 99=Refused]
02. Expanded or added square footage to your home
03. Weatherized your home - this could include envelope sealing, air sealing, insulation in any part of the home, and duct sealing
04. Installed or replaced renewable energy sources such as solar, wind, or geo thermal
05. Installed or replaced central or large cooling systems (such as central air conditioner, space coolers, evaporative coolers)
06. Installed or replaced heating systems (such as furnace, radiator, fireplace, heat pump)
07. Installed or replaced a water heater
08. Installed or replaced a refrigerator/freezer
09. Installed or replaced a washing machine, dryer, or dishwasher
10. Replaced windows
11. Have you made any other major energy saving changes in your home that cost at least $2,500?

[ASK IF E1b #11= "Yes"]

E1c. What changes did you make? [OPEN END]

QUESTIONS FOR THOSE WHO MADE A CHANGE OR MULTIPLE CHANGES
[ASK SECTION IF any "YES" to E1b, ELSE SKIP TO E6A]

[ASK IF MULTIPLE "YES" to E1b]
E1b1. You mentioned multiple changes. Did you make these changes at the same time?
1. (Yes)
2. (No)
8. (Don't Know)
9. (Refused)

[FOR PROGRAMMING: IF E1b=1, then "this project" or if E1b=2, then "these projects"]

E1c1. How likely are you to make any future energy savings improvements, that cost over $2,500, in your home within the next two years? Would you say you are not at all likely, somewhat likely, or very likely?
1=Not at all likely
2=Somewhat likely
3=Very likely
8-Don't Know
9=Refused

[ASK E2, E4, and E5 FOR each E1b]
[ASK E2 if E1B_#5, 6, 7, 8, 9= "Yes"]
E2. I'm interested in the efficiency level of your <READ IN E1b ABOVE>. Homeowners can choose to buy more efficient <READ IN E1b ABOVE> that use less energy but cost more. Did you pay more for a more efficient <READ IN E1b ABOVE> in order to save energy?
1. (Yes)
2. (No)
8. (Don't Know)
9. (Refused)

[ASK E4 for E1b 3, 4 ,5, 6, 7, 8, 9,10]
E4. What was the approximate cost for the <READ IN E1b ABOVE >? Was it…
1. Less than $2,500
2. $2,500 to less than $7,500
3. $7,500 to less than $20,000
4. or more than $20,000
8. (Don't Know)
9. (Refused)

[ASK E5 for E1b 3, 4, 5, 6, 7, 8, 9,10]
E5. For the <READ IN E1b ABOVE>, did you receive a rebate or incentive from <UTIL>, a local government entity or your contractor?
1. (Yes, from utility)
2. (Yes, from local government entity)
3. (Yes, from contractor)
4. (Other, specify)
5. (No)
8. (Don't Know)

9. (Refused)

QUESTIONS FOR THOSE WHO DID NOT MAKE ANY CHANGES
[ASK THIS SECTION IF ALL E1a or E1b="No"]

E6a. Did you consider making any major energy efficiency purchases or upgrades to your home?
1. (Yes)
2. (No)
8. (Don't Know)
9. (Refused)

[ASK IF E6a=1]
E6b. Was the upfront cost what prevented you from making any of these changes?
1. (Yes)
2. (No)
8. (Don't Know)
9. (Refused)

E1c2. How likely are you to make any future energy savings improvements that cost over $2,500, in your home within the next two years? Would you say you are not at all likely, somewhat likely, or very likely?
1=Not at all likely
2=Somewhat likely,
3=Very likely
8-Don't Know
9=Refused

FINANCING FOR THESE IMPROVEMENTS

This section will allow us to determine who is using financing prior to the statewide financing program, and specifically what percentage of the population has used financing. Also, if financing were available, what else would people do?

[ASK IF any E1b= "Yes"]
"I would like to ask you about financing for the energy saving changes we just talked about. Financing is where you borrow the money and repay it over time, it could include a credit card, getting financing through a contractor or retailer, refinancing your home, getting a personal loan from a bank or from a family member or friend.

F1. Did you use financing for the energy saving changes we just talked about?
1. (Yes)
2. (No) [SKIP TO IF2]
8. (Don't Know) [SKIP TO IF2]
9. (Refused) [SKIP TO IF2]

QUESTIONS FOR THOSE WHO MADE AN EE CHANGE AND USED FINANCING

F2. We are interested in learning about the financing used. Did you use….[READ THROUGH FULL LIST, RECORD 1=Yes, 2=No, 98=Don't Know, 99=Refused]
1. A Credit Card

2. Financing through your contractor
3. Financing through a retailer [FOR INTERVIEWER: for example, taking a store loan from SEARS to buy an appliance
4. An equity line of credit / Mortgage loan – loan from bank - secured [FOR INTERVIEWER: a loan using your home as collateral]
5. A Personal loan from Bank - unsecured [FOR INTERVIEWER: a loan without providing anything as collateral]
6. Property Assessed Clean Energy (PACE) Financing
7. Special energy efficiency financing program (please specify)
8. A loan through family member/friend
9. Any other type of financing (please specify)

[SKIP IF F2=6]
[ASK FOR EACH F2]

F4. Thinking about the total project cost, what percent of the total cost did you finance using **<INSERT RESPONSE FROM F2>**? [IF UNSURE, TRY TO GET THEM TO ESTIMATE] [RECORD NUMBER, 998=Don't Know, 999=Refused]

[SKIP IF F2=6 OR 8]
[ASK FOR EACH F2]

F5a. Can you please tell me the interest rate you were charged when using the **<INSERT RESPONSE FROM F2>**? [RECORD NUMBER, 998=Don't Know, 999=Refused]

[ASK IF F5a=98]

F5b. Was the interest rate above or below 6%?

1. (Above)
2. (Below)
3. (At 6%)
8. (Don't Know)
9. (Refused)

[SKIP IF F2=1, 6]
[ASK FOR EACH F2]

F6. How many months was the financing for **<INSERT RESPONSE FROM F2>**? [RECORD in MONTHS to have singular unit, 998= Don't Know, 999=Refused]

F7. We are interested in learning more about why you chose to use financing for your project. Please let me know whether you agree or disagree with the following statements. [ROTATE, RECORD 1-Agree, 2-Disagree, 8= Don't know, 9=Refused]

a. I did not have the entire amount available in cash at the time of making improvements
b. I prefer to make monthly payments rather than an upfront payment (Added option of 6-NA/Not applicable)
c. I liked the terms of financing, such as attractive/low interest rate, payment period (Added option of 6-NA/Not applicable)
d. It was the easiest/most convenient option
e. The financing allowed me to do a larger project or purchase high quality equipment

IMPORTANCE OF FINANCING

[ASK IF F1=1]

IF1. Without the financing that you received for the energy saving changes, how likely would you have been to complete the project? Would you say not at all likely, somewhat likely, or very likely to have completed the project?
1. Not at all likely
2. Somewhat likely
3. Very likely
8. (Don't Know)
9. (Refused)

[ASK IF any E1b="Yes" & F1=2, 98, 99]

IF2. If you had been able to receive a loan at 6%, would you have made more energy saving improvements?
1. (Yes)
2. (No)
8. (Don't Know)
9. (Refused)

IF3. Next we have a list of possible financing options. We are interested in the likelihood that you would make improvements over $2,500 to your home to save energy if different financing options or other incentives were available to you. Using a scale from 1 to 7, where 1 is "not at all likely" and 7 is "very likely, how likely is it that you would make energy savings improvements in your home if, the following were available to you to receive… [ROTATE, RECORD 1-7, 98=Don't Know, 99=Refused]
a. A low cost loan at a 6% interest rate
b. A rebate equal to 20% of the cost
c. A loan repayable through your property tax
d. A loan repayable on your utility bills
e. A low cost loan at a 6% interest rate and a rebate equal to 20% of the cost

[ASK IF ANY IF3a =1] + [ASK ONLY 500 SURVEYS]

IF4. Is there a particular reason why you would not use <INSERT FROM IF3> to make energy saving improvements to your home? [OPEN END]

BARRIERS TO EE ACTIONS

These questions will be used to understand barriers to EE actions, with the hope of seeing first cost come down in certain segments over time. Also helps to assess relative to other barriers.

BE1. I am going to read a list of statements that may or may not apply to your experience right now, but please answer them to the best of your ability. Please let me know how much you agree or disagree with each statement. [READ STATEMENT] Do you agree or disagree? Is that somewhat or strongly? [ROTATE, RECORD 1-Strongly Agree, 2-Somewhat agree, 3-Somewhat Disagree, 4-Strongly Disagree, 8=Don't Know, 9=Refused]
a. I can afford to pay for high efficiency upgrades such as a highly efficient A/C system
b. The upfront cost is why I might not buy high efficiency items
c. I don't have enough information about what I could do to save energy
d. Doing more to save energy would make my home uncomfortable
e. I'm too busy to worry about saving energy
f. It is hard to get everyone in my household to cooperate to save energy

[ASK IF BE1b=1,2]

BE2. You mentioned upfront costs preventing you from buying high efficient items. Would a low cost loan at 6% interest rate help overcome this?
1. (Yes)
2. (No)
8. (Don't Know)
9. (Refused)

PERCEIVED ACCESS TO BANK LOANS: BARRIERS TO LOANS

This section will be used to understand how accessible financing is, who is likely to use financing, and when combined with the demographic and segmentation questions, to whom is it accessible.

BF1. I am going to read a list of obstacles that some people face when trying to get loans for making energy savings improvements in their homes such as replacing windows or upgrading their central air conditioning. Please tell me if you agree or disagree with the following statements: [ROTATE, RECORD 1-Agree, 2-Disagree, 8=Don't Know, 9=Refused]
a. The process for obtaining a loan takes too long or requires a lot of paperwork
b. The interest rates are too high
d. I do not know where to get a loan from

BF4. In general, would you say that qualifying for a loan for making energy saving improvements that cost over $2,500 in your home would be not at all difficult, somewhat difficult, or very difficult?
1=Not at all Difficult
2=Somewhat Difficult
3=very difficult
8=Don't Know
9=Refused

[ASK IF BF4=2, 3] + [ASK ONLY 100 SURVEYS]
BF5. Why do you think it would difficult to qualify for this loan? [MULTIPLE RESPONSE, OPEN END] [NOTE TO INTERVIEWER – Probe for other possible reasons -- have an initial pre code and then type out the entire answer as well]
01. (Low credit score / FICO score)
02. (No collateral)
03. (Not enough earnings)
04. (Earning not steady)
05. (No credit history)
00. (Other, please specify)
98. (Don't Know)
99. (Refused

BF6. Please tell me which of these statements best applies to you when it comes to taking out a loan to fund a home project.
1. I would never take out a loan under any circumstances to fund a home project
2. I would only take out a loan in an emergency to fund a home project
3. I might take out a loan if interest rates and terms were favorable

OTHER MARKETING SEGMENTS

[ASK IF F2_1≠1]
OM1. Do you have a credit card?

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

[ASK IF OM1=1 or F2_1=1]

OM2. How do you typically pay your credit card balance? Do you…

1. Pay off the full balance each month
2. Pay the minimum balance every month, or
3. Pay whatever you can each month

OM4. Have you ever applied and not been approved to receive financing, this could include a credit card, mortgage, car loan, home improvement loan etc.?

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

[ASK IF OM4=1] + [ASK ONLY 500 SURVEYS]

OM5. Why didn't you receive the financing? [MULTIPLE RESPONSE, OPEN END] [INTERVIEWER – Probe for other possible reasons -- have an initial pre code and then type out the entire answer as well]

01. (Did not have collateral)
02. (Low credit score / FICO score)
03. (Not enough earnings)
04. (Earning not steady)
05. (No credit history)
06. (General response – did not qualify – probe for more specific response)
00. (Other, please specify)
98. (Don't Know)
99. (Refused)

HOUSING CHARACTERISTICS

H1. Which of the following best describes your home?

01. Detached single family/Manufactured home
02. Townhouse
03. Mobile home/Trailer
04. Duplex/2-family
05. Apartment/ Condominium/Multi-family (3 or more units)
00. Other, specify _____
98. (Don't Know)
99. (Refused)

H2. Including yourself, how many people currently live in your home year-round? [NUMERIC OPEN END; 98=Don't Know, 99=Refused]

DEMOGRAPHIC

D2. What is the highest level of education or year of school that you have completed?

01. (No schooling)
02. (Less than high school)

03. (Some high school)
04. (High school graduate or equivalent (e.g., GED))
05. (Some college, no degree)
06. (College degree)
07. (Graduate or professional degree)
00. (Other, Specify)
98. (Don't Know)
99. (Refused)

D3b. Which of the following best represents your annual household income from all sources in 2014, before taxes? Please stop me when I get to your range.

01. Less than $10,000
02. Between $10,000 and $20,000
03. Between $20,000 and $30,000
04. Between $30,000 and $40,000
05. Between $40,000 and $50,000
06. Between $50,000 and $60,000
07. Between $60,000 and $75,000
08. Between $75,000 and $100,000
09. Between $100,000 and $125,000
10. Between $125,000 and $150,000
11. Between $150,000 and $200,000
12. $200,000 or more
98. (Don't know)
99. (Refused)

D3a. Is your household income more than or less than <INPUT FROM TABLE BELOW BASED ON H2>?

Household Size	Energy Savings Assistance Programs
1	$31,460
2	$31,460
3	$39,580
4	$47,700
5	$55,820
6	$63,940
7	$72,060
8	$80,180
9	$88,300
10	$96,420
10+	SKIP

D4. Respondent Gender? (Observation – Do not ask)

01. (Male)
02. (Female)

MARKETING SEGMENTS

These questions feed into the algorithm that allow us to segment into California's 5 existing marketing segments being used by CSE. They cannot be changed (since they must be kept consistent with the algorithm), but they may be dropped if the survey length is an issue.

[ASK ONLY 500 SURVEYS]
I have just a few more questions for you.

G1. Has your household ever taken the following actions? [ROTATE, RECORD 1=Yes, 2=No, 98=Don't Know, 99=Refused]
a. Installed programmable thermostats in your home?
b. Installed a vent in your attic area to keep the attic cooler?
c. Installed ceiling fans?
d. Installed motion detectors for your lights? [FOR INTERVIEWER: This includes outside lighting.]

G2. A carbon footprint is a measure of the energy you use throughout your life, either directly or indirectly. This includes but is not limited to the energy consumption from your home, your transportation, your diet, and your purchases. Have you heard of a carbon footprint before today?
1. (Yes)
2. (No)
8. (Don't Know)
9. (Refused)

G3. On a scale of 1 to 7 where 1 is "strongly disagree" and 7 is "strongly agree," please tell me how much you agree or disagree with the following statements: [ROTATE, RECORD 1-7, 98=Don't Know, 99=Refused]
a. I do NOT feel responsible for conserving energy because my personal contribution is very small. (IF NEEDED: How much do you agree or disagree with this statement?)
b. I compare prices of at least a few brands before I choose one. (IF NEEDED: How much do you agree or disagree with this statement?)

G4. I am going to read you a list of 6 reasons why people might change their daily actions to save energy. Please tell me which of these would motivate you the MOST? (IF DON'T KNOW please probe "if you had to choose from the following reasons which one would motivate you the most?")
1. Saving money
2. Health
3. Protecting the environment
4. For the benefit of future generations
5. Reducing our dependence on foreign oil
6. Helping California lead the way on saving energy
8. (Don't know)
9. (Refused)

This completes the survey. Thank you for your time

2.2. Residential General Population Credit Score Analysis

2.2.1. Methodology

We drew a sample of customers from the 2013-2014 program claimed savings database (Energy Upgrade California Home Upgrade (Home Upgrade) participants) and the 2013-2014 Consumer Information System (IOU ratepayers). Specifically, we analyzed data for 5,846 customers who participated in the Home Upgrade program in 2014 (across all IOUs), and a representative sample from the CIS data during the same timeframe (n=5,993). We purchased the "Scorex Plus" score from Experian for the aforementioned samples based on zip+4 data[15]. Notably, the Scorex Plus data is a proxy for FICO score and is at the zip+4 level; thus, while it cannot be compared on a one-to-one basis, it can be compared across territories and customer segments to get an overall sense of customer credit.

Note that all of the contact points in the CIS system are IOU ratepayers. This sample excludes adults who do not pay their own electric bills (some of whom may be individuals with poor credit). Moreover, where more than one adult is in the home, it represents the household as a whole (not each individual).

2.2.2. Detailed Credit Score Analysis Results

Prior to conducting the residential baseline survey with IOU ratepayers, the Evaluation Team purchased and examined a sample of credit score proxy data from Experian. The objective of this early analysis was:

- To understand whether purchasing data from Experian would be useful to our residential baseline study analysis, and specifically, to understand which data we should purchase
- To understand the distribution of credit scores in California since only national data was available prior to purchase; as well as to understand the percentage of IOU ratepayers who could meet the Pilot (and local finance program) credit requirements

In addition, we also used this early analysis for the following:

- To understand expected differences in credit scores between Home Upgrade participants[16] and the population of IOU ratepayers that we will be interviewing
- To determine if we should expect differences in credit scores between IOU territories

Credit Categories and Distribution of Scores

The minimum FICO score requirement for the Statewide Residential Energy Efficiency Loan (REEL) Assistance program is 580 and the minimum FICO score requirements for most local finance programs is 640. Using the Scorex Plus scores as a proxy for FICO score, most IOU ratepayers will qualify for the Pilot:

- About 98% of IOU ratepayers qualify for the REEL Assistance program (score of 580 or higher)

15 The data is appended at the zip+4 level and is thus an approximate score for the block rather than for each individual customer. Scorex Plus score is a proxy credit rating score estimated by Experian - for more information on this please refer to <https://www.experian.com/products/scorex_plus.html>.

16 Most local finance programs are linked with the Home Upgrade rebate program; customers have to go through the Home Upgrade program to qualify for financing.

- About 90% of IOU ratepayers would meet credit requirements for local programs (score of 640 or higher)

As such, based on credit scores alone, we would expect the lower FICO score requirement to allow an additional 8% of the population to use financing if they choose to do so[17].

Table 18. Scorex Plus Distribution

Scorex Plus Score	IOU Ratepayers Percentage of Population	Delinquency Rate [a]	Grade	Description [b]	Qualify for Finance Programs
300-499	**0%**	~87%	Terrible	Considered an "at-risk" buyer, and while it's not impossible to get credit, interest rates can exceed 10% and usually require a co-signer	No
500-579	**2%**	~61%	Poor		No
580-639	**9%**	~41%	Not Good	Typically lenders use the 620 score to determine a drop in the interest rate levels.	Yes - cut off for the REEL Assistance program (score of 580)
640-699	**23%**	~20%	Mediocre	Lenders are more willing to give loans at reasonable interest rates. California's average FICO score is 677.	Yes - cut off score for most local programs is between 640-660
700-749	**30%**	~5%	Good	Considered to have a good credit standing and are above average in FICO score thereby qualifying for good interest rates.	Yes
750-850	**36%**	~1%	Excellent	Considered to have excellent credit standing and qualify for the best interest rates. California's average FICO score amongst mortgage applicants is 755.	Yes

[a] Based on 2013 population percentages. <http://financeandcareer.com/understanding-the-fico-credit-score-range/>
[b] Based on 2013 data. <www.complexsearch.com>

IOU Ratepayers Compared to Home Upgrade Participants

We also compared the distribution of credit scores for IOU ratepayers compared to the distribution among Home Upgrade participants (see Table 19).

Table 19. Scorex Plus Score Distribution by Customer Type

Scorex Plus Score	Grade	Home Upgrade Participants	IOU Ratepayers from CIS
300-499	Terrible	0%	0%
500-579	Poor	1%	**2%** [a]
580-639	Not Good	4%	**9%** [a]
640-699	Mediocre	16%	**23%** [a]
700-749	Good	31%	30%
750-850	Excellent	**49%** [a]	36%

17 Note that other criteria may make customer not eligible for program participation. Our analysis only looked at credit scores.

Scorex Plus Score	Grade	Home Upgrade Participants	IOU Ratepayers from CIS
Mean		**740** [a]	721
Median		**748** [a]	728

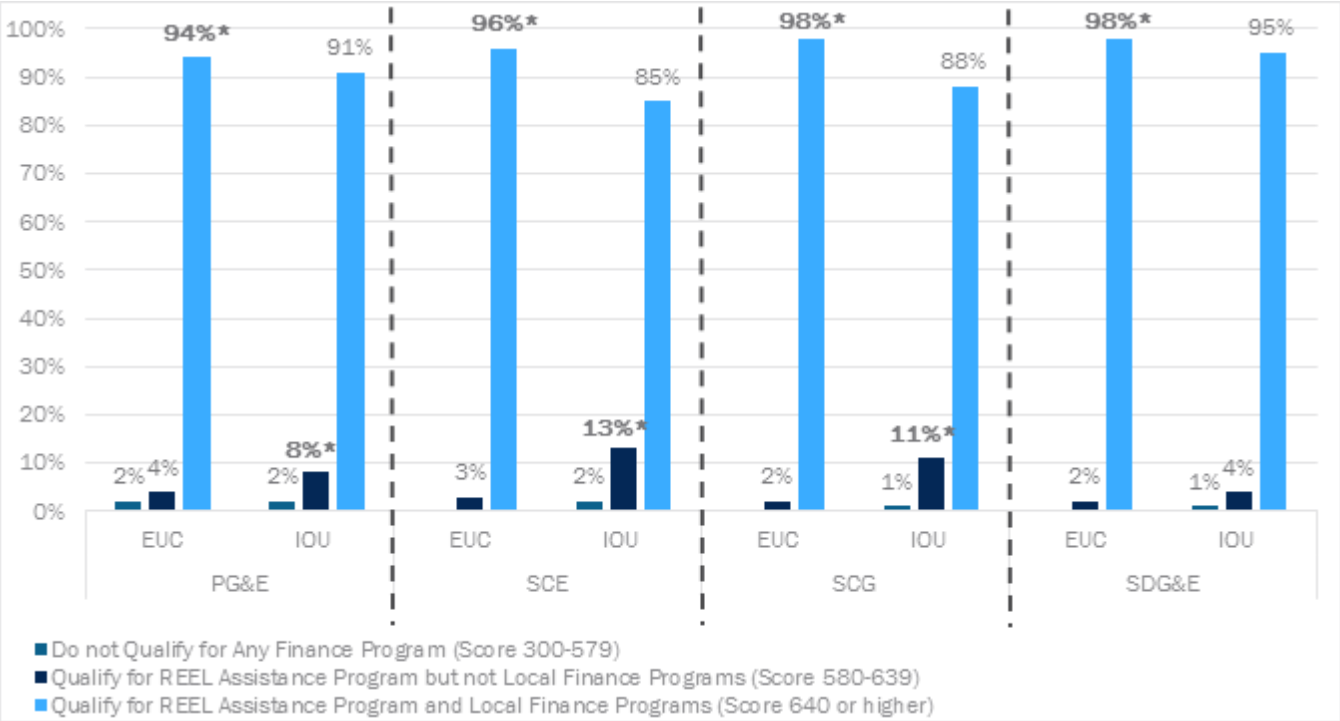
[a] Significantly different at the 90% confidence level.

The Scorex Plus distribution shows that the mean (740) and median (748) scores for Home Upgrade participants are higher than overall IOU ratepayers (mean of 721 and median of 728). Additionally, we also see that about 5% of the Home Upgrade participants and about 11% of IOU ratepayers have bad credit (less than 640). This population would not qualify for the local finance programs. The higher mean and median among Home Upgrade participants is as expected as those with higher credit scores may be more inclined to participate in whole house upgrade type programs.

Note that we have not examined the difference in credit scores between Home Upgrade participants who used financing and those who did not use financing, but we plan to examine any differences between these two categories when we purchase the next batch of Experian data.

The Evaluation Team also looked at the distribution by IOU territory (see Figure 5). There are differences between the Home Upgrade participants and IOU ratepayers across each of the IOU territories; Home Upgrade participants have higher credit scores compared with IOU ratepayers and have a significantly higher number of customers who would qualify for both the statewide and the local finance programs.

Figure 5. Scorex Plus Score Distribution by Customer Type (within IOU territories)



Note: Significantly different at the 90% confidence level between Home Upgrade participants and IOU ratepayers.

We also looked at the distribution of the various scores within the four IOU territories (see Table 20). There are differences between the IOU territories: PG&E has proportionally *lower* number of Home Upgrade participants that would qualify for both the statewide and local finance programs compared to SCE, SCG and SDG&E territories. However, when looking at the general IOU ratepayers, PG&E has proportionally *higher* number of IOU ratepayers that would qualify for both the statewide and local finance programs.

Table 20. Scorex Plus Score Distribution by IOU (within each Customer Type)

Qualification for Finance Program	Home Upgrade Participants				IOU Ratepayers			
	PG&E	SCE	SCG	SDG&E	PG&E	SCE	SCG	SDG&E
Do not Qualify for Any Finance Program (Score 300-579)	2%	0%	0%	0%	2%	2%	1%	1%
Qualify for REEL Assistance Program but not Local Finance Programs (Score 580-639)	4%	3%	2%	2%	8%	13%	11%	4%
Qualify for REEL Assistance Program and Local Finance Programs (Score 640 or higher)	94%	**96%** [a]	**98%** [a]	**98%** [a]	**91%** [a]	85%	88%	95%

[a] Significantly different at the 90% confidence level between Home Upgrade and IOU ratepayers.

Summary of Findings

Ultimately, we found that:

1. The Scorex Plus data from Experian is both usable and valuable for our residential baseline study analysis. As a result, we purchased this data for all respondents to the baseline survey after we complete fielding.

2. Most IOU ratepayers (98%) could meet the credit requirements of the REEL Assistance program, and thus we expect that 98% of *survey respondents* will meet the REEL Assistance program credit requirements. We can thus flag customers that would not qualify for a finance program.
3. Based on our review of the data, we anticipated examining the following sub-groups in our telephone survey:
    a. **Over 700**: those perceived to have easy access to credit and qualify for REEL Assistance program and local finance programs (66% of population),
    b. **640-699**: those with borderline credit scores and qualify for REEL Assistance program and local finance programs (23% of population), and
    c. **580-639**: those who most likely have limited access to credit but qualify for the REEL Assistance program (9% of population).
4. This analysis also shows that there are significant differences in the credit categories when comparing Home Upgrade participants to the general IOU ratepayer population. On average, Home Upgrade participants have higher scores.
5. We also found some differences in the distribution of credit scores between IOU territories.

2.3. Additional Data on Market Penetration of Energy Efficient Equipment

In Chapter 7 of Volume One, we present percentages of various equipment categories that were energy efficient in 2012. While Volume One summarizes these values by equipment category, the table below provides further detail by specific equipment type. We also present our notes on Energy Star® requirements in 2012 and specific sources for each data point.

Table 21: Market Penetration of Energy Efficient Equipment (2012)

Category	Equipment Type	Approximate Energy Star® Criteria (As of 2012)*	Number of Units in Study		% Efficient	Source for Efficiency Criteria	CLASS Report Table
			n	Def.			
Lighting	All Lighting	CFL or LED Type	1,987	Sockets	30.3%	n/a - limited efficiency characteristics in CLASS report, selected by efficient lighting type	Table 43
Primary Refrigerator & Freezers	Refrigerator - Top Freezer	UEC>=350 kWh/year**	566	Units	98.7%	Excel data available at ENERGY STAR® Website - Residential Refrigerators	Table 87 and Table 88
	Refrigerator - Side-By-Side	UEC>=750 kWh/year**	761		22.6%		
	Refrigerator - Bottom Freezer	UEC>=550 kWh/year**	266		32.8%		
	Weighted Total Refrigerators	**n/a**	**1,593**		**51.3%**		
	Self-Standing Freezers - Upright	AEC>=425 kWh/year**	153	Units	94.2%		Table 96

Category	Equipment Type	Approximate Energy Star® Criteria (As of 2012)*	Number of Units in Study		% Efficient	Source for Efficiency Criteria	CLASS Report Table
			n	Def.			
	Self-Standing Freezers - Chest	AEC>=225 kWh/year**	78		94.1%	Excel Data available at ENERGY STAR® Website - Residential Freezers	
	Weighted Total Self-Standing Freezers	n/a	**231**		**94.2%**		
Gas Heating Systems	Central Systems	AFUE ≥ 90%	976	Units	9.3%	ENERGY STAR® Website - Furnaces Key Product Criteria	Table 105
	Space Systems		91		0.3%		
	Weighted Total Heating Systems		**1,067**		**8.5%**		
Cooling Systems	Central Systems	SEER ≥ 14	830	Units	7.7%	ENERGY STAR® requirements as of 2012	Table 113
	Space Systems	EER ≥ 11**	97		0.7%		
	Weighted Total Cooling Systems	n/a	**927**		**7.0%**		
Gas Water Heaters	Natural Gas	EF ≥ 0.64**	898	Units	3.6%	ENERGY STAR® Website - Water Heaters Key Product Criteria	Table 123
	Propane		34		5.3%		
	Weighted Total Gas Water Heaters		**932**		**3.7%**		
Clothes Washers	All Clothes Washers	MEF≥1.8	563	Units	48.7%	Table 128 in CLASS Report (see source at bottom of table)	Tables 128 and 129
Dishwashers	All Dishwashers	EF ≥ 0.58**	764	Units	68.4%	American Council for an Energy-Efficient Economy (ACEEE) 2008 Summer Study on Energy Efficiency in Buildings (FSEC-CR-1772-08)	Table 134
Windows	Windows	Low E Glazing	1,987	Homes	29.3%	N/a - limited efficiency characteristics in CLASS report, selected by efficient window type	Table 148
Attic Insulation	Attic Insulation	R-Value ≥ R-30	1,037	Homes	21.1%	2008 Residential Compliance Manual Title 24	Table 149

Category	Equipment Type	Approximate Energy Star® Criteria (As of 2012)*	Number of Units in Study		% Efficient	Source for Efficiency Criteria	CLASS Report Table
			n	Def.			
Primary source: California Lighting and Appliance Saturation Study (CLASS 2012). Kema, Inc. November 24, 2014. Prepared for the CPUC. CALMAC ID: CPU0095.01. **Notes:** *We note that EnergyStar® standards have changed since 2012. **In many cases, the categories reported in the CLASS report did not match with the exact cut-offs we determined for ENERGY STAR® in 2012. In these cases, we used the closest cutoff in the CLASS report tables. **Efficiency Terms:** AEC - Annual Energy Consumption AFUE - Annual Fuel Utilization Efficiency CFL - Compact Fluorescent Light EER - Energy Efficiency Ratio EF - Energy Factor LED - Light Emitting Diode MEF - Modified Energy Factor SEER - Seasonal Energy Efficiency Ratio UEC - Unit Energy Consumption							

3. Supply-Side

3.1. Energy Efficiency Financing Product Market Characterization

Introduction

This chapter accompanies the list of EE Financing Product Available in the California Market, prepared under the secondary data collection task of the supply-side baseline analysis (ED_O_FIN3: Baseline Research). The list describes only products that are specifically designed to finance energy efficiency and renewable energy upgrades that are not part of current CPUC programs or the planned statewide pilots that are being evaluated.

EE financing products are identified as meeting one or more of the following criteria:

1. Require the inclusion of specified EE equipment within the financed work or project
2. Require the achievement of a specific energy savings threshold to be eligible for the financing offer
3. Include energy savings calculations in the financing product underwriting criteria

Key product features were then compiled for each of the EE financing product that were identified including:

1. Type of financing offered
2. Product delivery structure (sources of capital, administration and delivery agents)
3. Target measures
4. Target market

EE Financing Market Drivers

Overall there are three key drivers for EE financing products in the California market:

1) Mission-driven lenders
   A range of EE financing products are offered by lenders who have specific energy efficiency goals within their missions or mandates. These mission-driven lenders include Credit Unions and community development financial institutions (CDFIs) who include social and environmental benefits among their corporate goals, municipalities and counties who have established greenhouse gas (GHG) reduction targets, and even some private financial institutions (FIs) with well-established CSR agendas.

2) Lenders benefiting from Publicly funded programs
   Some financing institutions seek to leverage capital available through publicly funded EE financing programs offered through the Housing and Urban Development (HUD), The American Recovery and Reinvestment Act of 2009 (ARRA) and Federal Housing Authority (FHA). By combining the public monies with their own capital, they can offer highly competitive rates (interest rate buy downs), reduce their default exposure (loan loss reserves), or increase their returns (FI incentives).

3) Lenders who benefit from an advantageous risk/return profile
   Highly secure repayment mechanisms, such as those employed by PACE and On-bill Repayment (OBR), shelter lenders from risk. Moreover, equipment vendors and lease providers have an in depth understanding of their products and the associated performance risk. In each case lenders may enter the EE financing market to benefit from a low or well understood risk while charging market rates for capital, thus generating elevated returns on their investments.

Some market actors may combine more than one of the above drivers. For instance, a municipal PACE program may be driven by the City's GHG targets, benefit from ARRA funds, and offer protection against defaults through the PACE program priority lien.

Types of Financing

The EE financing products break down into a number of standard categories, many of which are comparable to conventional financing products. The categories identified include:

1) Conventional loan products
    i. Unsecured Loan
    ii. Collateralized loan
    iii. Green Mortgage
    iv. Home Equity Line of Credit
2) PACE
3) Leases
    i. Capital lease
    ii. Operating lease
4) ESA/MESA
5) Mezzanine Financing

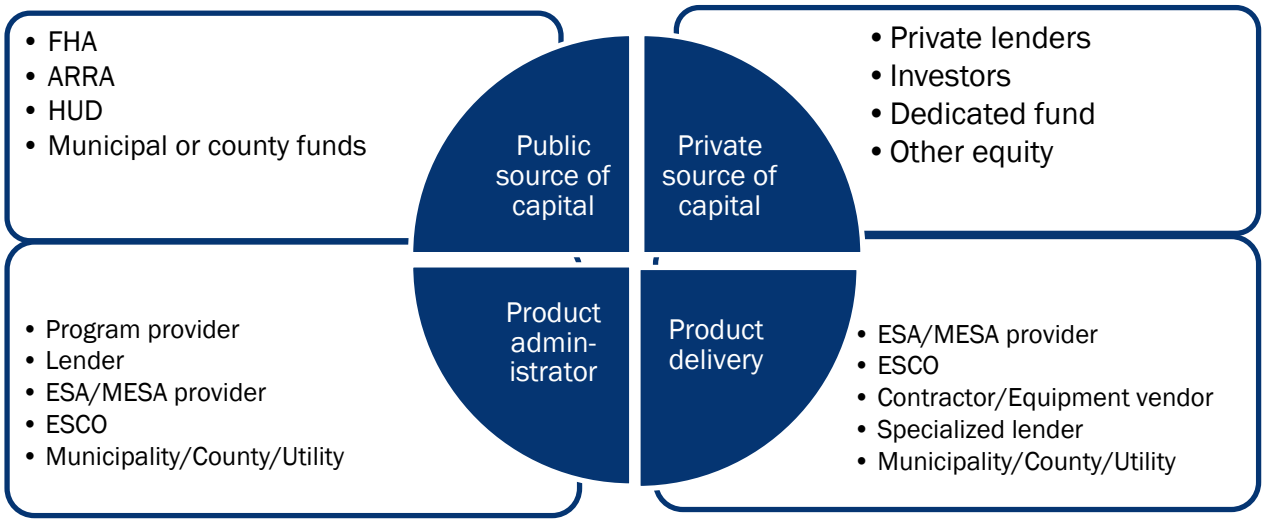
Residential customers are generally limited to the conventional lending products, PACE financing and leasing for solar systems in particular, whereas non-residential customers have access to more complex options such as diversified leasing options and energy services agreements (ESA).

Financing Product Structure

There is a large number of players involved in the financing market, including state and federal entities, counties and municipalities, utilities, private lenders and investors, PACE aggregators, contractors, ESCOs and interest groups.

Four key roles were identified in the delivery of financing products including: private capital sources, public capital sources, program/product administrators and delivery agents (see Figure 6). Some products may have multiple actors fulfilling these roles, while others may be offered through a single financer that plays multiple roles. Not all products rely on a public source of capital, but all involve some involvement of private capital.

Figure 6. Key Roles in the Delivery of Financing Products



It was found that most banks and private lenders rely on the availability of a public financing program and source of capital that they leverage to create their products. Given the limited number of publicly funded financing programs operating in California, it may be possible to use the list to determine the overall size of publicly funded EE financing products market (annual outlays or overall investments).

However, specialized lenders offer too wide and varied a number of financing products to be fully captured by the listing. In particular, it was noted that many Credit Unions and CDFIs offer their own EE financing products that are not tied to any public programs and may have somewhat arbitrary eligibility criteria. For these products the list provides a range of examples, but it is not considered a comprehensive listing of all products.

Target Measures

The financing products were classified according to the types of eligible upgrades:

1) Solar PV or renewable energy
2) Energy efficiency
3) Water efficiency

The choice of EE measures largely depends on the sources of funding and the financing product's key drivers. For example, vendor-type financing and leasing will focus on the financing of a certain type of equipment, municipal programs might focus on GHG-reducing measures, lender-driven programs may only consider cost-effective packages, and federally funded financing products will prescribe certain types of upgrades.

Target Market

The target market in the appended document is specified both geographically (by county) and by sector (residential, multifamily, low income, commercial and institutional).

The tables below summarize the energy efficiency financing products (EEFPs) found through this secondary research effort.

Supply-Side

EEFP #		EEFP #1	EEFP #2	EEFP #3	EEFP #4	EEFP #5	EEFP #6
Type of Financing		Capital lease	Collateralized loan	Collateralized loan	Energy Savings Agreement/PPA	Energy Savings Agreement/PPA	Green Mortgage
Financing Product		BriteLease	FHA PowerSaver II Home Energy Retrofit	Home Upgrade, Carbon Downgrade Community Revolving Loan Fund	BluePath	Sun Run PPA	FHA Energy Efficiency Mortgage (EEM)
Private source of capital		Suntech (world's largest panel manufacturer)	AFC, Neighbors Financial Corp, Paramount Equity, Sun West Mortgage, W.J. Bradley Mortgage Capital.	City of Chula Vista	Undisclosed investors	Undisclosed	
Public source of capital		N/A	HUD				FHA
Product Administrator		BriteLease			BluePath	SunRun	
Product delivery agent		Solar Universe	Approved Lenders		BluePath	SunRun	Envoy Mortgage LTD, Premier Mortgage Resources, Real Estate Mortgage Network
Contractors and EE Service Providers		Certified Installer Network		Eligible contractors only	Collaborating ESCOs and Contractors	SunRun	
EE/RE Criteria		Solar Equipment	Eligible Equipment List	Energy or demand cost savings	Not disclosed	Solar Equipment	Energy savings threshold
ELIGIBLE PROJECTS	Solar PV/RE	x	x	x	x		x
	Energy Efficiency		x	x		x	x
	Water Efficiency						
ELIGIBLE SECTOR	Residential	x	x			x	x
	Multi-Family		x			x	
	Low Income						
	Renters						
	Commercial			x			x
	Municipal Institutional			x			
Counties		All	All CA	Chula Vista		All	All

EEFP #		EEFP #7	EEFP #8	EEFP #9	EEFP #10	EEFP #11	EEFP #12
Type of Financing		Green Mortgage	Home equity line of credit	Mezzanine Financing	Mezzanine Financing	Mezzanine Financing	Mezzanine Financing
Financing Product		FHA Power Saver III Home Rehabilitation Loans (203k)	Union Bank Green Home Improvement Loan	ABX 114 CAEATFA Loan Loss reserve Clean Energy Upgrade Financing Program	Clean Power Finance	Viewtech Financial Services Energy Efficiency Home Loan	Vireo Energy Efficiency - Energy Service Project Finance
Private source of capital		AFC, Neighbors Financial Corp, Paramount Equity, Sun West Mortgage, W.J. Bradley Mortgage Capital.	Union Bank	N/A	Private lenders and investors	Viewtech Financial Services	
Public source of capital		FHA	N/A	CAEATFA			
Product Administrator			N/A	CAEATFA			
Product delivery agent		Neighbors Financial Corporation, Paramount Equity, Sun West Mortgage Company, W.J. Bradley Mortgage Capital Company	Union Bank	Matadors Community Credit Union, SAFE Credit Union, SMUD, Provident Credit Union	Independent contractors and vendors, currently Conergy, SolarWorld and Soligent		
Contractors and EE Service Providers				BPI Certified			
EE/RE Criteria		Eligible Equipment List		10% Energy Saving Threshold	Not disclosed		
ELIGIBLE PROJECTS	Solar PV/RE	x	x	x		x	x
	Energy Efficiency	x	x	x	x	x	
	Water Efficiency						
ELIGIBLE SECTOR	Residential	x	x				x
	Multi-Family	x					
	Low Income						
	Renters						
	Commercial						x
	Municipal Institutional						
Counties		All	All	All	All		

EEFP #		EEFP #13	EEFP #14	EEFP #15	EEFP #16	EEFP #17	EEFP #18
Type of Financing		Operating lease	Operating lease	Operating lease	Operating lease	Operating lease	PACE
Financing Product		CentroSolar Lease	Solar City Lease	Sun Edison Lease	Sun Power Lease	Sungevity Lease	CaliforniaFIRST
Private source of capital		Lightstream (division of SunTrust Bank)	Undisclosed investors	Undisclosed	Undisclosed	Undisclosed	CleanFund, Wells Fargo, other banks
Public source of capital		N/A					ARRA State Energy Program, CSCDA, County
Product Administrator		Centrosolar	Solar City	Sun Edison	Sun Power	Sungevity	Renewable Funding (Oakland based PACE Administrator)
Product delivery agent		Centrosolar Installers	Solar City	Sun Edison	Sun Power	Sungevity	California First
Contractors and EE Service Providers		Centrosolar network		Sun Edison	Sun Power	Sungevity	Can choose project team.
EE/RE Criteria		Solar Equipment	Solar Equipment	Solar Equipment	Solar Equipment	Solar Equipment	Eligible Equipment List
ELIGIBLE PROJECTS	Solar PV/RE	x	x	x	x	x	x
	Energy Efficiency					x	
	Water Efficiency					x	
ELIGIBLE SECTOR	Residential	x				x	x
	Multi-Family						
	Low Income						
	Renters						
	Commercial	x				x	x
	Municipal Institutional						x
Counties		All	All	Sun Edison Territory			Yolo, Napa, Solano, Marin, Sacramento, Alameda, Santa Clara, San Mateo, Santa Cruz, Fresno, San Benito, Monterrey, San Luis Obispo, Tulare, Kern, Ventura, San Diego

EEFP #		EEFP #19	EEFP #20	EEFP #21	EEFP #22	EEFP #23
Type of Financing		PACE	PACE	PACE	PACE	PACE
Financing Product		Clean Energy Sacramento	Figtree PACE	HERO WRCOG Pace	mPower Placer	Palm Desert Clean Energy CV Upgrade
Private source of capital		Ygrene Energy Fund	Figtree	Renovate America (residential), Samas Capital, Structured Finance Associates		Ygrene Energy Fund
Public source of capital				WRCOG	Placer County Treasury	Coachella Valley Association of Governments
Product Administrator					mPower	Ygrene Energy Fund
Product delivery agent		Ygrene Energy Fund	Figtree	Riverside County	mPower	City of Palm Desert
Contractors and EE Service Providers		Participating only		Registered contractors only	Any contractor	Participating only
EE/RE Criteria		Eligible Equipment List	Eligible Equipment List	Eligible Equipment List	Loading order for commercial; list for residential	Eligible Equipment List
ELIGIBLE PROJECTS	Solar PV/RE	x	x		x	
	Energy Efficiency	x	x		x	
	Water Efficiency	x	x	x	x	x
ELIGIBLE SECTOR	Residential	x	x	x	x	x
	Multi-Family	x				
	Low Income					
	Renters					
	Commercial	x	x	x	x	x
	Municipal Institutional					
Counties		Sacramento	Lake, Butte, Alameda, San Diego counties; Cities in Sacramento, Sutter, San Joaquin, Stanislaus, Santa Clara, Contra Costa, Solano, Fresno, Tulare, Kern, Ventura, LA, Orange, San Bernardino, Riverside, Imperial	Sacramento, San Diego, Fresno, Imperial, Riverside, Stanislaus, Los Angeles, Orange, San Bernardino, Solano, Kern, Kings, Los Angeles, Merced, Mono, Monterey, Napa, San Joaquin, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Tulare	Placer	Palm Desert

EEFP #		EEFP #24	EEFP #25	EEFP #26	EEFP #27	EEFP #28	EEFP #29
Type of Financing		PACE	Self-Funded	Unsecured Loan	Unsecured Loan	Unsecured Loan	Unsecured Loan
Financing Product		Sonoma County PACE	SoCal REC Energy Revolving Fund	AFC First Energy Loan	Bay Area Multifamily Fund (Home Upgrade)	CHF Residential Energy Retrofit Program	EECU Energy Efficiency Loan
Private source of capital		Banks for commercial PACE	Counties and local governments	Fannie Mae/AFC First	N/A	Five Star Bank	Educational Employees Credit Union
Public source of capital		ARRA SEP Funding		N/A	Home Upgrade, Low Income Investment Fund	ARRA, PG&E	
Product Administrator		Sonoma County		AFC First	Low Income Investment Fund (LIIF), San Francisco Mayor's Office of Housing,	CRHMFA Homebuyers Fund	Educational Employees Credit Union
Product delivery agent		Sonoma County		AFC First	Enterprise Community Partners, LIIF		Educational Employees Credit Union
Contractors and EE Service Providers		Listed contractors only		Only AFC Approved Contractors	Program approves	Registered contractors only	Any contractor
EE/RE Criteria		Eligible Equipment List	Eligible Equipment List	Eligible Equipment List	Must follow audit recommendations	10% Energy Saving Threshold	Eligible Equipment List
ELIGIBLE PROJECTS	Solar PV/RE	x	x		x	x	x
	Energy Efficiency	x	x	x	x	x	x
	Water Efficiency	x					x
ELIGIBLE SECTOR	Residential				x	x	x
	Multi-Family			x			
	Low Income						
	Renters						
	Commercial						x
	Municipal Institutional						
Counties		Sonoma	Southern California	All	Bay Area counties	44 counties	

EEFP #		EEFP #30	EEFP #31	EEFP #32	EEFP #33	EEFP #34	EEFP #35
Type of Financing		Unsecured Loan	Unsecured Loan	Unsecured Loan	Unsecured Loan	Unsecured Loan	Unsecured Loan
Financing Product		Energy Efficiency Installment Sale Contracts, PPAs and Loans	FHA PowerSaver I Home Energy Upgrade	greenstreet HELOC and Consumer Loan	Matador Credit Union Cool Comfort Financing	METRO's Home Energy Efficient Loan (Home Upgrade)	METRO's Solar Loan Program
Private source of capital		Kleiner, Perkins, Caufield & Byers Undisclosed investors	AFC, Neighbors Financial Corp, Paramount Equity, Sun West Mortgage, W.J. Bradley Mortgage Capital.	Umpqua Bank	Matador Community Credit Union	Matador Community Credit Union, San Diego Metropolitan Credit Union	Matador Community Credit Union, San Diego Metropolitan Credit Union
Public source of capital			HUD			Home Upgrade	
Product Administrator				Umpqua Bank			
Product delivery agent		Kilowatt	Approved Lenders	Umpqua Bank	Matador credit union	Contractor or Matador CCU	
Contractors and EE Service Providers		Listed contractors only		Umpqua Bank	Participating contractor		
EE/RE Criteria		Eligible Equipment List	Eligible Equipment List		Eligible Equipment List	Eligible Equipment List with Audit	Solar Equipment
ELIGIBLE PROJECTS	Solar PV/RE	x			x	x	x
	Energy Efficiency	x		x	x		x
	Water Efficiency		x				
ELIGIBLE SECTOR	Residential	x					x
	Multi-Family						x
	Low Income						
	Renters						
	Commercial						
	Municipal Institutional						
Counties			All		All	San Diego	San Diego

Supply-Side

EEFP #		EEFP #36	EEFP #37	EEFP #38	EEFP #39	EEFP #40
Type of Financing		Unsecured Loan	Unsecured Loan	Unsecured Loan	Unsecured Loan	Unsecured Loan
Financing Product		MyHome Sweet Home Improvement Loan	Point Loma Credit Union Green Living Loan	SAFE Green Energy Loan	SMUD Home Performance Loan Program	SoCalGas Home Energy Upgrade Financing
Private source of capital		Fresno County Federal Credit Union	Point Loma Credit Union	SAFE Credit Union		SoCal Gas
Public source of capital				CAEATFA		Home Upgrade
Product Administrator		Fresno County Federal Credit Union		CAEATFA	CAETFA, Energy Star Home Performance	Viewtech Financial Services
Product delivery agent		Fresno County Federal Credit Union		SAFE Credit Union	CAETFA	
Contractors and EE Service Providers		Registered contractors only		Any contractor		Must meet LCH standard
EE/RE Criteria		Determined at loan issuance	Eligible Equipment List	Eligible Equipment List	15% Energy Saving Threshold	Energy Star Product List
ELIGIBLE PROJECTS	Solar PV/RE	x	x			x
	Energy Efficiency	x	x	x	x	x
	Water Efficiency	x				
ELIGIBLE SECTOR	Residential	x	x	x	x	x
	Multi-Family					
	Low Income					
	Renters					
	Commercial					
	Municipal Institutional					
Counties			San Diego	Sacramento, Placer, Yolo, Yuba, Sutter, Amador, Butte, Contra Costa, Nevada, San Joaquin, Solano, or El Dorado Counties		SoCalGas territory

3.2. Financial Institution Interviews

3.2.1. Methodology

Due to the wide range of FIs and variations in EE lending practices and products, we applied an approach that integrated top-down data gathering (public document searches and interviews with program administrators) with bottom-up data (FI interviews). We first sought to identify all publicly advertised and reported EEFPs that were available in the state, taking particular note of programs run or supported by utilities or the local, state or federal government.[18] We then gathered top-down information from these programs, which often covered lending from many FIs. We then contacted each FI that we identified as originating EEFP lending, both those within the publicly supported programs and those operating independently. This provided bottom-up data that enabled us to capture EEFP lending carried out outside of public programs and to obtain more detailed information on the lending terms, conditions, and performance for each lender.

Our initial scan of FIs and public programs allowed us to identify almost all of the existing EEFPs in the California market place. We then used the FI interviews to identify any other trackable EE lending that we may have missed through our extensive scan for publicly advertised or reported EEFPs. Finally, we interviewed FIs who did not advertise any dedicated EEFPs and in each case confirmed that they did not offer such a product. This integrated approach offered the benefit of both a broad public document scan as well as interviews with people knowledgeable and engaged in EE lending in California, between which we believe revealed all the EEFPs available in the California market in 2014. In the end, we were not able to interview every FI offering an EEFP; however, we believe that our approach did identify essentially all of the EEFPs active in the market and gathered data from a majority of programs that represent practically all of the EEFP lending activity in California in 2014.

Sample Frame and Interviews

The study entailed gathering information from interviews with FI representatives as well as statewide loan information from administrators of existing public or ratepayer supported financing programs. We sought to interview representatives with specific knowledge of the FI's origination and underwriting processes as well as knowledge pertaining to each FI's or program's overall annual EE financing activities and terms. We also obtained information through written data requests and questions (both before and following the interviews) directed to the same representatives.

In Table 22 below, we present the population size and number of interviews conducted by lender type. We treat each type of lender as a distinct population, and the number contacted for interviews was established based on the population size along with consideration of our knowledge of commercial activity in each sector (developed through the initial EEFP secondary research and from further information gathered during the interviews).

For instance, there are 60 residential mortgage banks operating in California, according to the California Mortgage Bank Association. Of these, 48 are authorized to offer FHA Insured Energy Efficiency Mortgage (EEM) Program loans. However, only four mortgage banks are authorized by FHA to offer PowerSaver loans in California. We interviewed two of the PowerSaver providers and they reported significant difficulty originating EE loans outside of the FHA insured programs. A third mortgage bank who offered just the EEM loans (not

18 Includes: US Department of Housing and Urban Development, Federal Housing Authority (FHA) programs: PowerSaver loans and Energy Efficiency Mortgages (EEM); California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA) programs: Residential PACE Loan Loss Reserve (LLR) and Clean Energy Upgrade Financing Program Loan Loss Reserve - Assembly Bill (AB) X1 14; Southern California regional Energy Network (SoCalREN) Residential LLR; and Golden State Financing Authority.

PowerSaver) was also interviewed and they reported offering very low volumes through the EEM Program. Interviews with these mortgage banks were supplemented by information obtained from FHA, which reported aggregate bank lending activity for EEM and PowerSaver programs in the state. We believe that this group is representative of EE financing activity by mortgage banks in the State and thus did not pursue any further interviews with mortgage banks.

In some cases, the FI representatives required the researchers to enter into a non-disclosure agreement (NDA) prior to sharing their data. Findings from interviews that are covered under an NDA are included in aggregate numbers for the sector, and any quotes used for illustrative purposes are attributed to the anonymous Lenders A, B, C, etc.

Table 22. Residential Lender Population and Interview Sample Sizes by FI Type

	Sample Frame	Data Collected
Retail Banks	87	4
Mortgage Banks	60	3
Credit Unions and CDFIs	48	9
Specialty EE Lenders	2	2
PACE Lenders	10	4
Utility Rate-Payer and Public EE Financing Programs	6	6
Total		**28**

3.2.2. Detailed Financial Institution Interview Results

As part of the efforts outlined in the Baseline Research Work Order (ED_0_FIN_3) approved in May 2014, the Evaluation Team conducted interviews (in Dec 2014 through March 2015) with managers at FIs who offer dedicated financing for EE projects and equipment for residential properties in California. This chapter summarizes the findings from these interviews conducted.

These interviews, along with information gathering conducted prior to and after the interviews, aimed to determine the lending volume and conditions for dedicated EE financing products available to California's residential market. This information can be used to establish a baseline of dedicated EE lending in the residential sector, against which the impact of the forthcoming Pilot programs may be evaluated.

To this end, the FI research aimed to accomplish the following goals:

- Identify the types of dedicated EE financing currently offered in California to the residential market (e.g., loans, PACE programs, etc.);
- Formulate a list of FIs who offer and have delivered a meaningful volume of EE financing;
- Estimate the volume of each type of dedicated EE financing that was delivered in 2014 to the residential market; and
- Collect quantitative and qualitative information concerning the terms and conditions offered by each FI and for each type of financing, including interest rates, loan tenors, key underwriting criteria, marketing channels, and perceptions of risk.

Prior to contacting the FIs for interviews we prepared a comprehensive listing of EEFPs that could be identified through FI websites, and reviewing publicly available reports. Through these means, we identified FIs that offer

dedicated EEFPs, including banks, mortgage banks, specialized lenders, credit unions, and CDFIs. We also identified managers of public and ratepayer supported financing programs offered by, local municipalities and counties (PACE programs), the FHA, CAEATFA, and IOUs.

EEFPs were identified as lending products that carry at least one of the following requirements, and for which lending volumes can be tracked separate from other lending:

- Financing that requires the inclusion of specified energy saving equipment
- Financing that requires the achievement of an energy savings threshold
- Financing that includes energy costs savings in the underwriting procedures

To perform the study described, the Evaluation Team contacted:

- FIs who we identified as offering at least one EEFP
- A number of FIs were selected from each major category[19], who from our initial research did not appear to offer specific EEFPs, in order to assess whether they may have had EEFPs that were not publicly advertised or if they tracked EE lending outside of EEFPs, through their conventional financing
- Administrators of utility ratepayer and publicly supported EE financing programs

At the time of this research, the California Hub for Energy Efficiency Financing (CHEEF) Pilot Programs had not yet engaged any specific FIs as participants. Thus, while it is likely that some of the eventual lenders have been contacted, it is not possible to ensure that all participating FIs will be included in these interviews. The results obtained seek to establish a baseline of the prevalence of dedicated EE financial products, in order to detect at a later date the potential changes and impacts that the CHEEF Pilot Programs may exert on the market.

Notably, it was not possible to collect all pertinent market metrics. While we attempted to obtain all key market data, we were unsuccessful in receiving reliable data for some metrics. The following are key market metrics for EEFPs that are relevant to the Pilots for which we were unable to obtain the data:

- Average energy savings per loan for each type of EEFP loan
- EEFP loan type volume by qualifying criteria FICO score, debt-to-income (D/I) ratio, or household income (e.g., 80% of PACE loans went to customers with a 680 FICO score or moderate household income)
- Effective interest rates, or the interest rate that a customer actually pays after tax deductions. We report only on the interest rates offered in the market and do not speculate on the effective interest rates. However, it stands to reason that effective interest rates for EE mortgages (EEMs) and home equity lines of credit (HELOCs) are likely lower than what is reported here given that those interest payments on those loans are tax deductible.

While a multitude of metrics were established for the pilots, it remains to be seen where the pilots will have an impact. In addition, it is possible for metrics to grow even without the pilots.

19 two or three from each category including retail banks, mortgage banks and credit unions

Table 23. Residential Financial Institution Baseline Metrics Summary

#	Metric of Change	2014 Baseline Result from FIs
1	Types of energy efficiency loan offerings	Three key types based on the EEFP security: • PACE • EE Mortgages and Home Equity Loans • Term Loans
2	Number of FIs who offer energy efficiency-specific financing products	• 10 PACE Providers • 48 FHA approved lenders offer EEM Program loans • 4 PowerSaver Lenders • 8 non-FHA EE Home Equity Loans and Mortgages (5 Credit Unions, 2 Banks, 1 CDFI) • 23 Term Loan Providers (20 Credit Unions, 2 Specialty Lenders and 1 Bank)
3	Volume of energy efficiency loans/leases a. *Total value of energy efficiency loans/leases originated*	• $218M estimated EE loan volume in 2014, through 10,681 loans.
4	Perceived risk of energy efficiency lending (in addition to metrics 2 and 3 above) a. *Maximum term length* b. *Interest Rate Range* c. *Underwriting requirements* Comparison of EE loans to conventional lending	• PACE: max 300 months, 6-8% interest rates, equity and ability pay requirement • EE and HELOCs: max 360 months, 3.49-6.8% interest rates, equity and ability to pay requirement • Term lending (secured): max 180 months, 5.99-6.99% interest rates, FICO score (640 min); offered at slightly preferential rates compared conventional loans. • Term lending (unsecured): max 180 months, 4.99-9.99% interest rates, FICO score (600 min)
5	Access a. *Underwriting criteria (Minimum acceptable FICO score; allows broader group of customers to qualify for energy efficiency financing)* b. *Target markets*	• PACE and EE Mortgage Lending is directed at property owners with sufficient equity in their homes. • EE mortgage products can allow homeowners to achieve higher loan to value ratios than standard mortgage products. • Term loans are directed to people who are generally good credit risks; zero loans targeted at low income, zero products for 580 FICO score; 9 products for 716 FICO score • One EE mortgage targets (<120% AMI) low-to-moderate-income EEFPs were identified.
6	Use of energy efficiency-specific financing within marketing efforts	• Majority (93%) of EE lending through vendor/contractor driven sales and marketing; lenders who rely on branch marketing have lower loan volume; lenders reported limited budgets for marketing

Metric 1: Types of energy efficiency loan offerings

There is a broad range of EEFPs in the California residential market, which can be broken down into three distinct categories based primarily on how they are secured:

- **Property Assessed Clean Energy (PACE) Loans:** PACE loans are offered by municipalities and counties, or through a third party provider working under agreement with the local government. Customers repay residential PACE loans through a tax assessment on the property, which exercises a senior lien, ahead of the existing mortgage (if there is one). Ten residential PACE programs were identified in California in 2014, eight of which are enrolled in CAEATFA's PACE loan loss reserve (LLR) program, which was established to cover potential losses to mortgage providers that may arise in the case of defaults in

properties with PACE assessments. Typically PACE loan underwriting requires the borrower to have sufficient residual equity in the property to cover the loan in the case of default.

- **Energy Efficiency Mortgages (EEM) and Home Equity Lines of Credit:** EEMs and EE HELOCs can be either second mortgages or first mortgages that incorporate EE upgrade costs in the overall mortgage value. The most prominent of these are the FHA PowerSaver and EEM programs that guarantee private lender EEMs. There are also a small number of independent EE HELOC and mortgages offered by private lenders and credit unions, aside from those guaranteed by the FHA guarantees. EE mortgages are secured against the property.

- **Residential Term Loans:** Residential term loans may be secured, or unsecured depending on the product. In some cases, they are secured through a UCC-1 filing against the EE equipment itself (more likely in the case of easily removable elements such as solar PV panels). Where the loans are secured against the EE equipment, the collateral value of the equipment in the event of repossession would likely be low. Some LLR programs have been created to support unsecured EE term loans, covering a portion of the lenders' losses in the case of borrower default. In other cases, the lender assumes the full risk. Term loan lenders typically underwrite their loans based on the borrower's credit worthiness, often expressed through their FICO score, as well as other indicators such as the debt to income ratio. Credit unions appear to dominate the residential EE term loan space and these are the products most likely impacted by competition from the CHEEF Residential Energy Efficiency Loan (REEL) Financing Pilot. However, the volume of EE term loans generated in 2014 was low compared to the volume of PACE lending.

Metric 2: Number of FIs who offer energy efficiency-specific financing products

Overall, we believe that we were mostly successful in identifying the FIs offering EEFPs in California's residential market, with the exception of identifying all FHA EEM providers. We identified FIs offering EEFPs through publicly available information and the FI interviews. In some cases, program-wide information was available, such as for PACE programs and FHA supported mortgages.

Table 24. Types of FIs with EE Lending Activity in 2014 in California

FI Type	Number Identified with EEFP	Notable examples (Interviewed or data collected)
Residential PACE Lenders	10	Renovate America – HERO Placer County Sonoma County Renewable Funding - CaliforniaFIRST
EE Mortgages and Home Equity Lenders	48	**FHA PowerSaver Lenders (Four participating)** Neighbors Financial Corporation Paramount Equity SunWest Mortgage WJ Bradley Mortgage Capital Company **Other Home Equity EE Lenders** 48 FHA approved lenders are eligible to originate FHA EEM's[20] Lender B – HELOC CH Works Low Income EE Mortgage

20 HUD Reports 48 Title 1 lenders in the state of California: http://www.hud.gov/ll/code/llslcrit.cfm.

FI Type	Number Identified with EEFP	Notable examples (Interviewed or data collected)
Residential Term Loan Lenders	23	**Specialty Lenders** AFC First (inactive in California during 2014) Lender A Vendor Financing **Banks and Credit Unions** Lender B Union Bank Desert Valley Credit Union Santa Cruz Community Credit Union San Diego Metropolitan Credit Union (SDMCU) SAFE CU Travis Credit Union Matadors Community Credit Union (MCCU) Provident Credit Union Redwood Credit Union Golden State Finance Authority (GSFA)/Five Star Bank

Residential PACE Lenders

The California residential EE finance market is dominated by PACE programs, which from our interviews appear to comprise over 90% of EE financing in 2014 in California. CAEATFA operates a LLR program that backstops residential PACE lending for registered PACE programs in California, protecting existing mortgage holders from potential losses arising from the PACE priority liens. In 2014 the following PACE programs were enrolled in CAEATFA's LLR program:

- mPower Placer
- mPower Folsom
- Berkeley Financing Initiative for Renewable and Solar Technology (FIRST)
- Sonoma County Energy Independence Program
- Western Riverside Council of Governments (WRCOG) Home Energy Renovation Opportunity (HERO) Program
- CaliforniaFIRST
- San Bernardino Associated Governments (SANBAG) HERO Program
- California HERO Program

Statewide PACE lending data was available for the second half of 2014 from CAEATFA. We also contacted four PACE lenders directly for interviews to gather more detailed information about their lending activities.

- **Renovate America** CAEATFA's LLR data indicates that 90% of the residential PACE lending was originated by Renovate America (RA) in the second half of 2014 (through the HERO programs). Based on interviews with an RA representative we estimate that two-thirds of total loans were for EE measures and one-third were for renewables, notably solar. RA uses a vendor finance model in which contractors are targeted and trained to offer financing to residential customers; RA does not have a

direct to customer sales channel. During the interview, the RA representative indicated that interest rates are stable at 5.95% for 5 year financing and 7.95%[21] for 10 year loan periods. 5 year and 10 year rates are standard benchmarks and we used these throughout the survey to measure differences in interest rates.

- **Sonoma County:** Sonoma County PACE is the second largest PACE lender enrolled in CAEATFA's LLR program. It has originated over $47M in residential financing since 2008, and in 2014 its volume was $3.6M in bonded PACE, however, a small portion of this was for commercial PACE lending. It charges 7% interest on 5-20 year loans. From a review of the Sonoma County PACE program's annual originations dating back to 2008, it is observed that a significant volume was originated at the program outset, but that activity has tapered in recent years. This may indicate that the PACE program may have initially responded to a significant amount of pent up demand in the first few years, eventually reaching a lower annual volume based on new demand arising in each year. The real estate market's fluctuations in general may have also been a factor.

- **CaliforniaFIRST and Placer County mPower PACE:** Interviews were conducted with representatives of Renewable Funding (the CaliforniaFIRST provider) and Placer County to obtain information on their PACE lending.

Two other residential PACE originators, YGrene and Figtree are not enrolled in the CAEATFA LLR program, and they were not available for interviews. However, we predict that these two originators lent an insignificant amount of residential PACE loans in 2014 compared to other PACE providers given they were limited to only a few counties.

Home Equity Loans

FHA programs

A significant portion of bank, mortgage bank and credit union EE financing activity passes through the FHA PowerSaver and EEM programs.

- **FHA PowerSaver Loans:** There are three PowerSaver products, including an unsecured loan of up to $7,500, secondary mortgages of up to $25,000, and home purchase or refinancing as part of an FHA 203(k) rehabilitation first mortgage. However, only the secondary mortgage product has had any notable market traction in California, with $672,000 in annual loan volume.[22] The interest rates for PowerSaver second mortgages averaged 6.8%, with an average transaction size of $18,573 and average mortgage tenor of 18 years. Despite the FHA insurance attached to the PowerSaver second mortgage, the interest rates offered are not significantly lower than other secured EE lending.

- **FHA Energy Efficiency Mortgage (EEM) Program:** FHA's EEM Program provides mortgage insurance for the purchase or refinance of a principal residence, incorporating the cost of EE improvements into the mortgage. The borrower does not have to qualify for the additional money and does not make a down payment on it. EEMs allow financing up to 5% of the lesser of 115% of median area price of single-family dwelling or 150% of the conforming Freddie Mac limit. The California Housing Finance Agency (Cal HFA) began offering a grant equal to 4% of the value of 30 year fixed rate EEM in May 2014. We spoke to Cal HFA and confirmed that little uptake of this program has occurred so far. In 2014 there

21 Note: the reported interest rates for the HERO PACE program are somewhat different than those obtained through the on-going HERO PACE evaluation.

22 Between October 2012 and January 2015 only one unsecured PowerSaver loan, and only one first mortgage (valued at less than $20,000) were issued under PowerSaver in California.

was $2,058,000 in EEM loans disbursed, with an average value of $11,250 (183 EEMs in total). The interest rates and tenors were not available, as they are set by individual lenders. The small average loan value suggests that EEMs are likely being used for refinancing rather than home purchases.

The FHA recognized that loan volumes for the EEM and PowerSaver Programs have been disappointing. A full evaluation of these programs is beyond the scope of this study, though we note that two mortgage banks mentioned difficulty in obtaining secondary market support for EEMs. Furthermore, the loans are administratively difficult to close requiring among other things energy audits and various closing documentation. The FHA suggested that EE measures are also financed through 203k loans that are for general renovations. However, the ability to track specific loan amounts to particular EE measures is limited[23] and we have no EE reporting on these loans.

- **Credit Unions:** Of the eight credit unions we interviewed, only three reported offering mortgages through the FHA EEM program, and all reported low volume for this product. One had discontinued offering the EE mortgages due to low volumes and administrative burdens.

Other EE Mortgages and Home Equity Line of Credit (HELOCs)

- **Lender B** offers a HELOC with up to a 30-year repayment term. The interest rates are floating, and a 1st or 2nd lien is required and the Loan to Property Value ratio cannot exceed 80%. Customers must provide invoices demonstrating eligible renewable energy (RE) and EE measures compose more than 50% of the financed amount, however, the stringency with which EE measures are evaluated is believed to be low.

- **Union Bank:** Union Bank advertises the Green Home Improvement Loan for energy-efficient home upgrades including solar panels, HVAC equipment, windows and lighting as part of its home equity line of credit (FlexEquity®). We contacted a Union Bank representative for an interview, who responded that they do not track Green Home Improvement Loan volumes separately from other FlexEquity® HELOC activity, and so it was not possible to obtain EE lending volumes for this program.

- **Community Housing Works (CHW):** CHW, a Community Development Financial Institution (CDFI), offers EE Upgrade Mortgage to eligible "low and moderate" income homeowners (with incomes of less than 120% AMI). The overall budget available for this program is just $100,000 and the loan volume is extremely small (two loans for a total of $8,700 in 2014).

- **Credit Unions:** Six credit unions advertised EE or RE mortgages and HELOCs, three of which are for solar only. Unfortunately, none of these credit unions responded to a request for an interview from the research team, and therefore we do not have information on their EE mortgage and HELOC activity, but it is assumed to be negligible compared to the FHA programs.

- **Fannie Mae Energy Improvement (EI) Feature:** The EI feature can be used with most standard mortgage products for transactions that include funding for energy improvements to the financed property, up to 10 percent of the as-completed appraised value. A Home Energy Rating System (HERS) report is required and must identify recommended energy improvements and expected costs of the completed improvements, specify the monthly energy savings, and verify that the improvements are cost-effective. These are delivered through mortgage lenders, but the Evaluation Team was not able to obtain any specific volume or lending conditions from Fannie Mae; however, a representative

23 Renovations for 203k loans are tracked with specific codes for various improvements, however, it is not clear if these codes would accurately reflect EE measures and to obtain the list of 203K loans and renovation codes would require an Access to Information Act request.

reported that the response to the EI Feature has been muted, and that the volume in California is likely negligible relative to other EEFPs.

Residential Term Loans

A wide range of residential term loans are offered through credit unions, and a small number of banks and specialty lenders. In some cases, these term loans are offered in conjunction with public or ratepayer supported programs, such as LLRs or through utility rebate and incentive programs.

Banks and Specialized Lenders

- **Lender A Vendor-Based:** In 2014 vendor-based, unsecured, residential term loans were still relatively new to the California market. Two specialized lenders indicated that they had such a product available in the state, but one was still inactive and the other indicated that it had only minimal volume in 2014. Rates vary depending on term and credit risk. Lender A for example offers 6.99% unsecured financing for 680+ FICO for up to 12 years and 10-13% for 600-680 with an additional 3%-6% fee charged to the vendor.

  Although this lender did not specify their loan volume, based on the lender's projected growth in the coming 2-3 years, we estimate their current loan volume to be $5,000,000 in 2014, with an average transaction size of $10,000.

- **Lender C** is a retail bank that offers unsecured lines of credit for up to $25,000 at 6.5% interest for up to 60 months, or $25,000 to $50,000 at 7.5% interest for up to 120 months for homeowners who carryout EE and RE improvements. They do not apply a vendor based sales model; instead, customers are invited to contact the bank directly after they have obtained quotes from contractors. Interestingly, Lender C indicated that they see "green" lending products as a sales tool to attract new customers, particularly in the younger demographics groups.

Utility Ratepayer Supported and Public Programs

Three programs were identified that supported EE lending over the 2014 calendar year and generated significant EE loan volumes.

- **Southern California Regional Energy Network (SoCalREN):** supports two financing programs through the provision of a LLR to cover unsecured loans offered by Matadors Community Credit Union (MCCU) in conjunction with SoCalREN's EE incentive programs.

- **CAEATFA Clean Energy Upgrade Financing Program (CEUFP)**: In 2011 Assembly Bill 14 (AB X1 14) authorized CAEATFA to establish an LLR to encourage private sector lending for residential energy efficiency upgrades. Three credit unions enrolled to deliver the CEUFP loans (Matadors, Provident and SAFE Credit Union) along with the Sacramento Municipal Utility District. The program was offered statewide, except in LA County where a separate Home Upgrade financing was offered. The LLR covered 100% of the charged off loan losses for a period of up to ten years for qualified loans. A total of $25M for the LLR, but only $600,000 in LLR funds were accessed before the program ended on January 1, 2015.

- **Golden State Finance Authority (GSFA):** The GSFA, a California Joint Powers Authority, administers the Residential Energy Retrofit Program which is available to qualifying homeowners through a network of GSFA-approved energy efficiency contractors. The Program began in 2010 and was originally funded through a $29 million grant from the California Energy Commission (CEC) as part of the American

Recovery and Reinvestment Act (ARRA). Funding for the Program is currently made possible through funding from Pacific Gas & Electric Company and a partnership with Five Star Bank. Eligible homeowners can apply for financing to make energy efficiency and renewable energy (e.g. solar) improvements, up to $50,000 at 6.5% interest for up to 15 year terms. The loans are secured through a UCC-1 Fixture Filing attached to the EE and RE equipment. Eligible projects must include a HERS audit and achieve at least 10% energy savings before solar equipment can be included in the loans. Based on these requirements, which are similar to many PACE programs, we estimate that 66% of the Home Energy Loan Program volume is directed at EE improvements, and 33% is used for solar.

From 2010-2013 the program offered low interest loans at 0%-3% as it disbursed its initial ARRA funding (approximately $31 million of loans were originated in the first three years). In 2014 the program raised interest rates to 6.5% when the loans began to be provided by the private lender Five Star Bank, which has led to a significant drop in loan activity with this product, which totaled just $3M in 2014.

Credit Unions

Credit unions appear to dominate the residential EE term loan space, seeing these loans as meeting their constituent's needs and desire to pursue more sustainable lifestyles. A number of credit unions offer their EEFPs in partnership with local governments and utility ratepayer supported programs. These range from LLRs or incentives integrated into the loan terms and conditions to piggy backing on existing EE incentive programs to define the loan's technical underwriting criteria (eligible measures and projects, as well as quality assurance protocols).

Initially we identified 28 credit unions that advertised EEFP in California; however, upon further review five had dropped their EEFP offers, leaving just 23 that we identified as offering EEFPs at the time the interviews were conducted. We contacted all 23 of these credit unions and succeeded in interviewing eight and acquiring EE financing program data for one from other sources (therefore n=9 for credit union data collection).

- San Diego Metropolitan Credit Union (SDMCU) offers Solar and Energy Efficiency Loans under two separate loan products each with its own lending conditions. EE loans are offered for a maximum term of 15 years at 5.99% (five year fixed rate) interest, with a maximum loan value of $25,000, while solar loans are offered for up to 20 years, at 4.99% interest (five year fixed rate), with a $50,000 cap. SDMCU has seen great success with its EE/RE lending, with 2,480 loan originated in 2014 valuing over $61M in total; however, only 33 of these were for EE loans, valuing $268,000 in total. EE and Solar loans are available to borrowers who qualify for SDMCU membership, within San Diego County. The EE loans can cover any energy saving measures agreed to by the loan officer, using the Home Upgrade program definitions as guidance but not a requirement.

  Until 2013, SDMCU offered Home Energy Loans with the support of a $1.2M LLR set up by the City of San Diego using ARRA fuds. Qualified applicants under this program received a lower lending rate (5%) than what was offered under the ongoing Energy Efficiency Loans. However, the City LLR program ended in 2013.

- Matadors Community Credit Union (MCCU) offers residential Home Energy Loans under the Home Upgrade and Advanced Home Upgrade programs to homeowners in the Southern California Edison or Sothern California Gas Company service areas. Their unsecured EE loans are supported by the SoCalREN LLR program. MCCU offers loans from $2,500 up to $50,000 to participants in the Home Upgrade rebate program. Interest rates range from 4.99% for a 5 year term loan to 6.99% for a 15

year term loan. They also offer Cool Comfort Loans for HVAC systems with the same financing conditions on 5 and 10 year terms for loans of $2,500 to $15,000.

Until the end of 2014 MCCU also offered CEUFP loans state-wide that were supported through the CAEATFA administered LLR that ended on January 1, 2015. These loans were offered for up to 10 years at similar interest rates to the Home Energy Loans (4.99% minimum rate) in the market.

- **Travis Credit Union's** Energy Loan allows homeowners to borrow up to $35,000 for energy-related home improvement projects. This unsecured EE loan offers terms up to 15 years with interest rates between 6.99% and 9.99% depending on the borrower's credit score and the loan term. Eligible measures include furnaces and AC units, as well as solar panels and insulating windows. Since its initiation in 2013 Travis CU has originated over $5M through its Energy Loans ($2.4M from June – December 2014).

- **SAFE Credit Union's Green Energy Loan** offers financing for more efficient heating/cooling systems, solar panels, new windows, insulation, water heaters, attic fans, etc. This unsecured EE loan offers terms up to 15 years at 6.5% interest, up to a maximum loan value of $25,000. Applicants with lower FICO scores are restricted in their maximum loan value, with tier 4 borrowers being limited to $10,000 in loan value.

  SAFE also participated in CAEFTA LLR pilot and offered the loan through a specific contractor. SAFE reported that the results were disappointing, only 1-2 loans/year in the 2013-2014, despite the interest rates being lower than those for SAFE's Green Energy Loan. The selected contractor ended up referring clients to SAFE Green Energy Loan rather than the CAEFTA EE loan.

- **Loans for Solar PV:** Other than those described above, four of the credit unions interviewed offered financing primarily for solar energy projects (Redwood Credit Union, Provident Credit Union, Desert Valley Credit Union and Santa Cruz Credit Union). In each case, EE measures may be included in their solar loans, but for the respondents who were able to provide EE specific data it was clear that the EE lending through these solar financing products is negligible (around 1% of total lending volume in each case).

Metric 3: Volume of energy efficiency loans/leases

Overall we believe that the interviews and data gathering have provided an accurate baseline of the prevalence of dedicated EE financial products in California's residential market over the 2014 calendar year. There is some uncertainty in the PACE volumes, which were derived primarily from CAEATFA's LLR registration in the second half of 2014, and extrapolated over the whole year. Moreover, we were not able to get loan volume from all specialized lenders and credit unions contacted; however, we believe that we have identified the major EE lending streams and have accurate estimates of lending volumes in 2014 for the most active EEFPs.

Table 25. Residential EEFP Originations (2014)

EE Financial Products	Transaction Count 2014 (n)	Total Volume 2014 (,000 $)	Portion of 2014 Volume	Average Loan ($)	Min. Interest Rates	Max. Terms (months)	Method for determining volumes
Residential PACE	9,279	$196,660 [a]	90%	$21,194	6%-8%	240-300	CAEATFA LLR data and interviews
EE Mortgages and HELOCs	223	$3,370	2%	$15,120	3.49% - 6.8%	360	FHA data and FI interviews

EE Financial Products	Transaction Count 2014 (n)	Total Volume 2014 (,000 $)	Portion of 2014 Volume	Average Loan ($)	Min. Interest Rates	Max. Terms (months)	Method for determining volumes
Term Loans	1,179	$18,640 [b]	8%	$15,809	4.99% - 8% [c]	60-180	FI Interviews and LLR program data
Total	**10,681**	**$218,670**		**$20,473**			

Note: Compilation of all residential market EE lending in California (2014) through specialized EE financing products and programs, as identified by the research team. EE lending through conventional loans, leases and financing offers is not included in these tallies.

[a] Estimated value from PACE program data and solar/EE lending distribution assumptions.

[b] Estimated total derived from reported lender loan volumes and expanded data to include non-reporting lenders with listed EEFPs.

[c] Reported minimum interest rates may not apply to all eligible borrowers, individuals may be subject to higher rates from specific lenders based on their underwriting assessments. The table values represent the range of the lowest potential interest rates reported by each program in each category.

For each of the three types of EEFPs, 2014 loan origination volumes are estimated. These estimates are based on identifying the major lenders for each EEFP type from our initial research and from feedback gathered during the interviews. We then contacted the major EE lenders and were able to obtain 2014 loan volumes for those that represent the vast majority of EE lending activity in the state.

- **Residential PACE:** Total 2014 PACE originations were estimated from CAEATFA's LLR program volume, which provided the loan volumes for the eight enrolled PACE programs over the six-month period covering July 1, 2014 to December 31, 2014. CAEATFA reports $148M of volume in this period. The total 2014 PACE volume was therefore assumed to be twice this amount.[24] According to CAEATFA some PACE programs have not registered to insure their loans; however, uninsured R-PACE loan volumes are believed to be negligible.[25]

  Renovate America, which is estimated to account for as much as 90% of the enrolled PACE volume through the HERO program, reported that 66% of all its PACE loans were for EE measurers and 33% were for solar loans. This EE/RE ratio was assumed to apply to the other PACE programs in the absence of specific data from the other lenders.

  Based on the above data and assumptions we estimate the total residential PACE EE loan volume in 2014 to have been $197M[26]. Comparing this to annual PACE volumes since 2008 (as available), demonstrates that the market for PACE loan expanded rapidly in 2014.

- **EE Mortgages and HELOCs:** FHA provided 2014 PowerSaver and EEM Program loan volumes but interest rates and terms averages were available only for PowerSaver loans. CHW provided their annual EE mortgage program volume, and Lender B also provided data on their EE HELOC activity in 2014. We contacted a representative of Fannie Mae, who indicated that use of their EI feature was negligible. Aside from the FHA backed programs, and the reported values, no other mortgage lenders were identified who offered an EE mortgage or HELOC in 2014 in California.[27] We were not able to reach any of the five EE and solar home equity loans. However, three of these are offered for solar only, and the two who offered EE HELOCs were included in the FHA title 1 lenders, which would likely

24 A Sonoma County representative reported that Sonoma PACE had $3.6M in volume in 2014, compared to $1.57M reported by CAEATFA for the July 1 to December 31, 2014 period.

25 A CAEATFA representative indicated that neither Ygrene nor Figtree, who are not enrolled in the PACE LLR, are believed to have originated significant residential PACE loan volume in 2014.

26 $195M = $148M/6 months x 12 months/year x 66% (EE portion in dollar value)

27 Two other mortgage banks were interviewed, neither of which reported offering EEFP or tracking EE lending. Based on this we elected to conduct no further interviews with mortgage banks.

be captured through the FHA EEM Program, although we were not able to confirm this through interviews with these lenders.

- **Residential Term Loans:** Residential EE term loans are mostly offered by credit unions, with a small number of private lenders offering specialized products.

  - **Private Lenders:** Our literature research revealed two specialized lenders who offer vendor based financing; however, one reported having no loan volume in California in 2014 and the other would not provide its annual originations even under an NDA. The one bank that we identified as offering an unsecured residential EE term loan did provide its loan volume for 2014. Five Star Bank also provides secured EE term loans through GSFA's Residential Energy Retrofit Program. The total 2014 loan volume was estimated from information provided through an interview with a GSFA representative and considered in comparison to published loan volume data.[28] For these two EEFPs, which are predominately targeting EE improvements but do allow for solar financing, we estimated that the EE to RE ratio in the loan volumes is 66%, similar to PACE lending ratios.

  - **Credit Unions:** Residential term loan volumes and conditions were provided by SoCalREN and CAEATFA for their LLR programs in 2014. We contacted all 23 credit unions who had EEFPs advertised on their websites. Of these, eight were interviewed and provided data, three refused to be interviewed or provide data, and twelve did not respond to our requests. Only two of the interviewed credit unions had significant EE lending volumes (other than those enrolled in the SoCalREN and CAEATFA LLRs). Six credit unions contacted reported little or no EE loan volume in 2014. Of the fifteen credit unions who did not provide data, five provide just solar loans, and data for one (MCCU) was obtained through the LLR programs.

    This leaves ten credit union EEFPs for which we do not have any loan volume data. This does represent some uncertainty in the results, but we do not believe it has a significant impact on the overall baseline loan volume for the following reasons:

    - Term loans represent just 4% of the overall EEFP 2014 baseline loan volume;
    - Term loans are heavily weighted to solar projects; and
    - The credit unions with the largest EE lending volumes were the ones who likely responded to our requests for interviews and provided data.

  - **Expansion of Credit Union data**: We were not able to collect EE lending data from every credit union, or even from every credit union who offered and EEFP on their website. Therefore, we have elected to expand the data we did collect to estimate likely lending volumes from credit unions who did not respond to our requests for an interview. This expansion occurred in two ways. First, we used the results from our credit union website scan in conjunction with the Mystery Borrower study results to determine if we may have failed to identify any credit unions who offer EEFPs. Second, we extrapolated the credit union lending data that we did have to estimate the likely lending volumes from the non-responding credit unions (including the credit unions with unidentified EEFPs).

28 The representative reported $31M in lending from 2010 to 2013 under the Residential Energy Retrofit Program. While GSFA itself reports a total of $34M in loan being delivered through the program up to February 2015. (http://www.gsfahome.org/programs/energy/guide/GSFA-Energy-Retrofit-Program-Summary.pdf .Based on this, we estimate $3M in 2014 loan originations for GSFA.

- **Counting Unidentified EEFPs**
  - Overall we identified 361 active credit unions in California in 201429. Of these, we found 23 that offered dedicated EE or RE lending products, through a review of their websites.
    - Of these, 18 offered an EEFP (5 offered loans only for solar equipment).
    - We contacted all 23, and managed to gather EE loan volumes from nine of them.
  - Through the mystery borrower research, 75 credit unions were contacted. Out of these, ten were credit unions for which we had identified as offering EEFPs.
    - The mystery borrow research only identified one more credit union that offers an EEFP than what was known previously through a website search.
  - Thus based on these findings, we estimated that one of 65 credit unions (75-10) for which we did not identify having an EEFP, may have an EEFP. Out of the 338 credit unions (361-23) for whom we did not find an EEFP listed on their website, this represents an estimated total of five credit unions who likely have EEFPs that we failed to identify initially.
- **Unquantified EEFP lending by Credit Unions**
  - Assuming that EE lending volumes ($) would be proportional to credit union size, determined by total assets,[30] we extrapolated the total estimated dedicated EE lending by the 19 credit unions for which we believe have a dedicated EEFP, but for who we could not access lending data.
  - Extrapolated total lending EE' / TA' = EE" / TA" Where:
    - EE' = total EE lending by credit unions for which we do not have data (n=9)
    - TA' = total assets for credit unions for which we do not have data
    - EE" = total EE lending by credit unions for which we do have data (n=19)
    - TA" = total assets for credit unions for which we do have data

Table 26. 2014 Credit union EEFP lending expanded results

	Asset Size	EE Loan Volume 2014	Transaction count 2014 [a]
Totals for credit unions for whom EE data is available	$7,198,030,684	$5,273,000	315
Totals for credit unions for whom EE data not available	$5,040,545,440	$3,833,000 (estimated)	221 (estimated)
Totals for 5 unidentified credit unions with EEFP	$2,245,391,079 [b]	$1,645,000 (estimated)	99 (estimated)
Total (all credit unions)		$10,610,000	635

[a] Transactions estimated based on the average credit union EEFP loan size from reported data, $17,095.
[b] Based on an average credit union asset size of $431,800,000.

29 Source for active credit unions in California, along with their asset size and membership: <http://credituniondirectory.net/California-credit-unions.html>
30 We chose total assets rather than membership as it was our opinion that this is a better indicator of total lending activity.

Metric 4: Perceived risk of energy efficiency lending

Overall the perceived risk of EE lending can be inferred from three key indicators associated with EEFPs:

1) Interest rates: Lenders tend to charge higher interest rates for loan products that they believe carry more risk to the lender

2) Term lengths: Lenders will allow longer term-lengths for secured lending, and lending that carries less risk of default throughout the market cycle.

3) Underwriting criteria: Lenders apply more stringent underwriting criteria to loans that carry greater risk to the lender.

For each FI interview, we attempted to collect detailed information on the interest rates and term lengths offered, as well as the underwriting criteria applied. Aggregate results and ranges are provided in Table 26 below.

Table 27. Summary of EEFPs

	Security	Underwriting	Maximum Term Lengths	Minimum Interest Rates
PACE	**Priority lien on property.** In the case of defaulted PACE payments, the PACE lien can lead to a tax impact sale. Since the outstanding PACE lien is covered first, it is generally considered extremely low risk lending.	PACE lenders typically require that the mortgage debt and PACE loan not exceed 90% of the property value. The borrowers' history of bankruptcy and tax and mortgage payments are also considered.	240 – 300 months	6% - 8%
EE Mortgages and HELOCs	**First or second mortgage lien.** Mortgages are considered to be low risk to lenders as default can trigger a foreclosure sale to recover the outstanding mortgage principal. First mortgages will receive priority for repayment over second mortgages and HELOC. Mortgages are subordinate to PACE and other tax liens, but CAEATFA has established an LLR to cover potential mortgage lender losses on PACE enrolled properties.	Mortgages and HELOCs typically account for the value of the property and the borrower's ability to repay the mortgage debt (debt to income ratios). Other credit worthiness measures may also be considered.	360 months	3.49% - 6.8%
EE Term Loans (secured)	**UCC-1 Filing on Equipment:** Subordinate to PACE and mortgage liens, and other existing mechanical liens. Visible on property title and must be repaid to release the property for sale	Term loan lending relies heavily on FICO score assessment. The minimum FICO requirements reported were 640-650	180 months	5.99 %– 6.99%
EE Term Loans (unsecured)	Unsecured term loans offer little recourse to the lender in the case of default and are considered the highest risk form of EE lending in this study.	Minimum FICO requirements reported were 600-650	84-180 months	4.99% - 9.99%

A few observations stem from the lending terms reported during the interviews and document review.

- PACE lending does not come with longer terms or lower interest rates than EE mortgages and HELOCs, despite generally carrying a lower risk to the lender due to the priority lien and attachment to the tax bill. This may be attributable to the higher origination and administration costs associated with PACE as compared to mortgage lending.
- Term loans generally offer shorter maximum term lengths and higher interest rates than EE mortgages or PACE loans. However, term loans that are backed by the LLR programs, can be offered at lower interest rates than PACE loans in some cases.
- Reported maximum term loan tenors ranged from 5 to 15 years, with most loan volume falling within 5-7 years. Secured EE term loans do not offer significantly lower minimum interest rates than unsecured EE term loans. Moreover, some unsecured term loans offer maximum term lengths of up to 180 months (15 years), which is considered unusually long in the lending industry for unsecured term loans. Interestingly, the LLR loans are limited to 120 months, presumably capped at the length of the LLR programs themselves, rather than as a result of a higher perceived risk.
- In general there is little evidence that EE lending is offered at preferential rates or terms over conventional lending. One bank did offer reduced fees and a 50 basis point reduction for its EE loans, but this was explained as a marketing strategy rather than a reflection of EE lending carrying reduced risk.

Metric 5: Access to energy efficiency lending

The underwriting criteria dictate to a large degree the access various market segments have to EEFPs. PACE programs and EE mortgages tend to be available to applicants with sufficient equity in their property, while unsecured EEFPs are available to applicants with acceptable FICO scores. Given that PACE programs dominate the EE lending market, homeowners with ample equity in their home who live in municipalities and counties that have established PACE programs would have the most clear access to EE financing.

For term loan EEFPs, there were a few programs available statewide (Umpqua Bank Green Street loans and CAEATFA support Home Upgrade Program loans), however two of the largest programs are regional:

1) Travis Credit Union Energy Loans: 68 branches concentrated in Northern California
2) MCCU Home Upgrade Program Loans: Since the end of CAEATFA's LLR support for these programs, only the SoCalREN LLR remains, focused in the SoCal Edison and SoCal Gas service areas.

EE Term Loans

Not all lenders interviewed were able to provide details on their underwriting criteria, but all who did indicated that FICO scores were central to their lending decisions for term loan EEFPs. The minimum acceptable FICO scores reported during the FI interviews ranged from 600 to 700. Results from the mystery borrower study indicated that there are fewer unsecured financing options for a borrower with a FICO score of 580, than for a borrower with a FICO score of 716 (less than 1:4 ratio, with credit unions offering more low-FICO score options than banks). Only one EE term loan reported using a debt to income ratio, and none that we identified were targeted at low income applicants (usually expressed as targeting family incomes that are below a specific threshold of the Area median income).

Table 28. Mystery Borrower Results Availability and Median APR by Product Type

Product Type	Banks (n=78)				Credit Unions (n=75)			
	Number of Products		Median APR		Number of Products		Median APR	
	Low (580)	Average (716)	Low (580)	Average (716)	Low (580)	Average (716)	Low (580)	Average (716)
Home Equity Loan	2	16	5.99%	6.49%	12	42	7.50%	6.10%
Home Equity Line of Credit	5	34	4.25%	5.25%	10	46	6.50%	3.75%
Personal Loan - Unsecured	2	17	11.50%	11.50%	19	57	17.18%	11.00%
Personal Line of Credit - Unsecured	1	13	Unknown	10.00%	14	41	18.00%	11.50%
Credit Card	4	21	11.12%	14.99%	13	56	18.00%	10.00%
EE and/or Solar	0	2	-	7.71%	0	7	-	6%

For unsecured lending, the reported interest rates on a 5-year term ranged from 5.99% to 9.99%, with most offering interest rates of 6%-7%.[31] This is lower than the Mystery Borrower results, which indicated average interest rates ranging from 10% to 17% for conventional unsecured loans and lines of credit. However, the interview results were comparable to interest rates for the EE and RE loans offered during the Mystery Borrower study.

In order to test the relative access to financing between EEFPs and conventional loan products, we compared the reported loan conditions from the FI interviews with results obtained through the Mystery Borrower surveys. The Mystery Borrower results for banks and credit unions offering solar or EE specific lending, are in general agreement with the range of interest rates reported during the FI interviews. In both studies home equity loans, mortgages and lines of credit offered the lowest interest rates, in the order of 3.5% - 5%, and EE term loans offered at higher interested rates, typically 5% – 8%. Neither study revealed an EEFP that is targeted at borrowers with a FICO score of less than 600, which suggests that EE lending is not being targeted to high-risk borrowers.

PACE, EE Mortgages and EE HELOCs

In most cases the secured EEFPs do not specifically consider FICO scores during the underwriting of loans but may take into account other indicators of the borrower's credit risk, such as their bankruptcy history, as well as mortgage and property tax payment history. Only one lender reported a minimum FICO score for a secured loan (700 minimum FICO score). For the other secured EEFPs underwriting is typically based on the loan to property value ratio (PACE) along with other considerations such as the debt to equity ratio on the property.

The interest rates reported ranged from 3.49% to 7% for 5-year fixed rates, and up to 7.5% for 10-year fixed rates on secured loans. Again, these are generally in agreement with the home equity loans and lines of credit offered by banks and credit unions during the Mystery Borrower interviews.

Overall, the PACE and EE mortgage EEFPs tend to extend access to EE lending to borrowers who have sufficient equity in their properties. One EE mortgage (CHW) is targeted specifically at low to moderate-income applicants (<120% of AMI), but this has limited capacity and uptake and thus has a negligible impact on the market.

31 Because loan volumes and customer numbers were not always available, it was not possible to determine a representative average interest rate for unsecured EEFP lending.

The FHA EEM Program expands access to EE lending to homeowners who do not have excess equity in their homes to cover the additional value of the EE upgrades. The program does not consider the EE portion of the mortgage within the property's overall loan to value ratio, which may open EE lending to some borrowers who would not be able to access funds through a conventional second mortgage or HELOC. However, the loan terms and underwriting conditions attached to EEM Program lending are unknown, so it is not clear if these loans are going to applicants whose credit worthiness would make them eligible for a term loan.

Metric 6: Use of energy efficiency specific financing within marketing efforts

Our findings indicate that marketing through contractors and vendors plays a major role in successful EEFPs. The following lenders market their EEFP primarily through vendors and contractors:

- PACE Programs mostly market through contractors:
  - Renovate America
  - Placer County mPower PACE
  - Sonoma County is marketed to contractors
- GSFA offers its terms loans through program-registered contracts
- SDMCU offers vendor financing, but does much more solar volume than EE
- Two unsecured vendor finance products: currently do little volume but each has ambitious growth goals in the coming years.

Together these vendor/contractor marketed programs represent over 93% of all the 2014 EE lending volume. Lenders who rely on marketing through their branches tend to see much lower loan volumes and reported having limited marketing budgets to promote their EE lending.

Additional Context

During the interviews and data collection, we had the opportunity to gather some additional context to help describe the current EE lending landscape in California.

Definition of EEFP

Through a review of information publicly available from existing EEFPs, it was proposed that EE specific lending products can be defined as including one or more of the following requirements:

A. Include specified EE equipment or measures within the financed improvements;

B. Achievement of a specific energy savings threshold to be eligible for the financing offer, or;

C. Include energy savings calculations in the financing product underwriting.

The interviews did not reveal any additional types of EE lending criteria than described above. In the residential market, most EE lending requires inclusion of eligible EE and RE measures. One credit union indicated that they consider financing any improvement or equipment that will save the homeowner money. For financing offered in connection with the Home Upgrade program, an energy audit is required. Moreover, many of the offerings also include water saving measures, most notably the HERO PACE program which accounts for the

majority of EE lending in California in 2014. Finally, many credit union EEFPs include RE improvements, which often leads to solar installations dominating the lending.

The CHEEF Pilots will likely apply existing IOU incentive program eligible measures lists, which will require improvements to exceed the 2013 California Energy Code performance standards. However, many of the eligible measures for the existing EEFPs identified in this study carry less stringent performance requirements, often allowing financing for measures that simply meet code. Moreover, in some cases a specified list of eligible measures was not available and may be determined at the loan officer's discretion.

Financing for energy efficiency appears to focus mostly around the borrower's ability to repay the loan and, in some cases, this may take into consideration energy cost savings at the borrower's property relative to current energy consumption. Thus, an improvement that brings an older, inefficient property up to higher performance would be eligible (even if it does not exceed the energy code performance), and likely appealing from a financing perspective as the associated energy savings will assist the property owner to support the loan. However, these EEFPs may not necessarily favor improvements that go over and above energy code requirements. Considering the longer paybacks associated for deeper retrofits, and upper-end efficiency equipment models, it is possible that in some cases existing EEFPs may actually discourage EE improvements that go over and above code, particularly if they do not provide a positive savings to investment ratio.

Drivers for EE Lenders

As noted previously, from a review of publicly available information we identified three key drivers that encourage lenders to offer EE specific financing products.

1. Mission-driven lenders (e.g. Credit Unions, CDFIs, Municipalities)
2. Lenders benefiting from publicly funded programs (e.g. FHA backed PowerSaver loan providers)
3. Lenders who benefit from an advantageous risk/return profile from their knowledge of EE equipment benefits (e.g. EE vendor financing companies)

One objective of the FI interviews was to assess whether other drivers may be influencing lenders to create EE financing offers. In general these drivers were verified through the FI interviews, with the notable addition of Lender B and Lender C who appear to be targeting young and environmentally conscious borrowers using EE lending as a tool for differentiating their bank in the market place. These lenders have invested significant resources to create a "green" brand, with EE loans offered to residential and small business customers. One product waives fees (approximately $700) and reduces interest rates by 50 basis points for drawdowns on secured lines of credit and unsecured term loans. This was the only lender that specifically mentioned this as a driver, but it is possible that other FIs consider EE lending as important to their brand as well.

Use of Conventional Lending for EE is Not Measurable

It was hypothesized prior to the interviews that FIs without specific EEFPs would not track EE lending. It was also believed that FIs with EEFPs do not, and likely cannot, track EE lending through their conventional lending products.

The interviews revealed that banks, finance companies and credit unions are aware that they are financing EE and RE improvements through conventional loan products. However, none of the interviewed FIs were able to track this lending. Thus it remains our opinion that it would not be possible to capture the amount of EE lending that is channeled through conventional loan products. Non-EE specific 203k loans, second mortgages and secured home equity loans may also be important source of financing for EE measures but we conclude that these EE measures are not tracked by banks and volumes are unknown.

3.2.3. Financial Institution Interview Data Collection Instrument

These interviews were conducted with California Financial Institution Managers/Staff. They are part of an evaluation of the California Public Utilities Commission's energy efficiency finance programs for the 2014 program period. The evaluation seeks to determine the effects of the existing and proposed energy efficiency finance efforts within the state of California.

This guide is designed to learn about currently available financial products that residential and commercial customers can access to finance energy efficiency upgrades on their properties. The interviews aim to determine the key investment product characteristics, including the loan conditions, eligibility criteria, target markets and promotion. The interviews provide context to help characterize the current energy efficiency financing market and determine a baseline for the proposed CPUC Financing Pilot Programs within the state of California.

BASIC RESPONDENT AND PROGRAM INFORMATION

- Date
- Respondent Name
- EE Financing Product(s) Name
- Product Coverage area
- Source
- Status

IMPORTANT: BEFORE STARTING THE INTERVIEW

Visit the website that presents the energy efficiency financing product's terms and conditions. Collect relevant information on the application and eligibility criteria, offered interest rates, terms, and other conditions, as stated on the website.

If you have the name and email of the contact you will interview in advance, request a copy of the Loan agreement and current financing terms by email before the meeting. Take note to record the date of the documented loan conditions.

FINANCING TERMS AND CONDITIONS

3.3.2.4 I would like to start by asking some questions about the financing terms and conditions of your energy efficiency financing products.

F2.1. Can you please describe all of your *energy efficiency or solar energy* specific financing product(s)? What are the names of these products?

[***Note*** *that we refer to financing as a product throughout the rest of this guide, but will adjust as necessary to describe consistent with the language used by the financial institution. The definitions of an EE Financing product are provided below to probe for during the interview]*

1. PROBE: How do you define this product as an *energy efficiency* financing product?

    a. What energy efficiency measures or equipment does the product focus on or require to be included in the project?
    b. Is an energy cost and savings return evaluation required to qualify for the product?

c. Is there an energy savings target that must be met to access the product (such as some PACE programs requiring a 20% energy savings before allowing solar PV inclusion)?
d. Please indicate if any of these products are limited to solar PV or other renewable energy technologies and are not eligible for energy efficiency retrofits.

[***Note*** *If the financial institution offers more than one energy efficiency financing product (i.e. one for commercial lending, and one for residential customer) then please gather the following information for ALL their energy efficiency specific financing products. For products that are eligible for Solar PV and other renewable energy technologies only, take note of the product name and but do not pursue details further.]*

F2.2. Can you please describe the following product conditions?

a. Eligible equipment
b. What portion of the financing that can be used for non-EE specific equipment?
c. Maximum portion or value of soft costs (non-equipment) allowable
d. Minimum and Maximum loan or lease terms
e. Maximum % of financing and/or minimum down payment
f. Eligible borrowers/lessors

*[**Note**: Probe for specifics and details on the above. Ask if they have definition sheets, or project eligibility requirements documents that they can send us.]*

F2.3. Does your energy efficiency financing product receive any public or utility funds from any of the following? If so, approximately how much do they contribute to, or support, the loans or product?

a. HUD or FHA?
b. Local PACE program
c. ARRA funds
d. Local county
e. Investor Owned Utilities
f. CAEATFA (California Treasury)
g. Other?

F2.4: If the product benefits from any public or IOU funds, how are they applied and used?

a. Interest rate buy-down
b. Loan loss or Debt Service Reserves
c. Administrative support
d. Marketing support
e. Other

F3. Can you provide us with the following documents?
[***Note:*** *If they have not already done this by email before the interview*]

a. Standard loan or lease agreement used by the program
b. Schedule of program interest rates and terms

CUSTOMER SEGMENTS (CS)

3.3.2.5 I'd like to understand which customer segments you are targeting with this product.

F5b.1. What are the target markets and geographic areas covered by this product within California?

F5b.2: Who is the typical customer for this product?

[**NOTE**: Read through the list below and explore if there are target types or ranges for each of these, and if there are specific eligibility thresholds]

RESIDENTIAL PRODUCTS

i. Single family/ Small multi-family
ii. Homeowner and/or renter
iii. FICO score threshold or range
iv. Range of household income
v. Size of building in square feet
vi. Specific energy efficiency measures adopted

COMMERCIAL PRODUCTS

i. Light (small) commercial
ii. Large commercial
iii. Institutional
iv. Large multi-family
v. Building owner / lessee
vi. Credit rating [PROBE ON HOW THIS IS EXPRESSED]
vii. Annual revenues
viii. Size of building in square feet
ix. Measures adopted
x. Types of customers
xi. Industrial / manufacturing
xii. Retail facilities
xiii. Agricultural
xiv. Warehouse

F5b.3. Do your residential consumer products target low-to-moderate income consumers in any specific ways? If so, please describe how, and what kind of demand you are seeing in this market segment.

SALES AND MARKETING STRATEGY (SM)

3.3.2.6 Now I'd like to ask you about sales and marketing for the product.

F6.1. Can you please describe your sales channels for this product? How is the product delivered to customers?

[**PROBE** for who controls the customer relationship? who approves the financing?]

F6.2. What is the role of contractors and equipment vendors or other third parties in delivering or selling the financing product?

F6.3. When was this product first offered, and what was the impetus behind establishing this product?

[**PROBE** for market factors that were considered, government or utility programs that motivated it, or other internal factors such as corporate sustainability policies.]

a. Was the product designed to benefit from any existing incentive programs, and if so which ones? Are the participants required to access, or be eligible for, any other existing incentive programs? If so, how does this work how is it verified]
b. Were your customers requesting assistance for EE financing before the product was created? If so, please describe the level of demand you were seeing, and how it influenced your decision to create this product.

F6.4. Please describe your marketing plan for the product? Does it have a marketing plan? What marketing channels are used, and what has been your experience in marketing this product so far?

a. What marketing materials are available, and how are they distributed?
b. Do you work in partnership with any other agencies or organizations to market this product? If so, which ones and in what capacity?

LOAN ORIGINATION AND UNDERWRITING STANDARDS (U)

3.3.2.7 Now I'd like to ask you about your origination and underwriting practices that apply to your EE financing product(s).

[**NOTE:** If the lender refuses to answer specific questions about their lending practices, ask why and, if necessary, explain that the information would help to better understand their perspective on this market]

F1.1. What roles do you play in delivering each of the financial products mentioned?

a. Loan origination
b. Underwriting
c. Loan Administration

F1.2: Does you financial institution ultimately hold the loans/assets, or do you sell or transfer them to another lender?

a. If you sell or transfer these, who ends up holding them primarily?

NOTE: If they perform loan origination, then ask Qs F1.3 – F1.5]

F1.3. Approximately what percentage of EE financing customers are individuals or organizations with whom you have an established banking or lending relationship?

F1.4. Do you offer your customers pre-approval for this product before they plan the EE retrofit project, and if so what portion of applications are preapproved?

a. If so, what is the preapproval process? What information do you request for preapproval applications?

F1.5. Are you familiar with the underwriting conditions applied to this product (or products)?

[NOTE: If they underwrite and/or originate the loans, or are familiar with the underwriting conditions the Qs F4c.1 to F4c.4]

F4.1. What criteria do you use to evaluate and/or underwrite applications?

F4.2. [FOR RESIDENTIAL PRODUCTS] Are your underwriting standards for this product stricter or more relaxed than for your standard consumer loans and HELOCs?

b. If so, how does this manifest itself? What are the maximum term lengths offered, FICO score threshold, minimum interest rates?
c. If so, please explain why do your under writing standards differ from your conventional lending?

F4.3. [FOR COMMERCIAL PRODUCTS] Are your underwriting standards for this product stricter or more relaxed than for your conventional commercial loans and leases?

a. If so, how does this manifest itself? What are the maximum term lengths offered, FICO score threshold, minimum interest rates?
b. If so, please explain why do your under writing standards differ from your conventional lending?

F4.4. What efforts are you making to understand the risk and return from energy efficiency financing projects and how it may differ from other similar financing products?

PORTFOLIO PERFORMANCE (PP)

3.3.2.8 Next I'd like to ask you a bit about how the product is performing.

F3a.1. Approximately what was the number and value of EE loan originations last year?

F3b.1. What is the size of your EE loan or lease book for each of the following market segments?

a. Commercial
b. Residential
c. Low Income

F3c.1. What is the average transaction size ($) and typical range of sizes for your energy efficiency products and financing?

a. For commercial customers
b. For residential customers
c. Low Income customers (if relevant)

F10.1. What is the acceptance and rejection rate for applicants to this product?

F10.2. In the past year, what has been the EE product's charge off, and delinquency rates for residential and commercial customers?

a. How do these compare to other consumer loans and HELOCs?
b. How does it compare with other commercial loans and mortgages?
c. What appears to be the factor with the biggest influence on the product's default/delinquency rates?

F10.3. How do you rate the performance of this product compared to other financial products your institution offers?

F10.4. Do you see, or expect to see an impact on your business as more energy efficiency financing products become available?

a. Do you intend to create any new energy efficiency financing products, if so when?

b. Do you intend to discontinue any existing energy efficiency products, if so when?

FS10.5. What other trends are you witnessing in your EE lending, or in the industry in general.

a. Are you delivering more or less EE loans year over year?
b. Do you see new players entering the market?
c. Do you think that EE lending is becoming more or less attractive, as compared to conventional lending?
d. In your opinion, what are the drivers of these trends?

F10.6. What are the barriers to an increased demand/use of these products?

OTHER FINANCING (OF) OF EE USING GENERIC PRODUCTS

3.3.2.9 I would like to find out about how you finance energy efficiency projects through your standard financing offers.

F3a.2. Do you finance energy efficiency upgrades using conventional, non EE-specific products such as; (for each, would you say you use them to finance EE upgrades never, sometimes, or often)

a. Consumer mortgages
b. Home equity lines of credit
c. Consumer loans
d. Commercial mortgages
e. Commercial loans
f. Equipment leases
g. Other(s)

F3a.3. Do you track and report on these types of EE financing as a separate category? If so to whom do you report you EE lending statistic?

F3a.4. What are your annual originations, growth rate and size of your loan book for each of the above products?

DATA COLLECTION (DC)

3.3.2.10 Finally, I'd like to ask you about what data you collect about the product.

DC1. Do you have any obligations to collect data and report to any external partners about this product? If so what data do you collect and report?

DC2. What product data do you track for internal purposes?

> [**PROBE** for any data sets that they may be able to make available, either aggregate numbers or product performance data that has client details removed.]

CLQ1: Is there anything else you'd like to add?

3.3. Residential Contractor Survey

3.3.1. Methodology

Sample

The Evaluation Team conducted interviews with contractors in the residential retrofit sector to gain a better understanding of energy efficiency financing awareness and use in the California market. The sample population for this study includes contractors on the Contractors State License Board's list of contractors with one or more of three license classes: "General Building", "Warm Air Heating, Ventilation & Air-Conditioning", and "Weatherization and Energy Conservation" (license designations B, C-20 and D-65 respectively). The sample population did not allow for identifying contractors who work in the residential retrofit market. To help identify the correct contractor sample, the Evaluation Team conducted pre-test interviews with contractors to test the survey instrument and to gauge how our sample population would understand and respond to our survey questions. Through our pre-test calls, we discovered that many contractors on the list would likely not qualify for the study because they do not work in the residential retrofit sector. Therefore, we discovered a need to better pre-screen contractors in advance of the survey to identify contractors that work in the residential retrofit sector. The advance pre-screen also helped us to quantify the residential contractor market and the distribution of contractor licenses to ensure that our survey respondent pool was representative.

Thus, we conducted a two-stage sampling process whereby we performed "mystery calls" to create a sample of residential retrofit contractors and then used that sample for our full survey. Completed survey respondents received $50 to thank them for their participation.

To conduct the pre-screen through the "mystery calls", the interviewer called contractor's offices acted like a customer looking for a contractor for home improvements (windows, insulation and/or a new HVAC system) and determined if the company could help with this type of work. The mystery caller approach allowed us to quickly determine if a firm conducts residential retrofit work. We opted to use a mystery call approach because, theoretically, businesses are more open to telling a potential customer about the type of work they do than if we called as a survey house.

In preparing our sample frame for the mystery calls, we removed all identified duplicates from this list of licensed general contractors, HVAC contractors, weatherization contractors, and those records with missing or insufficient contact information, eventually removing about 3.4% of the population. Table 29 below summarizes the population used for this study and the sample frame for the mystery shopper interviews. The sample frame shows the sample counts after removing bad phone numbers and duplicates.

Table 29. Sample Distribution

License Type	Population	Sample Frame
General Contractor: Class B & Multiple	97,589	91,998
HVAC only: Class C-20	8,618	8,416
Weatherization only: Class D-65	36	36
Total	**106,243**	**102,648**

Source: Population received from the California State License Board in December 2014.
Note: The "General Contractor: Class B & Multiple" category includes general contractors who also have HVAC and/or weatherization licenses and HVAC contractors who also have weatherization licenses.

Initial Screening Mystery Calls

We pulled a random proportional sample by license type of 3,113 contractors with the exception of "HVAC only" (Class C-20) licensed contractors. We oversampled HVAC only license contractors to ensure that we had enough HVAC only contractors to compare to the whole house type of contractors (General or Multiple license contractors) in the study. During the mystery calls, an interviewer asked contractors if they could help them with installations of new windows, heating systems, insulation, or cooling systems in their home. Fifty-three percent of contractors (n=1,636) verified that they conduct residential retrofit work.

The residential contractor sample obtained through our mystery call process then became our sample for the full contractor survey. This residential contractor sample included all 1,636 records. We completed full interviews with 156 contractors. Table 30 shows the distribution of license types across the sample frame, the sample used for the mystery calls, the contractors who qualified for the survey, and the contractors who completed the survey.

Table 30. Sample Frame, Mystery Caller

License Type	Sample Frame	Dialed in Mystery Caller	Sample Pool of Residential Retrofit Contractors	Contractor Survey Respondents
General Contractor: Class B & Multiple	92%	86%	81%	77%
HVAC only: Class C-20	8%	14%	19%	22%
Weatherization only: Class D-65	0.04%	0.06%	0.06%	.006%
Total	**102,648**	**3,113**	**1,636**	**156**

To increase response rates, each record was dialed up to 8 times and at different times of day and different days of the week between 8am and 5pm Pacific. We offered contractors who qualified and completed the survey $50 to thank them for their time. In addition, we offered the ability for respondents to take the survey online or complete it over the phone. In Table 31 is an outline of the final call result for each record. Three respondents completed the survey through the web link, with the rest completing the survey on the phone. The total response rate was 11%[32]. The cooperation rate was 17%.

Table 31. Sample Disposition

Sample Disposition	N	%
Total Sample	**1,636**	**100%**
Completes		
Complete by phone survey	153	9%
Complete by web survey	3	0%
Terminates		
Terminated in QS1 - Does not have B, C-20, OR D-65 contractor license types	2	0%
Terminated in QS2 - Does not offer related services	2	0%
Terminated in QA2 - Work does not result in energy savings	8	0%
Non-Completes		
Sample loaded but not used	80	5%

32 AAPOR Response Rate 3 (RR3).

Sample Disposition	N	%
Take or continue online	28	2%
Language problems	5	0%
Non-specific callbacks	267	16%
Refusals	873	53%
Unable to reach	187	11%

Survey Weighting

We weighted the results of the survey to ensure that findings were representative of the residential contractor population in California. We developed relative weights to account for the differences in distribution of contractor license type between the population and final survey respondents. Table 32 shows the steps we used to calculate these weights. Notably, we did not weight the results for the weatherization contractors as only 1 contractor completed the survey.

Table 32. Survey Weights (Weight 1)

License Type	Starting Population (Includes Residential and Commercial)	Number Called In Mystery Calls	Population that Does Residential Work Based on Calls		Calculated Total Population that Does Res Work		Survey Respondents [a]		Relative Survey Weights
			#	%	#	%	#	%	
Calculation	**A**	**B**	**C**	**D (C/B)**	**E (A*D)**	**F**	**G**	**H**	**I (F/H)**
General Contractor: Class B & Multiple	97,589	2,677	1,325	49%	48,305	89%	116	74%	1.193
HVAC only: Class C-20	8,618	436	311	71%	6,147	11%	40	26%	0.440
Other	36	2	1	53%	19	0%	40	0%	n/a
Total	**106,243**	**3,115**	**1,637**	**53%**	**54,470**	**100%**	**156**	**100%**	**n/a**

Note: In order to avoid giving the respondent an extremely small weight, we included the one "weatherization only" contractor in the General Contractor category.

[a] These counts represent license type classification within our survey sample ("sample classification"), which differs from survey responses about license type ("survey classification"). We use sample classification to construct weights, which ensures proper statistical comparison to the contractor population. Notably, however, we present our survey results according to survey classification, as this aligns with the mindset of the respondent. We do not use weights in these comparisons.

To account for the size of contractors that responded to the survey, we developed a second weighting method that combines the contractor type weight (above) with an additional weight based on self-reported annual revenue. Throughout the data tables, we refer to the first method (contractor type only) as **Weight 1** and the second method (contractor type plus annual revenue) as **Weight 2.**

As we present the results of the survey, it is important to note that we only use these weights when reporting on the total contractor population, and not when we make comparisons across license type, awareness of financing options, or whether contractors promote financing. This is because we base these categorizations on survey responses, not population data. For the same reasons we do not use weights when exploring sub-sets of the 156 respondents (i.e., results of questions asked of only contractors promoting financing).

3.3.2. Detailed Contractor Survey Results

Introduction

The Evaluation Team conducted interviews with 156 general and HVAC contractors in the residential retrofit sector from December 2014-February 2015. The primary goal of the interviews was to capture a snapshot of the overall landscape for energy efficiency financing amongst contractors in California prior to the roll-out of the residential Statewide Finance Pilots.

There were three main objectives in conducting these interviews:

1) Understand the level of awareness of contractors of energy efficiency financing opportunities available to their clients, and to what extent contractors' clients take advantage of these opportunities. (Awareness)
2) Estimate contractors' use of financing to market their products and services, and the impact of energy efficiency financing on the contractors' sales. (Promotion)
3) Define which factors influence contractor decisions about taking advantage of available opportunities to finance energy efficiency projects. (Motivations and Barriers)

Specifically, the contractor interviews were geared toward collecting key supply-side market indicators, or metrics, as defined in the 2013-2014 EM&V Finance Roadmap related to energy efficiency financing for residential contractors. Future studies (after program launch and/or at end of the program cycle) will then seek to measure change in these key metrics to estimate impacts as well as the causal effects of the residential finance programs.

Table 33 shows the key baseline metrics that we collected from contractor interviews. We present the results using two weighting methods:

- **Weight 1:** We weighted on contractor licence type to ensure that our results reflect the population of residential contractors in California.
- **Weight 2:** To explore whether there are differences in results by contractor size, we combined the contractor type weight with another weight based on self-reported annual revenue.

Table 33. Preliminary Supply-Side Contractor Baseline Metrics

Metric of Change		Weight 1 (weighted by contractor type only)	Weight 2 (weighted by contractor type and revenue)
Awareness	Awareness of energy efficiency-specific financing products	61% (19% unaided)	71% (26% unaided)
Promotion	Percentage of contractors who promote financing	18%	25%
	Percentage of contractors who promote energy efficiency-specific financing	10%	15%
	Use of financing within marketing efforts	10%; amongst those who promote EE financing 64% use in marketing	16%; amongst those who promote EE

Metric of Change		Weight 1 (weighted by contractor type only)	Weight 2 (weighted by contractor type and revenue)
			financing 64% use in marketing
Barriers	Percentage with barriers to promoting EE financing to customers	90%	85%
	Top 3 Barriers (multiple response), expected to decrease over time due to pilots	44% lack capacity/resource to promote financing; 38% lack awareness of finance options; 36% lack customer demand for finance	44% lack customer demand for finance; 40% lack capacity/resource to promote financing; 35% lack awareness of finance options

Findings

Below we discuss the high level findings from the survey effort and a summary of the baseline metrics established.

Throughout this document, we make a distinction between contractors that promote *any* financing and those that promote *energy efficiency-specific* financing. We base this distinction on responses to a pair of questions we asked in the survey. First, we asked contractors if they promote any financing. If they did, we followed up to ask if they promote "special financing options for energy efficiency projects". We defined energy efficiency projects to contractors as "projects that lead to energy bill savings for your customers" and defined financing options as "loans that customers can get to pay for the products and services that contractors provide" including energy efficiency specific term loans, energy related HELOCs and energy efficient mortgages, and PACE type financing. Three contractors said that they promote a credit card that Wells Fargo has to help customers fund home improvements, but credit cards are very different from the type of loan financing that the Pilots plan to implement and therefore we did not consider these credit cards as "energy efficiency financing' for this baseline.

Contractor Characteristics

We interviewed 156 contractors that perform residential retrofit services within California. Of these, 120 hold a general contractor (Class B) license or multiple licenses, 35 hold a "HVAC only" license (C-20), and one holds a "weatherization only" (D-65) license. The following are some characteristics of the contractors in this study.

- The top five services provided by these contractors are renovations and building additions (88%), window installations (80%), water heating system installations (75%), lighting installations (72%) and weatherization/insulation installations (63%). Solar and swimming pool services were the least common (21% each).
- Most contractors (81%) are not participating in California's energy programs.
- Contractors have five employees in their company on average; employee size per company ranged from one to one hundred employees with one outlier having 700 employees.
- Gross annual revenue varies greatly across respondents with about two-thirds (65%) earning $500,000 or less last year.

- Most (90%) are not part of a franchise.
- Contractors are widely spread across California, covering more than half (38 of 58) of California's counties.

AWARENESS

- Currently, one in four contractors (26%) can name or describe energy efficiency-specific financing products without aiding their recall. Over time, we expect this proportion to increase after pilot intervention. With further probing, about two out of every three (71%) contractors are aware of at least one specific type of energy efficiency financing. Contractors are most commonly aware of equipment leases for energy saving equipment (42%) and least aware of PowerSaver loans (19%).
  - Contractors who are aware of energy efficiency-specific financing tend to be larger firms, in terms of employee size and revenue, and they tend to participate in utility rebate programs. See Table 43.
  - Refer to Section 3.3.2.1 for detailed data.

PROMOTION

- While more than two-thirds of contractors (71%) are aware of some type of energy efficiency-specific financing, few actively promote it to their customers; 25% promote financing options in general to their customers while only 15% promote energy efficiency-specific financing.
  - In general, contractors vary in how often they promote financing to customers; 10% always do, 7% frequently do and 5% only promote it occasionally.
  - Contractors promoting any sort of financing to customers tend to be larger firms, in terms of gross annual revenue, install solar, and tend to participate in utility rebate programs (See Table 43). Many of these contractors are currently participating in the Home Upgrade Program and the PACE/HERO programs. These contractors also tend to sell larger projects to customers such as air-conditioning systems and solar panels. All of these contractors partner with another company or program to promote financing.
  - Amongst the 14 contractors in this study who said they promote energy efficiency-specific financing to their customers, most (11) promote PACE (or similar programs), and five promote terms loans. While most of them could provide information on the interest rates and term lengths they offer, we most often found that what they reported did not match our background knowledge of EEFPs. For instance, we found that many (seven of 11) contractors did not state a similar minimum interest rates for PACE as we found through our own interviews with programs and financial institutions. Contractors' inability to provide accurate (or, in some cases, any) data may be because they have limited familiarity with the product themselves. Contractors may point customers in the direction of an EEFP but may not be too involved in the lending process. Another potential cause for is that the interest rates and terms may vary greatly from one customer to another making it difficult to report on averages in a survey.

    Amongst those who could provide these details, 21% say they offer 0% interest to residential customers meaning that contractors were likely referring to what is offered to commercial customers, as on-bill-financing for commercial customers is the only EEFP in the CA market offering

a 0% loan. About half (43%) of the contractors promoting financing say they can close financing quickly enough for immediate replacement jobs.

- Currently, 16% of contractors promote financing options in their marketing materials or on their company websites. However, this tactic is very common among those who promote financing. Specifically, 63% of those who promote any financing (n=30) and 64% of those who promote EE-specific financing (n=14) promote financing options in their marketing materials or on their company websites.
- Refer to Section 3.3.2.2 and 3.3.2.3 for detailed data.

BARRIERS

- While 15% of contractors currently promote energy efficiency-specific financing, the remainder mentioned a number of barriers that prevent them from wanting to promote financing.
  - The most common barrier is that some contractors (44%) do not think their customers generally need financing for energy efficiency upgrades. Further, some contractors (15%) are not interested in promote financing. These contractors do not think they should be involved in how a customer chooses to fund projects and instead think it is the customer's responsibility to figure out the funding and the contractor's only role is to conduct the work and collect payment from the customer.
  - The second most common barrier (mentioned by 40% of contractors) is that contractors do not think they have the capacity to promote financing due to staffing limitations. For instance, one contractor mentioned that they are "a small company and the financing aspects of it get too complicated". Another mentioned they don't promote financing "because [they are] pretty much a one horse contractor." This barrier can be addressed if the pilots are able to promote easy, turnkey, solutions that contractors can comfortably promote without needing additional resources.
  - The third most common barrier is the contractors' lack of awareness of financing options available (35%).
- Based on the data above it seems that while some contractors may see financing as a way to grow their business, others may choose to shy away from it all together in favor of leaving the funding decisions up to the customer. This is important to note as not all contractors will be interested in promoting financing to customers and therefore, other supply-side channels, such as financial institutions will need to help promote options to customers.
- Refer to Section 3.3.2.4 for detailed data.

ADDITIONAL FINDINGS

- Our survey results also indicate that contractors are generally limited in their knowledge of ways that customers can use utility programs to help fund energy efficiency projects. Specifically, nearly half (45%) of contractors are "not at all familiar" with energy efficiency rebates available to their customers, and only 14% are "very familiar".
- When asked whether financing or utility rebates were more helpful in selling jobs, contractors widely varied. One-third thought they were equally helpful, one-quarter thought rebates were more helpful, but only 7% thought financing was more helpful. However, almost one-quarter of contractors could not

answer this question which is unsurprising given that many contractors are not aware of financing and not familiar with the utility rebates.

- Residential PACE is still relatively new to most contractors, as the majority (76%) are not aware of the PACE or HERO programs. When asked about the use and value of PACE over other financing options, the majority of contractors could not answer these questions given their lack of awareness of PACE or lack of familiarity with how their customers fund projects. Even among only those who are aware of PACE or HERO (n=29), 41% are unsure of how useful PACE is to customers, and another third (31%) report that it is not particularly useful to customers
- Refer to Section 3.3.2.5 for detailed data.

Raw Data Tables

3.3.2.1 Awareness of energy efficiency-specific financing products

Table 34. Unaided Awareness of EE Financial Products (Weighted)

Off the top of your head, what energy efficiency financing options have you heard of?	Percentage of Contractors (n=156)	
	Weight 1	Weight 2
Not Aware of EE Financing Options Unaided	81%	74%
Aware of EE Financing Options Unaided	19%	26%

Table 35. Number of Contractors that Are Aware of Energy Efficiency Financing Products (Weighted)

Awareness	Percentage of Contractors (n=156)	
	Weight 1	Weight 2
Not aware	39%	29%
Aware	61%	71%

Table 36. Awareness by of EE Financial Products (Weighted)

"Which of the following energy efficiency-related financing products have you heard of?"	Percent of Contractors (n=156)					
	Weight 1			Weight 2		
	Yes	No	Don't Know	Yes	No	Don't Know
Equipment leases for energy saving equipment	27%	73%	1%	42%	56%	2%
Local credit union or bank energy efficiency loans	31%	68%	2%	34%	66%	1%
Energy utility on-bill repayment financing	25%	74%	1%	30%	70%	1%
Green Mortgages	21%	79%	0%	26%	73%	1%
PACE loans	16%	84%	0%	24%	76%	0%
PowerSaver loans	17%	82%	1%	19%	81%	1%

AWARE CONTRACTOR CHARACTERISTICS[33]

Table 37. Contractor Characteristics by Awareness of EE Financing Options (Un-weighted)

Characteristic	Aware (n=97)	Not Aware (n=59)
Contractor License Type		
General/Multiple	75%	80%
HVAC Only	24%	20%
Weatherization	1%	0%

33 The following tables compare contractors who are aware and unaware of energy efficiency financing options. We note significant differences between these groups where they exist.

Characteristic	Aware (n=97)	Not Aware (n=59)
"Is your company participating in any energy programs in California?"		
Not Participating	71%	93%★
Participating	29%★	7%
"How many employees, including yourself, does your company have in California?"		
5 or less	65%	86%★
6 to 10	20%★	8%
11 to 20	8%	2%
21 to 30	2%	2%
31 to 40	2%	0%
100 or more	2%	0%
Refused	1%	2%
Average Number of Employees [a]	*5 (n=95)* ★	*3 (n=58)*
"What is your gross annual business revenue in California?"		
Less than $100,000	23%	39%★
Between $100,000 and $500,000	35%	39%
Between $500,000 and $1 million	16%	14%
Greater than $1 million	20%★	3%
Refused	6%	5%
"Are you a local franchise of a larger supplier, contractor company or network?"		
Not a franchise	88%	93%
Franchise	12%★	5%
Don't know	0%	2%

★ Indicates a significant difference between those who are aware and not aware of EE financing options.

[a] Average number of employees excludes two respondents who did not provide a valid response. We also excluded one respondent who indicated their company has 700 employees to avoid overestimating the mean number of employees.

Table 38. California Energy Programs Mentioned by Awareness of EE Financing Options (Un-weighted)

"Which programs have you participated in?"	Aware (n=28)	Not Aware (n=4)
	Multiple Response	
Energy Upgrade California	13	0
PACE/HERO	8	1
Utility rebate programs	8	1
Don't know	1	1

Note: Base only includes 32 respondents who indicated they participate in California energy programs.

3.3.2.2 Contractors who promote financing or energy efficiency-specific financing

Table 39. Contractors that Promote Any Financing (Weighted)

"Does your company currently offer or promote any kind of financing options to help customers purchase your products and services?"	Percentage of Contractors (n=156)	
	Weight 1	Weight 2
No	82%	75%
Yes	18%	25%

Table 40. Contractors that Promote EE-Specific Financing (Weighted)

"Does your company currently offer or promote any kind of special financing options specifically for energy efficiency projects?"	Percentage of Contractors (n=156)	
	Weight 1	Weight 2
No	90%	85%
Yes	10%	15%

CHARACTERISTICS OF CONTRACTORS THAT PROMOTE FINANCING[34]

Table 41. Contractor Characteristics by Promotes Financing (Un-weighted)

Characteristic	Promotes Any Financing		Promotes EE Financing	
	Yes (n=30)	No (n=126)	Yes (n=14)	No (n=142)
Contractor License Type				
General/Multiple	67%	79%	79%	77%
HVAC Only	30%	21%	14%	23%
Weatherization	3%	0%	7%	0%
"Is your company participating in any energy programs in California?"				
Not Participating	43%	88%↑	7%	87%✳
Participating	57%↑	12%	93%✳	13%
"How many employees, including yourself, does your company have in California?"				
5 or less	60%	76%↑	50%	75%✳
6 to 10	23%	13%	29%	14%
11 to 20	13%↑	4%	14%✳	5%
21 to 30	0%	2%	0%	2%
31 to 40	3%	1%	7%	1%
100 or more	0%	2%	0%	1%
Refused	0%	2%	0%	1%
Average Number of Employees*	7 (n=30)	5 (n=123)	9 (n=14) ✳	5 (n=139)
"What is your gross annual business revenue in California?"				
Less than $100,000	3%	35%↑	7%	31%✳
Between $100,000 and $500,000	47%	34%	43%	36%
Between $500,000 and $1 million	23%	13%	21%	15%
Greater than $1 million	23%	11%	29%✳	12%
Refused	3%	6%	0%	6%
"Are you a local franchise of a larger supplier, contractor company or network?"				
Not a franchise	97%↑	88%	100%✳	89%
Franchise	3%	11%↑	0%	11%
Don't know	0%	1%	0%	1%

↑Indicates a significant difference between those who do and do not promote <u>any</u> financing.
✳ Indicates a significant difference between those who do and do not promote EE financing.
*Average number of employees excludes two respondents who did not provide a valid response. We also excluded one respondent who indicated their company has 700 employees to avoid overestimating the mean number of employees.

34 In the following tables, we compare two groups. First, we compare contractors who promote any financing options to customers and those who do not. Second, we compare contractors who promote energy efficiency-specific financing options to customers and those who do not. We note significant differences between these groups where they exist.

Table 42. California Energy Programs Mentioned by Promotes Financing (Un-weighted)

"Which programs have you participated in?"	Promotes Any Financing		Promotes EE Financing	
	Yes (n=17)	No (n=15)	Yes (n=13)	No (n=19)
	Multiple Response			
Energy Upgrade California	9	4	6	7
PACE/HERO	8	1	8	1
Utility rebate programs	5	4	4	5
Other	0	5	0	5
Don't know	0	2	0	2

Note: Base only includes the 32 respondents who indicated they are participating in a California Energy Program.

EXPLORING AWARENESS AND PROMOTION BY CONTRACTOR CHARACTERISTICS

Table 43. Contractor Type and Size Comparisons for Awareness and Promotion (Un-Weighted)

Characteristic	Percentage Aware of EE Financing Options	Percentage that Promote Any Financing	Percentage that Promote EE-Specific Financing
Contractor License Type			
General/Multiple (n=120)	61%	17%	9%
HVAC Only (n=35)	66%	26%	6%
Weatherization (n=1)	100%	100%	100%
Solar			
Offer Solar (n=30)	73%	40%★	30%★
Don't Offer Solar (n=126)	60%	14%	4%
"Is your company participating in any energy programs in California?"			
Not Participating (n=127)	56%	10%	1%
Participating (n=29)	88%★	53%★	41%★
"How many employees, including yourself, does your company have in California?"*			
5 or less (n=114)	55%	16%	6%
6 to 10 (n=24)	79%★	29%	17%★
11 to 40 (n=14)	86%★	36%★	21%★
100 or more (n=2)	100%	0%	0%
"What is your gross annual business revenue in California?"*			
Less than $100,000 (n=45)	49%	2%	2%
Between $100,000 and $500,000 (n=57)	60%	25%★	11%★
Between $500,000 and $1 million (n=24)	67%	29%★	13%★
Greater than $1 million (n=21)	90%★	33%★	19%★
"Are you a local franchise of a larger supplier, contractor company or network?"*			
Not a franchise (n=140)	*61%*	*21%★*	*10%★*
Franchise (n=15)	*80%★*	*7%*	*0%*

★ Indicates a significant difference between rows in a given category. For example, 40% of solar contractors promote financing, which is significantly higher than the 14% of non-solar contractors who promote financing.
*Table excludes "Don't Know/Refused" responses

DETAILS ON WHAT IS PROMOTED BY CONTRACTORS THAT PROMOTE FINANCING[35]

Table 44. Details of Financing Promoted by Contractors (Un-weighted)

Characteristic	Contractors that Promotes EE-Specific Financing	
	Number of Contractors	Percentage of Contractors (n=14)
"What is the minimum interest rate that you can offer your residential customers who want to pay for an energy efficiency project?"		
0%	3	21%
Between 2%-4.9%	2	14%
Between 5% and 9.9%	3	21%
Don't know	4	29%
Refused	2	14%
Average Interest Rate [a]	*3% (n=8)*	
"What is the maximum term length, or number of years to repay the financing, that you can offer to residential customers?"		
1 to 5 years	1	7%
15 to 20 years	8	57%
21 to 30 years	2	14%
Don't know	2	14%
Refused	1	7%
Average maximum term length [b]	*18 years (n=11)*	
"How quickly can a customer close the financing that you offer or promote?"		
1 -3 days	8	57%
2-3 weeks	1	7%
1 month	1	7%
More than one month	1	7%
Don't know	2	14%
Refused	1	7%
"Can it be done quickly enough to replace equipment that needs immediate replacement?"		
Yes	6	43%
No	3	21%
Don't know	5	36%

[a] Average interest rate only includes the 8 valid responses.
[b] Average term length only includes the 11 valid responses.

Table 45. Service Offerings by Promotes Financing (Un-weighted)

Which of the following services does your company offer the residential market?	Any Financing		EE Financing	
	Promotes Any Financing (n=30)	Does not Promote Any Financing (n=126)	Promotes EE Financing (n=14)	Does not Promote EE Financing (n=142)
	Percent that Offer Each Service			
Install space cooling systems such as air conditioners	80%↑	63%	79%✱	65%
Do renovations or building additions	70%	83%	79%	81%
Install space heating systems	77%	63%	79%	64%
Install water heating systems	63%	71%	64%	70%

35 In the following tables, we explore what contractors are promoting now in terms of financing. We indicate in table notes whether the base is of contractors who promote any financing options versus contractors who promote energy efficiency-specific financing.

Which of the following services does your company offer the residential market?	Any Financing		EE Financing	
	Promotes Any Financing (n=30)	Does not Promote Any Financing (n=126)	Promotes EE Financing (n=14)	Does not Promote EE Financing (n=142)
	Percent that Offer Each Service			
Weatherize and insulate homes	63%	52%	79%	52%
Install windows	47%	72%↑	64%	68%
Install lighting	47%	65%↑	50%	63%
Install solar panels	40%↑	14%	64%✳	15%
Install swimming pool equipment such as pool pumps	20%	20%	21%	20%

↑Indicates a significant difference between those who do and do not promote any financing.
✳ Indicates a significant difference between those who do and do not promote EE financing.

Table 46. Energy Efficiency Financing Options Promoted by Contractors (Un-weighted)

Energy Efficiency Financing Product	Percentage of Contractors (Multiple response: n=156)	
	Weight 1	Weight 2
None	90%	85%
PACE	7%	11%
Term loans	4%	7%
Home Equity Line of Credit	1%	2%

Note: We base this data on open-ended responses to survey questions, our background knowledge on financial products, and reviews of contractor and financial product websites.

Table 47. How Contractors Promote Financing (Un-weighted)

"Do you offer financing through your own company, partner with someone else or both?"	Number of Contractors	Percentage of Contractors (n=14)
Partner with someone else	14	100%

Note: Base only includes those who indicate they promote energy efficiency-specific financing; We base this data on responses to the survey question as well as our background knowledge on financial products and reviews of contractor and financial product websites.

Table 48. Whom Contractors Partner with to Promote Financing (Un-weighted)

"Who do you partner with on these financing options?"	Number of Contractors (Multiple response: n=14)
HERO/PACE	10
Bank/credit union	3
Ygrene Energy Fund/PACE	3
Other	3

Note: Base only includes those who indicate they promote energy efficiency-specific financing; We base this data on responses to the survey question as well as our background knowledge on financial products and reviews of contractor and financial product websites.

3.3.2.3 Use of financing within marketing efforts

Table 49. Contractors that Use Financing in Their Marketing Materials or Website

"Does your company include these finance options in any of its marketing materials or on its website?"	Percentage of Those Who Promote Any Financing (n=30) (Un-weighted)	Percentage of Those Who Promote EE-Specific Financing (n=14) (Un-weighted)	Percentage of All Contractors (n=156)	
			Weight 1	Weight 2
Yes	63%	64%	10%	16%
No	37%	36%	90%	84%

Note: 'Yes" responses include any contractors that include any financing options (not just EE-specific options) in their marketing materials or website.

Table 50. Contractors that Mention Financing Options to Customers When Selling a Project

"How often do you mention financing options with your customers when selling an energy efficiency project?"	Percentage of Those Who Promote Any Financing (n=30) (Un-weighted)	Percentage of Those Who Promote EE-Specific Financing (n=14) (Un-weighted)	Percentage of All Contractors (n=156)	
			Weight 1	Weight 2
Never	3%	7%	83%	76%
Always	33%	57%	6%	10%
Frequently - More than half the time	33%	29%	5%	7%
Occasionally - Less than half the time	17%	7%	3%	5%
Don't know	13%	0%	3%	2%

Table 51. Contractors that Refer Customers to Public or Utility Financing Programs (Weighted)

"How often do you refer your customers to public or utility-sponsored energy efficiency financing programs?"	Number of Contractors	Percentage of Contractors (n=156) (Weight 1)	Percentage of Contractors (n=156) (Weight 2)
Never	136	87%	80%
Occasionally - Less than half the time	9	6%	9%
Always	8	5%	8%
Don't know	4	3%	2%

Note: At the time of the survey, there were no utility-sponsored energy efficiency financing programs the marketplace for residential customers. Therefore, we interpret this question as a baseline for how often contractors refer customers to public EE financing programs.

3.3.2.4 Ability to promote financing to customers (barriers)

Table 52. Aided and Unaided Barriers to Promoting Energy Efficiency Financing Faced by Contractors (Weighted)

Question Type	Barriers	All Contractors (n=156) (multiple response)	
		Weight 1	Weight 2
Faces any of the barriers below		**90%**	**85%**
Aided	*Your company does not think your customers generally need financing for energy efficiency upgrades*	*36%*	*44%*
Aided	*Your company does not have the capacity to promote financing to your customers*	*44%*	*40%*
Aided	*Your company is not aware of any energy efficiency financing options that can help your customers*	*38%*	*35%*

Question Type	Barriers	All Contractors (n=156) (multiple response)	
		Weight 1	Weight 2
Unaided	*Lack of interest in promoting financing*	*18%*	*15%*
Aided	*Your company does not do energy efficiency work**	*14%*	*12%*
Unaided	*Barriers related to nature of company/projects**	*4%*	*4%*
Unaided	*Not familiar with how to access financing*	*4%*	*2%*
Unaided	*Does not trust lenders*	*1%*	*0.2%*
Unaided	*Other*	*9%*	*13%*
Did not mention any barriers (aided or unaided)		**10%**	**15%**

Table 53. Barriers to Promoting Energy Efficiency Financing by Contractor Size (Un-Weighted)

Question Type	Barriers	Small Contractors (n=45) (Annual Revenue Less than $100k)	Medium Contractors (n=64) (Annual Revenue between $100k and $500k)	Large Contractors (n=47) (Annual Revenue of $500k or More)
		Multiple Response		
Faces any of the barriers below		**98%**	**91%**	**85%**
Aided	*Your company does not think your customers generally need financing for energy efficiency upgrades*	*27%*	*33%*	*48%*
Aided	*Your company does not have the capacity to promote financing to your customers*	*49%*	*47%*	*33%*
Aided	*Your company is not aware of any energy efficiency financing options that can help your customers*	*40%*	*44%*	*32%*
Unaided	*Lack of interest in promoting financing*	*24%*	*23%*	*16%*
Aided	*Your company does not do energy efficiency work**	*13%*	*17%*	*9%*
Unaided	*Barriers related to nature of company/projects**	*7%*	*3%*	*4%*
Unaided	*Not familiar with how to access financing*	*9%*	*6%*	*0%*
Unaided	*Does not trust lenders*	*2%*	*2%*	*0%*
Unaided	*Other*	*4%*	*8%*	*17%*
Did not mention any barriers (aided or unaided)		**2%**	**9%**	**15%**

*****Several respondents mentioned that their company does not do energy efficiency work or that the nature of their company does not support energy efficiency work. However, exploring those who specifically mentioned "not doing energy efficiency work", we found no significant differences in terms of the services they provide. Thus, we can conclude that while these respondents do not consider their services to be "energy efficiency work", it is likely that their services do lead to energy savings.

3.3.2.5 Additional Areas of Interest

AWARENESS, USE AND VALUE OF REBATES VS FINANCING

Table 54. Contractor Familiarity with Energy Efficiency Incentives and Rebates (Weighted)

"How familiar are you with the utility energy efficiency incentives and rebates that are available to your customers to help reduce the cost of the projects you sell?"	Number of Contractors	Percentage of Contractors (n=156) (Weight 1)	Percentage of Contractors (n=156) (Weight 2)
Not familiar at all	72	46%	45%
Somewhat familiar	62	40%	39%
Very familiar	21	13%	14%
Refused	1	1%	2%

Table 55. Helpfulness of Financing for Selling Jobs Compared to Rebates and Incentives (Weighted)

"When selling jobs to your customers, how helpful is energy efficiency financing compared to utility rebates and incentives?"	Number of Contractors	Percentage of Contractors (n=156) (Weight 1)	Percentage of Contractors (n=156) (Weight 2)	Amongst Those Who Promote EE Financing (n=14) (Unweighted)
Financing and rebates are equally helpful	51	33%	33%	36%
Rebates are more helpful than financing	42	27%	26%	29%
Financing is more helpful than rebates	11	7%	7%	7%
Don't know	36	23%	20%	0%
Refused/Not Asked	17	11%	15%	29%

Note: The majority of contractors responding to this survey are not very familiar with utility rebate programs. As such, most contractors answered this question hypothetically instead of based on actual experience selling both rebates and financing to customers.

Table 56. Reasons Rebates Are More Helpful than Financing (Un-weighted)

Reason	Number of Contractors (Multiple Response: n=43)
Customers like to save money/get money back	14
Customers prefer rebates	10
Customers don't need financing	7
Rebates are easier to obtain	3
Rebates are more familiar to customers	2
Other	9
Refused/No Answer	1

Note: Base only includes contractors who indicated that rebates are more helpful in Table 55.

Table 57. Reasons Financing Is More Helpful than Rebates (Un-weighted)

Reason	Number of Contractors (Multiple Response: n=11)
Contractor/Customer prefers process for getting financing	4
Customers prefer financing	3
Customers need money upfront/more money available through financing	2
Other	2

Note: Base only includes contractors who indicated that financing is more helpful in Table 55.

Table 58. Reasons Financing and Rebates Are Equally Helpful (Un-weighted)

Reason	Number of Contractors (Multiple Response: n=52)
Customers often do both rebates and financing together	14
Depends on the customer	7

Reason	Number of Contractors (Multiple Response: n=52)
Rebates and financing are equally helpful	9
The more options the better/anything helps	6
Depends on what options are available	1
Both are not necessary	1
Other	9
Don't know	4
Refused/No Answer	1

Note: Base only includes contractors who indicated that financing and rebates are equally helpful in Q. IS7.

AWARENESS, USE AND VALUE OF PACE

Table 59. Awareness of PACE or HERO among Contractors (Weighted)

Awareness of PACE/HERO	Percentage of Contractors (n=156)	
	Weight 1	Weight 2
Not Aware	85%	76%
Aware	15%	24%

Table 60. Frequency that Customers Use PACE (Weighted)

"To the best of your knowledge, how often do your customers use PACE to fund projects"	Percentage of Contractors (n=156)		Percentage of Those Who Are Aware of PACE/HERO (n=29)[a] (Un-weighted)
	Weight 1	Weight 2	
Never	43%	48%	59%
Occasionally	7%	10%	21%
Don't know	50%	41%	21%
Refused	1%	2%	-

[a] Percentages sum to more than 100% due to rounding.

Table 61. Importance of PACE Compared to Other Financing Options

"How important would you say PACE financing is, relative to the other financing options available to your customers to carry out projects?"	Percentage of All Contractors (n=156)		Percentage of Those Who Are Aware of PACE/HERO (n=29) (Un-weighted)
	Weight 1	Weight 2	
PACE is not particularly useful to my customers	20%	20%	31%
PACE is about as useful as the other options	7%	8%	10%
PACE is among the most important options	3%	4%	7%
Not asked	2%	5%	10%
Don't know	65%	61%	41%
Refused	2%	2%	0%

3.3.3. Contractor Survey Data Collection Instrument

INTRODUCTION

Hello, my name is … and I am calling from Opinion Dynamics on behalf of the California Public Utilities Commission. We are gathering information about how contractors use and promote energy efficiency financing to their customers and we have a few questions that we would like to ask to the person in charge of customer sales. We are also offering $50 to those who qualify and complete this study. May I please speak with the

person who is most involved with or most knowledgeable about customer sales in your company? [IF NOT AVAILABLE, SCHEDULE CALL BACK OR THANK AND TERMINATE]

[IF NEEDED: The survey should take about 10 minutes to complete. Your responses will be kept strictly confidential.]

[THANK AND TERMINATE: I'm sorry but you do not qualify for this study at this time. Thank you for your time. Goodbye]

[IF NEEDED: If you prefer, as an option to participate in this study, you may provide us with your email address and we can send you a link to answer our questions online.

EMAIL OPTION
IF ONLINE SURVEY REQUESTED: "Would you provide us with an email address to reach you? We will send you an email with the survey link shortly. You will be able to start the survey online at the same question where you left off on the phone.

SUBJECT: Energy Efficiency Financing Survey

Body Text:
Thank you for your willingness to participate in the energy efficiency financing survey. Below is the link to our web-based survey. You will be able to pick up the survey at the same question where you left off on the phone. At the end of the survey, you will be prompted to fill out your name and address, which we will use to mail you a check for $50 for completing the survey by January 30th 2015.

[SURVEY LINK HERE]

Should you have any questions, please contact Opinion Dynamics at Research@opiniondynamics. Thank you!

Marisa Benson
Analyst
Opinion Dynamics

SCREENER
PLEASE READ: To start, I have a few questions to see if you qualify for this study.

S1. Does any staff within your company have the following contractor licenses? [1=YES, 2=NO, 8=DON'T KNOW, 9=REFUSED]

a. A general contractor or Class B license?
b. An HVAC contractor or Class C-20 license?
c. A weatherization contractor or Class D-65 license?

[IF S1a-c ALL EQUAL 2 OR 8 OR 9 THEN THANK AND TERMINATE]

S2. Which of the following services does your company offer the residential market? [ASK EACH, YES, NO, DK] Does your company….

a. Do renovations or building additions
b. Weatherize and insulate homes
c. Install windows
d. Install water heating systems

e. Install space heating systems
f. Install space cooling systems such as air conditioners
g. Install lighting
h. Install solar panels
i. Install swimming pool equipment such as pool pumps

[IF NO, DK OR REFUSE TO ALL S2 A-I, THEN THANK AND TERMINATE]

SURVEY START

D5. Approximately how many projects or contracts did your company complete in the last year? [NUMERIC OPEN END, 9998=Don't know, 9999=Refused]

A1a. Of the projects your company completed last year in California, how many would you say were residential retrofit projects, not including new construction? [NUMERIC OPEN END, 9998=Don't know, 9999=Refused]

Awareness and Offerings

A1aa. And of these residential retrofit projects, what percentage would you say likely led to energy bill savings for your customers? [NUMERIC OPEN-END, TRY TO PUSH THEM FOR AN ESTIMATED NUMBER IT DOES NOT HAVE TO BE PERFECTLY ACCURATELY JUST A SENSE OF MAGNITUDE,

[IF CUSTOMER SAYS THEY DON'T REALLY KNOW THE NUMBER OF PROJECTS OR THEY INDICATE THAT THE PROJECTS COULD LEAD TO ENERGY SAVINGS BUT THEY AREN'T SURE, OR THEY HAVE NEVER VERIFIED WHETHER SOMEONE SAVED ON THEIR ENERGY BILL BUT IT IS POSSIBLE WITH THE TYPE OF WORK THEY DO, THEN TRY TO GET THEM TO GIVE AN ESTIMATED NUMBER OF PROJECTS BASED ON THE TYPE OF WORK THEY DO BY SAYING: "If possible could you provide your best guess or estimate as to how many residential projects may have resulted in energy savings for the customer?"]

[ASK IF A1=0 OR DON'T KNOW 998]

A2. Why do you say that? [IF CUSTOMER INDICATES THAT THERE IS NO POSSIBILITY FOR ENERGY SAVINGS BASED ON THE TYPE OF WORK THEY DO THEN TERMINATE HERE]

Throughout this survey we would like to ask mainly about your experience selling to residential customers in California and specifically for retrofit projects, NOT new construction. We want to focus on what role financing options play in your sales to these customers. When we refer to energy efficiency projects please think about projects that lead to energy bill savings for your customers. When we refer to financing options throughout this survey **we are referring to loans** that customers can get to pay for the products and services you provide.

Financing Options

M1_unaid. Off the top of your head, what energy efficiency financing options have you heard of? [RECORD ANSWER]

M1_aid. Which of the following energy efficiency-related financing products have you heard of? Have you heard of... [1=YES, 2=NO, 8=DON'T KNOW, 9=REFUSED]

a. Green Mortgages
b. PowerSaver loans
c. PACE loans
d. Energy utility on-bill repayment financing
e. Equipment leases for energy saving equipment
f. Local credit union or bank energy efficiency loans

M2. Does your company currently offer or promote any kind of financing options to help customers purchase your products and services?

1= Yes
2 = No [SKIP TO M4a]
8 = Don't Know [SKIP TO M4a]
9 = Refused [SKIP TO M4a]

M2aa. Do you offer financing through your own company, partner with someone else or both?

1= Offer through our own company
2= Partner with someone else
3 = Both
8= Don't Know
9=Refused

M2A. Can you describe the financing options that you offer or promote? [RECORD ANSWER]

M2B. Does your company include these options in any of its marketing materials or on its website? [1=YES, 2=NO, 8=DK]

M3. Does your company currently offer or promote any kind of special financing options *specifically for energy efficiency projects*?

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

[IF M2=2 OR M3 =2, THEN ASK M4a,b]

M4.a Why doesn't your company offer or promote financing options [IF M3=2 SAY "specifically"] for energy efficiency projects? [RECORD ANSWER]

M4.b. Do any of the following prevent you from offering or promoting energy efficiency financing to your customers [1=YES, 2=NO, 8=DK]

1. Your company does not do energy efficiency work
2. Your company is not aware of any energy efficiency financing options that can help your customers
3. Your company does not think your customers generally need financing for energy efficiency upgrades
4. Your company does not have the capacity to offer or promote financing to your customers
5. Are there any other factors that prevent your company from offering energy efficiency financing options to your customers? [OPEN-END, YES, SPECIFY, DK OR REF]

[IF M2=2 or 8 SKIP TO IS1]

[ASK M5a ONLY IF M3 =1]

M5a. Can you describe the energy efficiency financing options that you offer or promote? [OPEN END]
00. RECORD REPONSE
01. (Same as what we offer for customers generally, nothing specifically for energy efficiency projects)

M5b. Who do you partner with on these financing options? [OPEN END] [96= Not applicable, we do not partner with anyone]

[ASK ONLY IF M3=1]
M6. Does your company include these energy efficient finance options in any of its marketing materials or on its website? [YES, NO, DK]

M7. How often do you mention financing options with your customers when selling an energy efficiency project? [READ OPTIONS]
01. Always
02. Frequently - More than half the time
03. Occasionally - Less than half the time
04. Never
98. (Don't know)
99. (Refused)

M8. How often do you refer your customers to public or utility-sponsored energy efficiency financing programs? [READ OPTIONS]
01 Always
02. Frequently - More than half the time
03. Occasionally - Less than half the time
04. Never
98. (Don't know)
99. (Refused)

Financing Offered by the Company

[IF M2 =1 or M3=1 THEN ASK F1-F6]
F1. Can you please estimate what portion of your residential customers are given a quote for financing under the financing your company offers or promotes? [NUMERIC OPEN END 0-100, 998=Don't know, 999=Refused]

F1a. What criteria do your customers need to meet to qualify for the financing?

F2. And what portion of your customers accepted the financing offer? [NUMERIC OPEN END 0-100, 998=Don't know, 999=Refused]
F3. What is the minimum interest rate that you can offer your residential customers who want to pay for an energy efficiency project? [NUMERIC OPEN END 0-100, 998=Don't know, 999=Refused]

F4. What is the maximum term length, or number of years to repay the financing, that you can offer to residential customers? [NUMERIC OPEN END 0-50, 98=Don't know, 99=Refused]

F5. How quickly can a customer close the financing that you offer or promote?

1. 1 -3 days
2. 4 – 6 days
3. 1 week
4. 2-3 weeks
5. 1 month
6. More than one month
8. (Don't know)
9. (Refused)

F6. Can it be done quickly enough to replace equipment that needs immediate replacement? [YES, NO, DK]
Impact on Sales

IS1. Thinking about the [IF A1aa=0 or 998: "retrofit"; IF NOT A1aa=0, 998: "energy efficiency"] projects you sold last year, what percentage of those projects used some form of financing including everything from loans to credit cards? [0 - 100%]

IS2. To the best of your knowledge, how often do your customers use the following financing options to fund [IF A1aa=0 or 998: "a retrofit"; IF NOT A1aa=0, 998: "an energy efficiency"] project? For each option, please say always, frequently, occasionally, or never. How often do your customers use a… [01=Always, 02=Frequently, 03=Occasionally, 04=Never, 98=Don't know, 99=Refused]

a. Home equity line of credit
b. Bank Loans
c. Credit card
d. Equipment Leases for energy saving equipment
e. Mortgage loan
f. PowerSaver loans
g. PACE loans
h. Energy utility on-bill repayment financing
i. Local credit union or bank energy efficiency loans

IS3. How important would you say PACE financing is, relative to the other financing options available to your customers to carry out [IF A1aa=0 or 998: "retrofit"; IF NOT A1aa=0, 998: "energy efficiency"] projects? Would you say…

01. PACE is among the most important options
02. PACE is about as useful as the other options
03. PACE is not particularly useful to my customers
98. (Don't know)
99. (Refused)

IS4. In your opinion, how often do your customers use the available energy efficiency specific financing options to expand their projects from what they would have otherwise carried out? [READ OPTIONS]

01. Always
02. Frequently (More than half the time)
03. Occasionally (Less than half the time)
04. Never
98. (Don't know)
99. (Refused)

IS5. In your opinion, have you lost [IF A1aa=0 or 998: "retrofit"; IF NOT A1aa=0, 998: "energy efficiency"] projects because a potential customer could not obtain financing?

01. Yes
02. No
98. (Don't know)
99. (Refused)

[ASK IF IS5=1]

IS5A. How often does this happen?

01. Always
02. Frequently (More than half the time)
03. Occasionally (Less than half the time)
04. Never
98. (Don't know)
99. (Refused)

IS6. How familiar are you with the utility energy efficiency incentives and rebates that are available to your customers to help reduce the cost of the [IF A1aa=0 or 998: "retrofit"; IF NOT A1aa=0, 998: "energy efficiency"] projects you sell? Would you say…

01. Very familiar
02. Somewhat familiar
03. Not familiar at all
98. (Don't know)
99. (Refused)

NewIS7. When selling jobs to your customers, how helpful is energy efficiency financing compared to utility rebates and incentives? Would you say:

1. Financing is more helpful than rebates
2. Rebates are more helpful than financing
3. Financing and rebates are equally helpful; or
8. I don't know

[SKIP IF NEWIS7=8]
IS7a. Why do you say that? [OPEN END]

<u>Firmographic Information</u>
"You are almost done, I just have a few last questions about your company."

D1. Is your company participating in any energy programs in California? [IF NEEDED: Energy programs such as PACE, Energy Upgrade California, or other utility sponsored rebate programs?]

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

[ASK IF D1=1]
D1A. Which programs? [MULTIPLE RESPONSE]

01. (Local PACE)
02. (Utility rebate programs)
03. (Energy Upgrade California)
96. Other (specify)
97. None
98. (Don't Know)
99. (Refused)

D2. How many employees, including yourself, does your company have in California? [NUMERIC OPEN END, 9998=Don't know, 9999=Refused]

D3. What is your gross annual business revenue in California? [NOTE FOR INTERVIEWER: PROBE FOR A RANGE]

01. Less than $100,000
02. Between $100,000 and $500,000
03. Between $500,000 and $1 million
04. Greater than $1 million
98. (Don't know)
99. (Refused)

D4. In which county or counties in California do you work or carry out most of your sales? [OPEN END]

D6. Are you a local franchise of a larger supplier, contractor company or network?

01. Yes
02. No
98. (Don't know)
99. (Refused)

Thank you for your participation in this survey. To show our appreciation, we would like to send you a check for $50. Could you please give us the best name and address to send the incentive to? [RECORD/PLEASE CONFIRM SPELLING OF NAME AND ADDRESS; 97= refused incentive]

This completes the survey. Thank you for your time

3.4. Mystery Borrower Study

3.4.1. Methodology

Team members (or the "mystery borrowers") acted as homeowners wishing to complete home improvement projects including energy efficiency upgrades. The mystery borrowers spoke with financial institution representatives and asked for general loan offerings (such as home equity loans or lines of credit, unsecured loans, and credit cards) as well as any energy efficiency-specific loan offerings that are market-based or supported by taxpayer or ratepayer dollars.

To capture the range of loan offerings available in the market, the mystery borrowers asked about different cost scenarios during the call. Table 62 summarizes the scenario details, and the rationale for using them.

Table 62. Mystery Borrower Scenario Details

	Value	Rationale
Home Value	Median value in respondent's institutional branch zip code	Median home value reflects a typical local customer within each target institution's territory.
Equity in Home	<20%	Most home equity loans require 20% or more equity. Reporting low equity enabled the interviewer to move the conversation past home equity loans to other available financing options.
Income	$75,000	Income is less important than other details to creditworthiness, so income remained constant across interviews. The median household income across the IOU territories is about $65,000 and the team established a slightly higher than average income to help move the conversation during the interviews.
Project Size	Low-cost: $7,000	The energy efficiency measures included in the low-cost scenario were hot water heater, insulation, and door weatherization.
	High Cost: $25,000	The energy efficiency measures included in the high-cost scenario were hot water heater, insulation, door weatherization, and window upgrades.
FICO Score	Low Score: 580	Minimum FICO score most creditors require for FHA[a] loan is 580, this is also the minimum FICO score requirement of the Residential Energy Efficiency Loan Assistance Program[b]. This score is also below the minimum FICO score (score of 680) needed to qualify for a local finance program[c]. This allows us to get a better understanding of the financial loan offerings available to those who have a below average FICO score and only qualify for some rate-payer programs.
	Above Average Score: 716	The team took the average of two scores: • Overall FICO score average in California: 677 • Average FICO score amongst mortgage applicants: 755 This allows us to get a better understanding of the financial loan offerings available to an average customer who also qualifies for all rate-payer programs.

[a] Federal Housing Authority loans <http://www.fha.com/fha_article?id=527&PageID=39>
[b] The Statewide Pilot is yet to be rolled-out and thus this information is based on our current understanding of the Pilot.
[c] Local finance programs are finance programs in California that are being administer by the IOUs or the Regional Energy Networks (RENs).

Sample Frame

The Evaluation Team created a sample based on the financial institutions in CA including banks (national, regional and local) and credit unions. Currently, there are 268 unique banks (representing 7,406 branch locations) and 395 unique credit unions (with an unknown number of branch locations) in California. The Evaluation Team randomly sampled 70 banks and 70 credit unions. The Evaluation Team oversampled 9 of the largest national banks, which represent 50% of all bank branches in California. The Evaluation Team also oversampled 4 banks and 10 credit unions known to have energy efficiency-specific loans.[36]

The Evaluation Team called 163 financial institutions between October and December 2014, and completed interviews with 153 financial institutions (141 full interviews and 12 partial interviews[37]). The sample is designed to achieve 90% confidence and ± 10% relative precision in observed results by lender type (banks vs. credit unions) and by scenarios (lower/higher loan amount, and low/average FICO score). This sample frame also allowed the team to provide some qualitative insights on energy efficiency-specific vs. standard loan offerings.

Note that the Evaluation Team initially intended to call PACE given that they are a viable lending option for customers. The Evaluation Team made one mystery borrower call to HERO PACE. However, to obtain any information, the customers' social security number is required to run a credit check. Thus, the Evaluation Team did not proceed with these calls and only report the findings based on the one call to HERO PACE.

Table 63. Total Interviews Completed

Institution Type	Population	Sample Frame	Completed Interviews	Percentage Complete
Sample				
Banks	255	70	67	96%
Credit Unions	385	70	65	93%
Total	***640***	***140***	***132***	***94%***
Oversample				
Large Banks	9	9	9	100%
Banks – Energy Efficiency-Specific Financing	4	4	2	50%
Credit Unions – Energy Efficiency-specific Financing	10	10	10	100%
Total	***23***	***23***	***21***	***91%***
Overall Total	**663**	**163**	**153**[a]	**94%**
PACE	5	1	1	100%

[a] The 153 interviews consist of 141 full interviews and 12 partial interviews. We were unable to complete an interview with 10 financial institutions (3 banks, 5 credit unions, and 2 banks known to have energy efficiency-specific loans).

Sources and Mitigation of Error

The Evaluation Team took some precaution when fielding this data collection effort to mitigate any sampling or non-sampling errors. Each of these are discussed below.

- **Sampling Error**: For this effort, the Evaluation Team stratified the sample by institution type (banks and credit unions) to capture samples that are representative of their respective populations and

36 These specific banks and credit unions were identified during the team's secondary research efforts looking into Energy Efficiency Financing Products (EEFPs).

37 Full interviews are those in which the mystery borrower was able to cover all data collection topics with the FI. Partial interviews are those in which the mystery borrower was able to collect a significant amount of data from the FI but was unable to address all relevant loan offerings or scenarios. In some cases, a full interview required conversations with multiple people within the same institution. In some cases, one contact was more responsive than the other.

mitigate any potential sampling errors. At the 90% confidence level, the Evaluation Team achieved a precision of ± 8%, assuming a coefficient of variation of 0.50. Note that the actual precision of each response variable differs depending on the variance of the responses to each question.

- Measurement Error: The Evaluation Team addressed both the validity and reliability of quantitative data through multiple strategies:
  - The study relied upon the experience of the team members to create questions that, at face value, appear to measure the idea or construct that they are intended to measure. The team reviewed the questions to ensure that the team did not ask double-barreled questions (i.e., questions that ask about two subjects, but with only one response) or loaded questions (i.e., questions that are slanted one way or the other).
  - The Evaluation Team also checked the overall logical flow of the questions so as not to confuse respondents, which would decrease reliability.
  - Key members of the team, as well as CPUC staff, CPUC advisors and Finance-PCG members had the opportunity to review the interview guide in the draft stage.
  - To determine if the guide would help attain useful and usable data, the team pre-tested the interview guide and reviewed the resulting data.
  - The mystery borrowers went through rigorous training before they began calls. Mystery borrowers received a general overview of the research goals and the intent of the interview guide.

While the team took precautions to remove any potential biases, this research is not meant to be a self-standing but rather augment findings from the other data collection efforts.

3.4.2. Detailed Mystery Borrower Results

As part of Baseline Work Order (ED_0_FIN_2), the Evaluation Team conducted a Mystery Borrower analysis to understand the availability of financial loan offerings for energy efficiency retrofits from the residential customer's perspective. The Evaluation Team conducted this research as part of a residential baseline study in anticipation of the forthcoming launch of the Residential Energy Efficiency Loan (REEL) Assistance program.

In this study, we tested a few consistent scenarios allowing us to take a snapshot of market conditions before the launch of the REEL Assistance program. This study can be replicated in the future to measure change over time after the launch of the REEL Assistance program. As such, this baseline data will serve as the basis for a longitudinal study of loan offerings in the market.

This chapter summarizes the findings from the Mystery Borrower research. The research examines the following market conditions:

1) Loan offerings by financial institutions (banks and credit unions) as well as any difference between the two types of institutions;
2) Loan offerings by financial institutions providing known energy efficiency-specific loans versus general or non-specific loans;
3) Loan offerings to customers who generally qualify for loans (customers with an average FICO score[38] of 716) versus offerings to those who may be on the cusp of qualifying (customers with a low FICO score of 580); and

38 FICO is a company who has built a model of creditworthiness based on factors such as on-time payments, loan capacity used, length of credit history, etc. This model results in a "FICO score", widely used as a preliminary estimate of creditworthiness.

4) Loan offerings when smaller amounts of funds are needed ($7,000) versus when larger amounts for deeper whole house retrofits are needed ($25,000).

Findings

The Evaluation Team was interested in determining key pieces of information about home upgrade financing in California, as well as financing specifically for energy efficiency upgrades. Using the scenarios described above, the team sought to determine the availability of both standard and energy efficiency-specific financing offerings, loan specific details such as Annual Percentage Rates (APR), and payback terms.

The Evaluation Team found that the financial institutions had at least one loan offering that would cover the full cost of both the low-cost ($7,000) and high-cost ($25,000) project scenarios. As expected, financial institutions offer customers in the low FICO score scenario (score of 580) significantly higher rates of interest and restrict these customers from taking advantage of many loan offerings when compared to those with an average FICO score (score of 716). In general, the Evaluation Team found that energy efficiency-specific loans are not readily available. These findings, and others, are discussed in more detail below.

Financing Availability

To gain a broad understanding of the availability of financing for California consumers, the Evaluation Team asked financial institutions to discuss the qualifications required for various loan offerings. The Evaluation Team found:

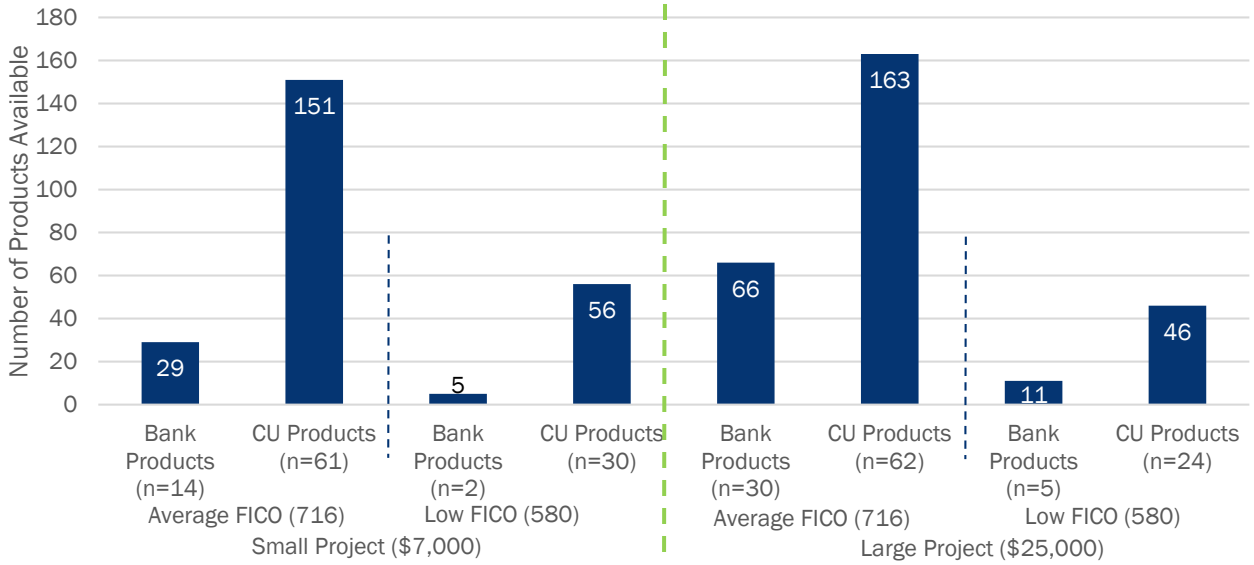
- **About half of the banks called do not offer residential loan services.** The Evaluation Team called 78 banks (including the general sampled banks, oversample of large banks, and banks known to have energy efficiency-specific loans). Of these 78 banks, 34 (or about 44%) did not offer any residential consumer loans, making them a nonviable option for residential customers. Credit unions, in general, are more residential consumer (as opposed to commercial consumer) focused in their loan offerings. All 75 credit unions called offered residential consumer loans.

  While higher service availability among credit unions suggests market opportunity, it is worth noting that credit unions generally have far fewer branch locations than banks and often have very specific membership requirements (i.e., residence in a certain geographical area, or employment in a specific sector) that limit loan availability to the general population.

  Low FICO score is a significant barrier. Regardless of the loan size, a low FICO of 580 is likely to result in disqualification from obtaining a loan. For example, amongst the 44 banks that offer residential loans, a customer with a FICO score of 580 would be eligible for only five loan offerings to fund a $7,000 project and 11 loan offerings to fund a $25,000 project. Whereas a customer with a FICO score of 716 would be eligible for 29 loan offerings to fund a $7,000 project and 66 loan offerings to fund a $25,000 project (see Figure 7). Notably, a significant portion of financial institutions asserted that company policy does not qualify or disqualify a potential borrower by FICO score alone, and so loan offerings from these contacts do not appear in this figure. However, in these cases, the financial institutions did suggest that a FICO of 716 would likely qualify, and a score of 580 would likely not. Additionally, the Evaluation Team could not confirm that larger national banks have any loan offerings for those with low FICO scores (580). All loan offerings for those with low FICO displayed in Figure 7 are from smaller local or regional banks. This is in part due to the reluctance of the larger banks to confirm or deny eligibility without a full loan application. However, this result does further emphasize the lack of availability of these loan offerings among those with low FICO scores.

- **Project size has little effect on availability.** Most banks or credit unions that offer consumer loans offer a variety of loan options within the organization, and can cover projects of various sizes. Figure 7 shows the findings discussed above and displays the sum of loan offerings confirmed to be available to potential borrowers in these scenarios. By comparing the results displayed on both the left and right sides of the graph, we see that the pattern of availability displayed on the left side of the figure, representing small loan amounts ($7,000) mirrors the pattern on the right side, representing large projects ($25,000): This shows that project size does not have a huge effect on loan availability. However, when we compare the loan availability within the loan amounts, we can see that low FICO scores severely affect availability.

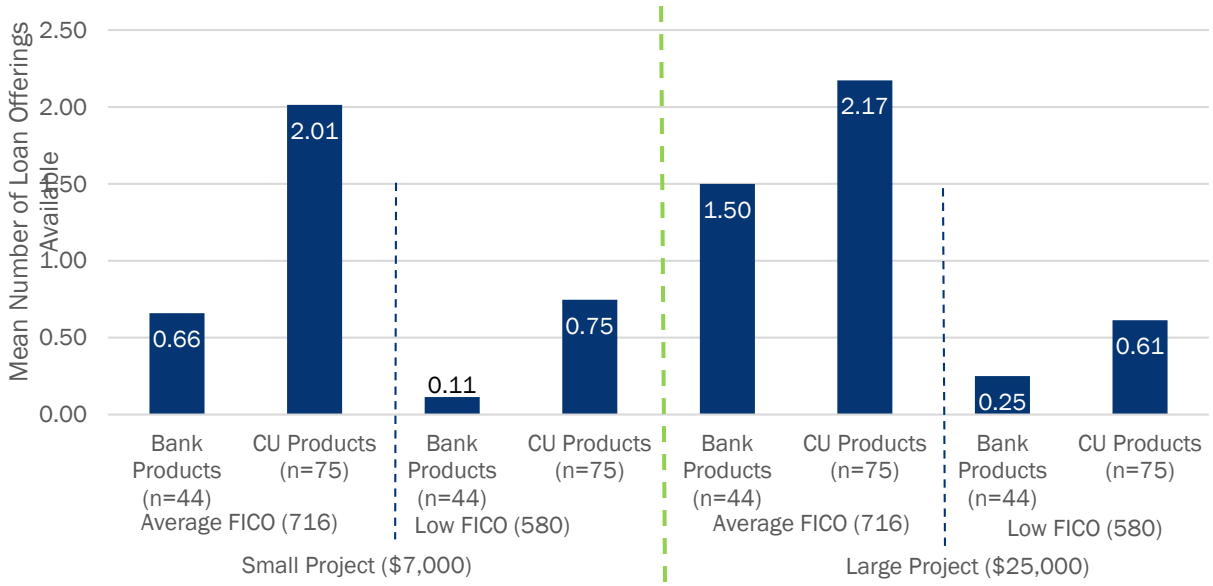
Figure 7. Sum of Available Finance Loan Offerings by Project Size, FICO Score, and Institution Type



Note: The values depicted represent loan offerings and financial institutions in which representatives were able to confirm eligibility for each scenario.

- **Credit unions offer more loan offerings to those with Low FICO scores than Banks.** In addition to being more consumer focused, credit unions, have more permissive qualifications standards, and are able to accommodate higher risk loans. Thus, as expected, the Evaluation Team found that a higher number of loan offerings for those with a 580 FICO score are available through credit unions than banks. For example, in Figure 7 we can see that a customer with a 580 FICO would qualify for about 56 (project of $7,000) and 46 (project of $25,000) loan offerings, compared to the 5 and 11 loan offerings from a bank. Similarly, approximately one of every ten banks that offer consumer services provide these services for small projects to those with a 580 FICO, while three fourths of credit unions offer services in the same scenario (see Figure 8). Those with low FICO scores tend not to have access to bank services, and are restricted to the fewer branch locations offered by credit unions.

Figure 8. Average Number of Loan Offerings by Project Size, FICO Score, and Institution Type



Note: The values depicted in the blue bars represent loan offerings for which financial institution representatives were able to confirm eligibility for each scenario. Thus, they may not represent all of the total institutions called, represented by the n values. Additionally, 34 of the 78 banks did not offer residential consumer loans.

Overall, the research suggests that those with low FICO scores are, in a relative sense, underserved in the finance market as compared to those with average FICO scores. New financing loan offerings, such as the REEL Assistance program, that serve this market would not overlap current available services but would rather serve those with low FICO scores would fill a gap in market supply.

Annual Percentage Rates (APR) Offered

To gain an understanding of the rates offered within the various financial loan offerings, the Evaluation Team asked about the likely APR offered. When comparing consumer loan offerings, it is useful to compare based on APR, rather than an interest rate. An APR is a comprehensive yearly cost to the borrower; it includes the prime rate[39], adjustments due to loan recipient risk, extra fees, and all incremental accrual within the year. Federal law required lenders to disclose the APR of consumer loan offerings.[40] The Evaluation Team asked about the APRs offered for the various loan offerings. The results show:

- **Credit unions offer more competitive rates for larger loan amounts; average APR of 6.76%.** As previously noted, most financial institutions offer a variety of loan options within an institution, and can cover projects of various sizes. In general the APR offered ranges from 2.75% to 18% for small loan amounts and 1.29% to 20% for large loan amounts. The APR research shows that customers with an average FICO score can get a loan from either a bank or a credit union at a more competitive rate for a larger loan amount ($25,000) than a small loan amount ($7,000). Figure 9 shows that a customer is able to get an average rate of 9.25% for a small loan from a bank and 9.14% for a small

39 Banks and credit unions often define the "prime rate" as the rate published by the Wall Street journal. This rate represents the rate that 70% of the top-ten banks use at the time of publication. Generally, this is 3% higher than the federal funds rate, set by the Federal Reserve Bank. The federal funds rate is the "interest rate" at which banks loan to each other.

40 Besides the mystery borrower calls, the team browsed the financial institution websites for the APR offered and the research found that in general the rates advertised on the websites assume excellent credit history, which does not apply to the scenarios the team examined, nor to the typical CA borrower.

loan from a credit union. Whereas the same customer is able to get a more competitive rate of 7.76% from a bank and at 6.76% from a credit union for a larger loan.

- **Credit unions offer more loans, leading to a wider range of available rates.** As previously noted, credit unions offer more loan options to customers with a low FICO score. This results in the APR for low FICO customers ranging widely from 3.75% to 23% for small loan amounts and 3.25% to 24.99% for large loan amounts.

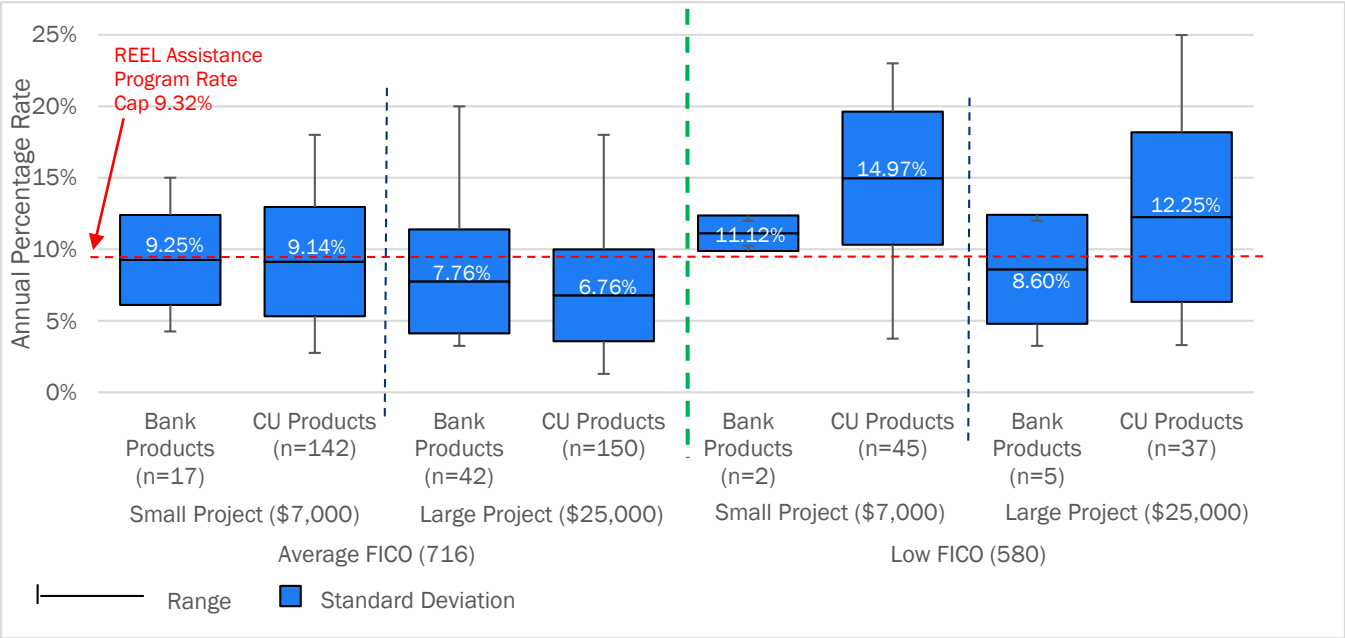
  The range APR represented in Figure 9 varies widely. This is to be expected, since these include a wide range of loan types (i.e., personal loans, lines of credit, credit cards, etc.), for a wide range of FICO scores, amid a wide range of institution sizes and geographical locations. Outliers on the high end tend to be either credit card or unsecured lines of credit for those with low FICO scores, while APR on the low end are Home Equity Loans for those with average FICO scores. Additionally, while it appears that banks offer lower APR than the credit unions, this is primarily because the bank loans are generally secured loans, which require a lien on significant assets (i.e., a car or home). The difference between secured and unsecured loans are discussed in more detail below.

  For those with average FICO scores, large national banks offer a similar APR as all banks in general (with a mean of 8.12% for smaller projects and 7.35% for larger projects). As discussed above, we could not confirm that those with low FICO scores would be eligible for any loan offering offered by large national banks.

  This suggests that new offerings with relatively low rates to customers with a low FICO score will fill a gap in market supply. The REEL Assistance program offers a loan at a maximum interest rate of 9.32%[41] and a minimum FICO sore of 580, which is very competitive in this context.

41 This is subject to change, and is currently defined as the 10-year U.S. Treasury rate (as of 1/21/2015), plus 750 base points (BPS) as calculated at a time pursuant to the PFIs and PFLs standard business practices of the first day of the calendar quarter. Change in term – from 10 to 15 years
http://www.treasury.gov/resource-center/data-chart-center/interest-rates/Pages/TextView.aspx?data=yield
http://www.investopedia.com/terms/b/basispoint.asp

Figure 9. Average and Range of APR by Project Size, FICO Score, and Institution Type



Note: The blue area depicts the range within one standard deviation to either side of the mean, and the thin black lines depict the full range of scores. Most loan offerings that we encountered offer rates that fall within the blue area. When considering how competitive new financing loans would be within each of the scenarios depicted above, we would compare the new proposed APR with existing loan rates depicted in the blue areas.

The figure represents all loan offerings, including secured and unsecured loans. Rates for secured loans tend to be lower. In addition, many banks or credit unions do not appear in the figure because they will not discuss specific rates without examining a potential borrower's credit history, assets, income, debts, etc. As such, the n's represent the number of loan offerings for which the team was able to determine estimated APR values for each scenario.

Loan Offering Types

Along with the number of loans offered, the Evaluation Team also wanted to gain an understanding of the types of loan offerings available in the market. The Evaluation Team asked bank and credit union representatives to list all of the different loans available for the different scenarios. The team encountered a variety of loan offerings, such as home equity loans or lines of credit, personal unsecured loans, credit cards, etc. Table 64 displays the most typical loan offerings, energy efficient specific loan offerings, and the associated median APR for the different loan types by FICO scores.

These results suggest the following:

- **Low FICO is a barrier to all loan types.** Besides the lack of energy efficiency-specific loans, the Evaluation Team found that across each loan type (i.e., Home Equity Loans, credit cards, etc.), low FICO scores significantly restrict availability and significantly increase rates. Notably, as previously mentioned, the team was unable to confirm that any large national bank offers any loan offerings to those with low FICO scores.
- **Home Equity Loans and Home Equity Lines of Credit have relatively low median APR.** While the Evaluation Team found that the APR Home Equity loans can vary (from the prime rate to 8.49%), the median APR for Home Equity loans is lower than most loan types. This is not surprising, as these types

of loans are secured loans, which require a lien on the customer's property or another asset and thus offer lower risk. However, these loans often require values at or in excess of $25,000, and so are not suitable for smaller upgrade projects.

We also found that all loan types are available from the large national banks, and the median APR for each are generally similar to other banks. However, we did find some differences for customers with an average FICO score such as a higher median APR for credit cards (median APR of 17.99% from a large national bank vs. 14.99% from other banks), and lower median rates for a personal unsecured (median APR of 9.97% from a large national bank vs. 11.5% from other banks). As noted previously, we were not able to confirm that large national banks offer any of these standard loan offerings to those with low FICO scores.

Table 64. Availability and Median APR by Loan Type[42]

Loan Type	Banks (n=44)				Credit Unions (n=75)			
	Number of Loan Offerings		Median APR		Number of Loan Offerings		Median APR	
	Low (580)	Average (716)	Low (580)	Average (716)	Low (580)	Average (716)	Low (580)	Average (716)
Home Equity Loan	2	16	5.99%	6.49%	12	42	7.5%	6.1%
Home Equity Line of Credit	5	34	4.25%	5.25%	10	46	6.50%	3.75%
Personal Loan - Unsecured	2	17	11.5%	11.5%	19	57	17.18%	11%
Personal Line of Credit - Unsecured	1	13	Unknown	10%	14	41	18%	11.5%
Credit Card	4	21	11.12%[a]	14.99%[a]	13	56	18%	10%

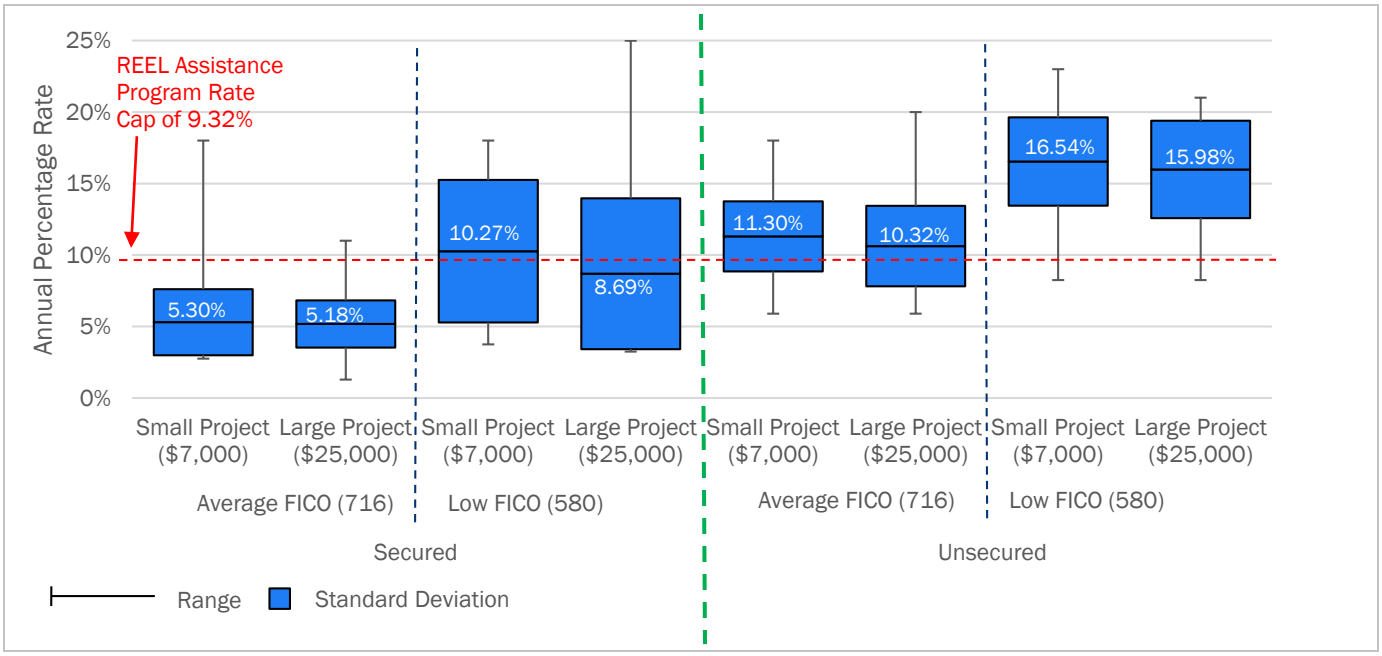
[a] There are only 4 banks that offer a credit card to those with a FICO of 580. These banks offer their credit card at the same rate regardless of FICO and base their qualification requirements on other aspects such as credit history, assets, history with that bank etc. Thus, for these 4 banks, it is possible for someone with a FICO of 580 to qualify for a credit card at a lower than normal rate. As such, in the table we see that the median APR for those with a low FICO score is shown to be *lower* than those with an average FICO score.

- **Secured loans have a lower APR than unsecured loans due to the requirement of a collateral.** Given the various differences between the different loan offerings by the financial institutions, the Evaluation Team segmented the loans into secured (needing a collateral, thus decreasing the risk for the lender) and unsecured (not needing a collateral) loans. As expected, we found that secured loans generally offer a lower APR (Figure 10). However, while secured loans generally offer lower APR the fact that leverage is required increases the risk for the borrower as well as lengthens the application process. These aspects can make a secured loan undesirable.

  This suggests that new *unsecured* loan offerings, as is the case with the REEL Assistance program, with relatively low rates to customers with a low FICO score will fill a gap in market supply.

42 Note: Many institutions are reluctant to imply loan eligibility or reveal rates without a full credit and debt examination. Cells in which institutions offer loan offerings but would not reveal rates are marked as "Unknown". Cells in which institution offer no loans are marked with a dash. These results are representative of likely loan availability suggested to mystery borrowers, not actual financing approved in these regions.

Figure 10. Secured vs. Unsecured Loans: Average and Range of APR by Project Size and FICO Score



Note: The blue area depicts the range within one standard deviation to either side of the mean, and the thin black lines depict the full range of scores. Many banks or credit unions do not appear in the figure because they will not discuss specific rates without examining a potential borrower's credit history, assets, income, debts, etc. As such, the n's represent the number of loan offerings for which the team was able to determine estimated APR values for each scenario.

Overall, these results suggest that the current market offers low-rate loans only to those with average-or-better credit and/or to those who have leverageable assets. Thus, new loan offerings with competitive rate for those with a low FICO score would fill a gap in the market supply.

Energy Efficient-Specific Financing

The Evaluation Team called 12 financial institutions (2 banks and 10 credit unions) with known energy efficiency-specific loans (i.e., these financial institutions advertised offering energy efficiency-specific loans on their websites). Of these 12, eight confirmed having an energy efficiency-specific loan (2 banks and 6 credit unions) and only one bank offered this loan without being prompted by the mystery borrower. Based on these eight calls, we were able to get some insights into energy efficiency-specific loan available in the general market. Note that due to the small number of responses, our findings regarding the details of these energy efficiency-specific loans are not as representative as our findings regarding other more accessible loan offerings.

The research suggests:

- **Banks or credit unions do not offer energy efficiency-specific loans without prompting.** Of the eight institutions that offer energy efficiency-specific loans, only one institution offered to discuss the energy efficiency-specific loan without specific prompting. It is possible that even though these institutions offer these energy efficiency-specific loans, they do not expect to offer them often. Thus, even though these loans are available, they are available only to those knowledgeable enough to ask about them.

- **Energy efficiency-specific loans are available to only those with average to good credit**. The Evaluation Team found that there are no energy efficiency-specific loans available for customers with a low FICO score Thus, while these energy efficiency-specific loans are available in the market, they are generally available to those with good credit, allowing limiting uses for the loan.

- **Energy Efficiency-Specific loans have competitive APR compared to other loans.** Customers with an average FICO are able to secure an energy efficient-specific loan for competitive rates (see Table 65). The APR for an energy efficiency-specific loan through a bank ranges from 6.93% to 8.49% and through a credit union ranges from 5.25% to 6.99%. For these loans even the highest APR (for example, credit union maximum rate of 6.99% for a loan of $25,000) is lower than the median APR for most other loans (for example see Figure 9, credit union median rate of 6.76% for a loan of $25,000). Lenders lower risk for these loan offerings by tapping into energy savings as a revenue stream, and collaboration with an outside organization such as a utility or solar company.

- **Energy efficiency-specific verification varies widely.** Some require a simple affidavit stating that the borrower will spend the funds primarily on energy efficiency measures, and others require the contractor to submit their invoice directly to the bank. Thus, some energy efficiency focused loan offerings could allow borrowed funds to be used for other purposes.

Table 65. Energy Efficiency-Specific Loan Offerings Offered in California

Institution Type	Type	Offered Unprompted	Offered Prompted	Loan Amount Range [a]	APR		Max Term (Years)
					Low FICO	Average FICO	
Bank	Unsecured	No	Yes	up to $25,000	Not qualified	8.49%	5
Bank	Secured	Yes	Yes	$2,500 to $30,000	Not qualified	6.93%	10
Credit Union	Secured	No	Yes	up to $25,000	Unknown	Unknown	10
Credit Union	Secured	No	Yes	$5,000 to 80% LTV[43]	Not qualified	5.25%	25
Credit Union	Secured	No	Yes	up to $50,000	Not qualified	6.25%	15
Credit Union	Unsecured	No	Yes	up to $35,000	Not qualified	6.99%	10
Credit Union	Unsecured	No	Yes	up to $50,000	Unknown	Unknown	7
Credit Union	Unsecured	No	Yes	up to $35,000	Unknown	Unknown	15
Credit Union	Unsecured	No	Yes	up to $50,000	Not qualified	Not qualified	10

Note: Many institutions are reluctant to imply loan eligibility or reveal rates without a full credit and debt examination. Cells in which institutions offer loan offerings but would not reveal rates are marked as "Unknown". This list represents energy efficiency-specific loans from eight institutions. One institution offered two separate energy efficiency-specific loans.

[a] A qualified borrower requesting an amount within the ranges listed here (including the benchmark amounts of $7,000 and $25,000) is likely to secure the associated APR. Borrowers seeking higher amounts would not be offered these services, possibly resulting in a higher APR.

These findings shows that the REEL Assistance program, as currently proposed, is competitive in the context of existing energy efficiency-specific loans for those with average FICO scores, . In addition, a minimum FICO requirement of 580 allows the REEL Assistance program to serve a segment that the current market energy efficiency-specific loans do not. In addition, the proposal to allow borrowers to spend some REEL Assistance program loan dollars on items other than energy efficiency measures would help the REEL Assistance program loan be competitive with other more permissive finance loan offerings.

43 LTV is an acronym for "Loan-to-Value", which refers to the ratio of the loan amount to the value of the property offered as collateral.

PACE Loans

As noted previously, the Evaluation Team did not attempt to call all PACE providers as personal credit information (such as social security number and credit check) is required to get any information. However, the team did look into one PACE program in detail; HERO PACE in San Diego county. A team member started the search as a consumer looking to get energy efficiency financing. By searching for "PACE San Diego" on the internet, the search results led to the HERO PACE website. On the website, the team member was required to enter the address, phone number, social security number, date of birth, and all the same information for the joint home-owner. Once this information was entered, the website performed a credit check and provided an instant pre-approval for a loan with a HERO ID number. The website then directed the team member to the eligible energy efficiency loans and approved contractors list. Instructions on how to complete the project for the loan was also emailed to the team member. Thus, while the team was not able to contact all the available PACE programs in California, the team did learn that PACE loans are pre-approved fairly easily for those with good credit. If other PACE loans are also available through the same process, these loans are likely to be very competitive with the REEL Assistance program due to the ease of getting pre-approval.

Findings Specific to the REEL Assistance Program

Based on the results discussed above, the findings suggest that:

- Customers with good credit, who are already planning an energy efficiency project and actively desire a loan, do not need the REEL Assistance program. Banks and credit unions have multiple loan offerings that homeowners can use to finance their projects. These customers represent already existing demand.
- The APR terms and loan amounts for customers with average to good credit from the REEL Assistance program are about the same as those from banks and credit unions (all available loan types and not just energy efficiency-specific loans). However, the program will help open the options for financing to those who could not get competitive rates. Because the REEL Assistance program will offer financing to customers with FICO scores as low as 580, the program has the ability to expand customer access to loans.
- The research found very few energy efficiency-specific loans in the general market. Even when energy efficiency-specific loans are available, banks and credit unions do not offer them pro-actively. Thus, the introduction of a statewide, broadly offered energy efficiency-specific loan, such as the REEL Assistance program, should increase the availability of these loan offerings. In particular, customers with low FICO scores do not have access to any energy efficiency-specific loans. Additionally, marketing of the REEL Assistance program has the potential to change the low FICO customer segment significantly.

3.4.3. Mystery Borrower Data Collection Instrument

Introduction

Hi, my name is _____ I'd like to speak to someone about loan options to help pay for some renovation work for my home. Are you the right person to talk to?

Standard Set of Assumptions, if needed:

- Income of $75,000 per year
- Home valued at median value per Zip Code of target organization

- Less than 20% equity in home
- Do not already have an account at the bank/credit union
- Do not have any investments in the bank/credit union
- Have a current car loan of $450 per month
- Pay off our credit card monthly
- Have HO3 home insurance (The typical, most comprehensive form used for single-family homes. The policy provides "all risk" coverage on the home with some perils excluded, such as earthquake and flood. Contents are covered on a named peril basis)

FS1. Let me tell you a little more about what I'm interested in. We're hoping to do some energy saving upgrades as well as other renovation work.

1. I'm shopping around to find the best option for me, and I need about $25,000– what does your bank offer for someone with my credit?
   [IF NEEDED: $25,000 SPECIFICS - new hot water heater, some insulation, and weatherizing our doors, plus windows]

2. If the team were to do a smaller project, maybe delay work on our windows, and the team needed something more like $7,000, what are my options?
   [IF NEEDED: $7,000 SPECIFICS new hot water heater, some insulation, and weatherizing our doors.]

INTERVIEW TO RECORD THE FOLLOWING

Gather as much information as you can on each loan. Use the following probes to record loan available and terms/rates for each.

Probe:

1) Loan Offerings – [Focus on fixed rates and low monthly payments when applicable]
   a. Home Equity Loan
   b. Home Equity Line of Credit
   c. Personal Unsecured Loan
   d. Personal Unsecured Line of Credit
   e. Credit Card
   f. Other secured loans (i.e. Car equity for security)
   g. Home Improvement Loans
   h. Utility Programs or Energy Efficiency/Alternative energy specific loans
   i. Other loans
2) Terms and Rates
   a. Annual Percentage Rates
      i. For 716 or 580 FICO
      ii. If respondent will not offer specifics, ask for lowest and highest rates.
   b. Minimum and maximum amounts available
   c. Minimum credit score to qualify
   d. Terms
   e. Fees (i.e. Origination fees, closing costs, etc.)

f. Payback period

IF NEEDED TO DISCUSS LOANS NOT RELATED TO HOME EQUITY

Q0. The team have just under 20% equity in our home. Can you tell me about other options? Do you offer any other kinds of loan offerings that would not require equity, such as an unsecured personal loan?

IF NEEDED TO DISCUSS LOAN DETAILS

Q1. Could I ask you a few more specific questions? I've never done a project like this one. Generally, what is the minimum FICO score I would need to get a loan for a project like the one I'm doing?

Q2. For my FICO score (or income if needed--$75,000), what kind of interest rates are you offering for loans of around [$7,000 and $25,000]?

Q3. How long are the different payback periods for those size loans?

IF NEEDED TO DISCUSS ENERGY EFFICIENCY ORIENTED LOAN OFFERINGS

Q4. Do you offer any special rates or options available for customers that install energy efficient improvements to their home?

[PROBE SPECIFICALLY FOR EE SPECIFIC LOANS, LIKE SOLAR, HOT WATER HEATER, INSULATION, WEATHERIZATION, AND EE WINDOWS]

Q6. Would it be possible for you to email me some more information about the different financing options you have? *Give them study email address*

Thanks for your help. Could I get your information so I can call back if I have more specific questions after I have done some more research? Thanks!