

HERO Program Profile

Final Report

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Pacific Gas and Electric Company, San Diego Gas & Electric,
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Executive Summary

In 2013, the California Public Utility Commission (CPUC) issued an order that the California investor-owned utilities (IOUs), in collaboration with the California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA) and other state and regional agencies, offer coordinated, statewide financing programs to support energy efficiency improvement projects in residential, multifamily, and commercial markets. The first of these financing pilots, the Residential Energy Efficiency Loan Assistance Program (REEL), launched in the spring of 2016.

Since 2013, a property-assessed clean energy (PACE) financing program for single-family homeowners, known as HERO (formerly the Home Energy Renovation Opportunity Program) and beginning in western Riverside County, has expanded to cover most of the state of California. HERO loans have funded over \$1.6 billion in energy and water conservation improvements to single-family homes. The IOUs commissioned this study to provide insight into the factors that are driving the HERO Program to such rapid growth and the program's impact on homeowners' decision-making process and installation of energy efficiency improvements. The study also assessed potential gaps in the market for residential energy efficiency financing that are not addressed by HERO. The study's findings will inform the IOUs efforts to support the REEL financing pilot and incorporate it as an offering in its energy efficiency portfolio programs.

This report evaluates these aspects of the HERO Program:

- Key components of program structure and implementation in terms of program growth
- Objectives of HERO stakeholders and HERO Program goals and design compared to driving energy efficiency
- Characteristics of typical participants and projects funded by the HERO Program compared to IOU rebate programs and projects not influenced by any program

A companion report, the *HERO Program Savings Allocation Methodology Study*, compares different methodologies for determining the relative impact of financing and IOU rebates on a homeowner's decision to make an upgrade.

Key Findings

The findings in this report are based on these primary data collection activities:

- Interviews with six local government sponsors of the HERO Program, including the Western Riverside Council of Governments (WRCOG), the local government with primary responsibility for administering the program
- One interview with Renovate America staff
- Interviews with 23 participating contractors
- An online survey of the general population of single-family homeowners in parts of Riverside and San Bernardino counties where HERO initially launched (3,501 completed surveys)



Contractor Network

HERO has several hundred participating contractors who serve as the primary delivery channel to customers. Contractors have joined because HERO has the potential to grow their businesses by giving people—who previously had few payment options—a great deal of purchasing power. Participating contractors reported they are very satisfied with the program for a number of reasons. HERO has set a high bar for features that are most critical to contractors' business, such as speed, support, flexibility, and polished marketing. Although the HERO process is not quite as fast as a credit card, customers can be approved during sales visits. HERO provides extensive, ongoing training to contractors, and the call center remains available seven days a week. Contractors reported it was very easy to get a response from the call center so many make it a regular practice to have a call center representative on the line while they present the HERO option to homeowners, even before the homeowners asks a question.

Although contractors typically participate in many financing programs, they tend to present only one option at a time to an individual customer. Other PACE programs that compete with HERO focus on expanding their own contractor base and convincing these contractors to offer their PACE program over HERO; however, contractors said they consider HERO the standard other programs need to meet.

Marketing

The primary messages in most HERO marketing materials are that the program is fast, easy to use, and popular with other homeowners. Messaging also emphasizes that the program is designed to achieve a social good—conservation—and is sponsored by local governments. Contractors report HERO materials are helpful in persuading customers to move forward and lend credibility to their own business. The program offers a number of print and online marketing resources, but contractors said a three-minute, animated video that explains the program was the most helpful tool. Most contractors do not mention HERO in their own marketing, and most customers learn about the program from the contractor during a sales visit when they are considering a specific purchase.

Key Benefits for Customers

The HERO Program advertises that it is fast and easy, and several features of the program are designed to ensure this. Customers receive approval over the phone, while the contractor is in the home, and know right away what they can afford. Customers can sign all documents online using an electronic signature; there is nothing to mail and no need to visit a bank.

Nevertheless, HERO is not as fast as paying cash, using a credit card, or using contractor financing. However, the HERO financing product offers two key advantages over other payment alternatives with comparable convenience:

- Customers can finance up to 15% of the value of their home, depending on how much equity they have available. This gives many customers considerably more buying power than if they used cash, a credit card, or other unsecured financing.
- The assessment's tenor can extend to 20 years, making payments for such large sums manageable for many customers. Although HERO interest rates and fees are high compared to

some financing options (e.g., a home equity line of credit), they are equal to or lower than most credit cards and contractor financing.

The combination of these features—convenience, large financing amounts, and long terms—makes HERO unique. Each feature is available through other common financing products, but few other non-PACE financing products offer both. According to a homeowner survey, other popular features of HERO are the tax deductibility of the interest portion of the assessment, which offsets some of the cost, and the possibility of transferring the assessment when selling the home.

Typical Projects

Cadmus surveyed the general population of single-family homeowners in target zip codes in Riverside and San Bernardino counties where HERO has been active longest. The survey asked about recent home energy upgrade projects,¹ identified HERO and rebate participants, and collected data on decision making factors and demographic details (The survey also found that HERO and rebate participants were about equally likely to install more than one item at the same time (55% and 59%, respectively), and these two groups were more likely to install multiple items at once than were nonparticipants. Among nonparticipants who completed a home energy upgrade project, only 34% installed more than one item in one project.

HERO participants spent far more money than rebate participants or nonparticipants. HERO projects, excluding solar PV installations, cost around \$20,000 on average, twice as much as the average project cost for rebate program participants (before accounting for any incentives). Nonparticipant projects cost just under \$7,000 on average.

Figure 1). The survey found that HERO and rebate participants were about equally likely to install HVAC equipment, insulation, and air sealing or duct sealing. HERO participants were more likely to install new windows than rebate participants, with about 53% of HERO projects including windows compared to 31% of rebated projects. Windows were the only item that HERO participants were more likely to purchase and install than were rebate participants. However, rebate participants were more likely than HERO participants to install water heaters and pool pumps or motors.

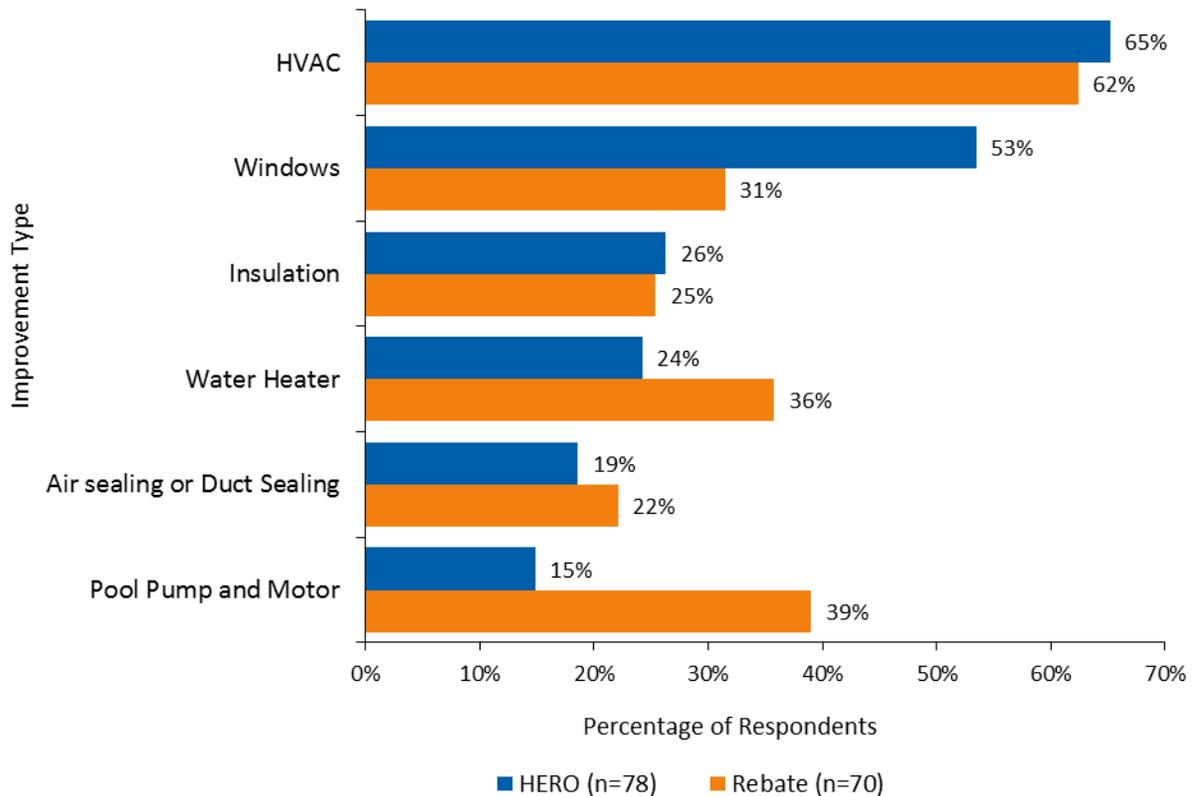
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¹ The survey asked respondents to consider only the following six types of equipment as a home energy upgrade: HVAC measures, insulation, windows, air or duct sealing, water heaters, or pool equipment. We selected these as the major measures more likely to require financing and be eligible for both HERO and rebates.



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Figure 1. Commonly Installed Improvements*



*Respondents who used both HERO and a rebate are included in both the HERO and rebate groups.

Typical Participants

Surveys show that HERO penetrates a different demographic than do rebate programs. On average, HERO participants tended to track closely to the general population for income and education levels. Rebate participants tended to have much higher incomes and slightly more education than the general population. For example, 58% of rebate participants had an income of \$100,000 or more, compared to 38% of HERO respondents and 36% of the general population.

On the other hand, the age distribution among rebate participants was close to the general population, but HERO participants tended to be younger, with 25% of HERO participants under 40 years of age compared to 17% of rebate participants and 14% of the general population.

Satisfaction

Local government representatives and contractors reported high satisfaction with HERO overall among constituents and customers; however, surveys showed that HERO participant satisfaction was more varied. When asked to rate their satisfaction with HERO on a nine-point scale, with 1 being strongly satisfied and 9 strongly dissatisfied,² 32% of HERO participants chose 1, 2, or 3, indicating satisfaction. A nearly equal proportion, 33%, chose 7, 8, or 9, indicating dissatisfaction. About half of HERO participants responded to a question asking for suggestions to improve HERO. Nineteen percent (n=36) of HERO participants who answered the question suggested that the program needed to be more transparent about applicable fees and the tax deductibility of the assessment, and 15% of these respondents suggested the program should offer a lower interest rate.

Gaps in the Market for Energy Efficiency Financing

Although participation in HERO has grown rapidly, the program is not an appropriate option for all homeowners. Some homeowners do not have sufficient equity in their home to be eligible for the program or would be denied because of recent bankruptcies or other existing liens. Some common energy efficiency projects may not meet the \$5,000 minimum cost.

HERO and PACE loans are also not equally affordable for homeowners. Retirees, self-employed homeowners, or others who do not have a significant income tax burden cannot deduct the interest from their taxable income, making the financing more expensive for them than for others who can take that deduction.

In addition, because HERO and other PACE financing programs are relatively new, customer attitudes continue to develop. Surveys indicated about 45% of homeowners who completed a project but did not use HERO were not comfortable financing a home improvement through their property taxes. In addition, some HERO participants were not satisfied with their HERO experiences, many because they did not understand the actual rates or fees they would need to pay or were disappointed to learn that their assessment interest was not tax deductible.

Key Conclusions

Financing is an important factor for achieving larger energy efficiency improvement projects with multiple measures.

Customer surveys indicated that homeowners who used HERO spent more than twice as much as homeowners who only used a rebate or homeowners who did not participate in any program. Projects that were financed, whether through HERO or other means, were larger than projects paid for in cash, and HERO projects were larger than projects financed through other methods. This indicates that

² The 1-9 scale, though unusual in most contexts, is typical for studies using the analytic hierarchy process, one of the methodologies Cadmus reviewed as part of this study. The same scale was used for all survey questions for consistency.



financing is an important factor in large investments in home energy efficiency, and HERO is a popular choice among homeowners completing the largest energy efficiency upgrades.

HERO enables high-efficiency improvements in market segments that rebates do not penetrate.

Survey results indicate that the average HERO respondent was likely to be younger, less educated, and have a lower income than the general population. Rebate participants were likely to be older, more educated, and have higher incomes than the general population. These results indicate that financing may enable high-efficiency upgrades for groups that rebates have historically struggled to impact.

Despite the popularity of HERO and PACE, there are still gaps in the market for residential energy efficiency financing.

Although the HERO Program is making inroads, the residential market remains largely untapped. Seventy-three percent of survey respondents have not made any energy efficiency improvements in the last three years (46% have not even considered improvements, while 27% have considered them but not acted). Only 2% of respondents have used the HERO Program. New financing programs—and the new marketing that would accompany them—could help accelerate the adoption of residential energy efficiency improvements.

Although PACE works well for many people, it does not work for all market segments. PACE may not be a suitable option for the following:

- Projects less than \$5,000
- Renters
- Homeowners with no equity
- Homeowners with recent bankruptcies

PACE may be more expensive for some groups that cannot benefit from the tax deduction. For example, retirees or self-employed homeowners may not have a tax burden or may already have a substantial number of write-offs. Long tenors that allow low payments may still make PACE a useful alternative for these groups, but the product is not as affordable for them over the long term as it is for others.

Even among market segments that qualify for HERO, some homeowners expressed discomfort with some aspects of the financing. Almost 50% of homeowners who completed an energy-related upgrade but who did not use HERO said they did not wish to use their house as security for financing. There is opportunity for a financing alternative to HERO that offers lower rates and fees and that addresses the information and confidence barriers that customers may face when considering an upgrade. There was also anecdotal evidence that some contractors would see a marketing benefit in a financing option offered through a utility program. For example, two contractors said they were very interested in utility-sponsored financing options because they believed the utility brand would lend additional credibility to their proposals.

Meeting contractor needs is the key to delivering energy efficiency financing.

As demonstrated by the three PACE programs administered by third-parties and most active in California (HERO, California FIRST, and Ygrene), the key to driving participation in a financing program is to meet the needs of contractors. All three programs have dedicated significant resources to providing an easy and reliable tool that can help contractors grow their businesses. As a result, all three programs have seen rapid expansion and growth in participation. There is good reason for this focus on contractors; they are in the advantageous position of working face-to-face with homeowners at the point of sale and are therefore well-positioned to influence the customer's decision. Contractors recognize that financing can be a crucial tool to overcoming cost objections and closing sales, and they typically choose to have multiple financing products available to offer customers. However, contractors will only promote the financing product that is both most likely to close the sale and requires the least amount of work on their part.

To succeed, a financing product must be easy for contractors to integrate into their sales process and business operations, achieving the following:

- Port seamlessly into their proposals
- Offer customers a compelling proposition
- Accept a broad array of eligible measures
- Approve the majority of customers
- Confirm approval quickly while the contractor is “at the kitchen table”
- Support fast and easy closings
- Pay the contractor promptly

Effective product and sales training is also important, as is readily available support when needed. HERO has now set a high standard for meeting each of these criteria from a contractor perspective.

Program flexibility is crucial for contractor and customer appeal.

PACE financing offers a broad tool that can help achieve a variety of goals. Though the program's energy and water conservation elements offer two important benefits, WRCOG sponsored HERO primarily to achieve economic goals. Such goals appear to carry fewer policy requirements than conservation goals, and the absence of ratepayer or significant taxpayer subsidies avoids the need for extensive regulatory oversight on spending or program outcomes. As a result, HERO has been able to offer a simple application process and minimal restrictions on eligible measures, which have been key factors in its growth. (In contrast, when the SCEIP PACE program sought to enforce a policy-driven project loading order, requiring efficiency measures before renewables, participation dropped sharply.)

Key Recommendations for the Residential Energy Efficiency Loan Assistance Program (REEL)

Promote REEL's ability to serve market segments that HERO does not serve.



Not all homeowners are able to—or want to—use the HERO Program. CAEATFA and the IOUs should take steps to make sure that these customers are aware of REEL, thereby encouraging them to make high-efficiency choices that might not be made otherwise. REEL can create this awareness through contractors at the point of sale and through IOUs' existing communications with customers. Segments that the HERO Program does not serve include:

- **Projects under \$5,000.** These smaller purchases still represent a major expenditure for many homeowners, especially those facing the unexpected expense of replacing failed equipment. Customer surveys showed that the average price for standard-efficiency projects was below \$5,000, and good financing could help customers who might otherwise buy the cheapest available option. This market segment, and the contractors who work in this segment, may be worth special attention.
- **Homeowners who want to—or need to—finance non-eligible measures** along with eligible measures. With REEL, up to 30% of the loan can be for non-eligible measures, whereas HERO requires that all measures are eligible. Non-eligible measures are sometimes a necessary part of an energy improvement project, especially in older homes. For instance, a home with aluminum wiring should replace it with copper wiring before installing new electrical measures.
- **Homeowners who want a lower interest rate or lower fees,** to the extent that REEL lenders offer lower rates and fees.
- **Homeowners with less than 10% equity in their home.** REEL loans are not secured by an interest in the property, so equity is not a requirement.
- **Homeowners with a late property tax payment in the last three years.** Depending on the circumstances, these homeowners may still be creditworthy borrowers.
- **Homeowners in communities not served by HERO.** The HERO Program is available in most of California (more than 340 cities), but more than 130 cities are not yet served. Although not all of these 130 or more cities are in REEL territory, and many of them are expected to authorize the HERO Program, REEL should track which cities in its territory remain unserved.
- **Homeowners who may prefer more traditional financing** that does not involve repayment via property taxes, does not place a lien on their home, and does not raise questions upon resale or refinance.

REEL needs to offer speed and convenience that is comparable to HERO, unless REEL can offer other significant benefits to contractors relative to what HERO offers.

Contractors and customers reported that the convenience of HERO was a key feature in their decision to use the program. Contractors said that they now expect comparable levels of service in other financing programs. Therefore, to ensure that contractors not only participate in REEL, but also promote REEL to as many customers as possible, it will be important for REEL to offer features such as rapid approvals, a large and specialized call center, online application and closing processes, contractor proposal tools and project tracking software, and payment within seven days.

If REEL can offer features that HERO does not, this may compensate for some lack of speed or convenience in terms of processing but only if it is a feature that is useful to the contractor. Allowing 30% of funds to cover non-eligible measures is one such benefit. Other features of interest to contractors include progress payments or payment by completed measure, “same as cash” offers, and lower rates and fees than HERO (without sacrificing too much convenience). REEL could also consider offering incentives to contractors for projects that achieve a certain level of savings.

Several contractors reported that they offer utility rebates to their customers, and most of these contractors complete the paperwork and submit it on the customer’s behalf. If REEL and the rebate programs are coordinated such that participating in REEL can result in faster rebate processing, this may be a very attractive feature to contractors—especially for larger, whole-home projects where the rebate is a large percentage of the total project cost.



Introduction

In 2013, the California Public Utility Commission (CPUC) issued Decision 13-09-044, which requires that the four large investor-owned utilities (IOUs)—Pacific Gas and Electric, Southern California Edison, Southern California Gas, and San Diego Gas & Electric—collaborate with other state and regional agencies to develop and offer pilot energy efficiency financing programs to the residential, commercial, and multifamily markets. To support their efforts to launch these financing pilots, the IOUs hired Cadmus to perform several support research tasks, including a literature review of 15 clean energy financing programs operating in 2015 around the country and internationally.

The literature review found that one program in particular, a property assessed clean energy (PACE) program called HERO (formerly the Home Energy Renovation Opportunity Program) had experienced surprisingly rapid growth compared not only to other financing programs but also to typical utility rebate programs. Notably, this program operated in the IOUs' territory and therefore was in the same market in which the IOUs intended to launch their pilot programs.

The IOUs commissioned this specific study of the HERO Program as a follow-up to the literature review to take advantage of a unique opportunity to research several issues relevant to the design and launch of the Residential Energy Efficiency Loan Assistance Program (REEL), one of the anticipated financing pilots.³ These issues included these:

- The significant customer uptake of the HERO Program and its rapid expansion to several California counties and cities is an example of the reach the IOUs hope their finance pilot programs could achieve. A study of the program structure and operation could reveal important general information about implementing residential energy efficiency financing programs. Recognizing that HERO operated in a different policy context than would an IOU program, the IOUs also wanted to understand what impact the utility regulatory environment would have on the IOUs' ability to replicate HERO's growth.
- HERO operated in the IOU territories, meaning it was changing the market for energy efficiency financing that the pilots intended to serve. To implement the financing pilots as effectively as possible, it was important for the IOUs to understand which customers needed financing support to invest in energy efficiency beyond what HERO could provide.
- Finally, the ultimate objective of the IOUs' pilots is to deliver energy savings beyond what the market can achieve on its own. HERO offered an early opportunity to measure the impact of financing on the customer's decision-making process concerning energy home improvements. Further, because HERO was available to the same customers who could also benefit from IOU rebates, HERO was an opportunity to test methods for determining the relative influence of financing compared to rebates and to inform the eventual impact evaluation of the IOU pilots.

³ The Residential Energy Efficiency Loan Assistance Program (REEL) launched in 2016.

Project Purpose and Scope

This study evaluates the HERO Program's objectives and design, implementation, and stakeholder experiences to understand what factors drive its rapid growth, what lessons it offers for implementing financing for energy efficiency upgrades, what impact it has on overall energy savings, and what gaps remain in the market for energy efficiency financing.

The study included these tasks:

- Interview these stakeholders:
 - HERO Program sponsor, Western Riverside Council of Governments (WRCOG)
 - HERO Program implementer, Renovate America
 - Local governments that have authorized HERO within their jurisdictions
 - Contractors participating in the HERO Program
- Review HERO's marketing strategy
- Survey the general population where both HERO and IOU rebates are available
- Review five methods for attributing the energy savings between rebates and financing:
 - Discrete choice modeling
 - Analytic hierarchy process
 - Quasi-experimental analysis
 - Simple self-reporting
 - Enhanced self-reporting

This report presents findings and conclusions drawn from the interviews, surveys, and marketing review. A companion report, the *HERO Program Savings Allocation Methodology Study*, presents the review and testing of methods for attributing savings among complementary rebate and financing programs.

HERO Background

HERO offers a PACE financing product in a program structure that promotes energy and water conservation. PACE is different from other financing because it enables property owners to fund energy efficiency improvements and to repay the funding through assessments on their property tax bills over a period of up to 20 years. Upon resale of the property, the PACE assessment may transfer to the buyer or be paid off during the sale. HERO allows customers who have a minimum of 10% equity in their home to borrow up to 15% of their property value as long as the combined mortgage debt and PACE assessment do not exceed the home's value.

HERO interest rates increase with the term of the assessment, as follows:

- 5 year = 6.75%
- 10 year = 7.69%

- 
- 15 year = 8.15%
 - 20 year = 8.35%

In addition to the interest, the homeowner must pay certain fees. At the time of closing, there is a one-time 4.99% administrative fee as well as a recording fee that varies by county. Over the duration of the loan, there is an annual administrative fee that also varies by county. These county fees are typically relatively low; for example, in Sonoma County the recording fee is \$95, and the annual administrative fee is \$35.

A governmental or quasi-governmental entity must authorize the program then assist with administering the program by recording the assessments and collecting the tax bills. For the HERO Program, the original sponsoring entity was WRCOG, a joint powers authority (JPA) consisting of 17 member cities in western Riverside County, plus the county itself. Renovate America, a for-profit company based in San Diego, implements the program.

In December 2011, the HERO Program launched within WRCOG's service area then moved into San Bernardino County soon after. Two years later, HERO began expanding via intergovernmental agreements with other cities, counties, and JPAs. As of 2016, HERO had expanded to 340 communities across California and has funded more than 77,000 projects worth \$1.6 billion.

Researchable Questions

Working with the IOUs, the CPUC, and other stakeholders, Cadmus developed an overarching set of research questions for the HERO profile study. Table 1 presents the specific issues as well as the research activities that informed each issue.

Table 1. Researchable Issues

Research Questions	Applicable Tasks
1. What organizations does the program collaborate or partner with, and how are those relationships structured? What are the roles, transaction steps, timelines, and other attributes? Do local governments play a unique role?	<ul style="list-style-type: none"> • Interviews with Renovate America • Local government interviews • Contractor interviews
2. How does the program recruit and support partners, including local government sponsors and contractors?	<ul style="list-style-type: none"> • Interviews with Renovate America • Local government interviews • Contractor interviews
3. What marketing channels does HERO use? What are the key points communicated in the HERO marketing strategy? What messages seem to be most effective?	<ul style="list-style-type: none"> • Interviews with Renovate America • Marketing review
4. How is the customer experience structured, and what does it take to provide that experience? What are the touch points, how are they handled, and what is the process flow?	<ul style="list-style-type: none"> • Interviews with Renovate America • Contractor interviews
5. What are the perceived benefits or selling points of PACE-type financing for customers, contractors, lenders, and local governments?	<ul style="list-style-type: none"> • Interviews with Renovate America • Local government interviews • Contractor interviews • Customer surveys
6. Are there any drawbacks or limitations to HERO or PACE, for customers, contractors, or local governments?	<ul style="list-style-type: none"> • Interviews with Renovate America • Local government interviews • Contractor interviews • Customer surveys
7. What are the typical project characteristics (e.g., dollar value, degree of energy efficiency, profile of borrowers, and dropouts)?	<ul style="list-style-type: none"> • Interviews with Renovate America • Customer surveys
8. Does financing increase the uptake of residential energy efficiency retrofits and by how much? If some customers do not use available rebates, why is this?	<ul style="list-style-type: none"> • Customer surveys • Contractor interviews
9. Are there any barriers or unique features that make it difficult to replicate the HERO strategy and operations elsewhere?	<ul style="list-style-type: none"> • Interviews with Renovate America • Local government interviews • Contractor interviews • Customer surveys
10. What gaps might exist in terms of consumers' needs for financing that IOU pilots could fulfill?	<ul style="list-style-type: none"> • Customer surveys (nonparticipants)

Research Activities

Cadmus conducted the following research activities to collect primary data to inform this study.

Local Government Interviews

Cadmus first interviewed WRCOG to learn about the program's history and operations. With its help, we selected additional interview candidates to provide diverse perspectives. In spring 2015, we interviewed



local government representatives in each utility territory. These governments have different sizes, demographics, and experience levels with PACE (in general) and HERO (specifically). Table 2 lists the local government and the date the HERO Program was launched.

Table 2. Local Governments Interviewed

Local Government	Date of HERO Launch
WRCOG	December 2011
City of Murrieta (Riverside County)	December 2011
Fresno City and County	March 2014
City of San Diego	July 2014
Sonoma County	December 2014
San Francisco City and County	March 2015

Renovate America Interviews

Cadmus interviewed senior-level staff with Renovate America regarding the history of the HERO Program, how it works, key elements contributing to its success, and the characteristics of the market for energy efficiency financing in California. Because these interviews were conducted at the outset of this research (i.e., early 2015), we asked a series of follow-up questions in June 2016.

Renovate America staff also reviewed the draft version of this report and provided feedback. Where appropriate, we incorporated new information or noted their comments.

Contractor Interviews

Cadmus conducted two series of interviews with contractors. Renovate America selected the first group of contractors to facilitate participation in this study and ensure that interviews included contractors with more experience in the Program. Renovate America contacted these contractors in advance of the interview to explain the study’s purpose and request their participation. Contractors in this group did not receive any incentive to participate. We conducted these interviews in summer 2015.

To broaden the perspectives contributing to this report, Cadmus interviewed eight additional contractors, randomly selected from participating contractors in California listed on HERO’s website and not including any of the contractors previously chosen by Renovate America. We excluded contractors who did not offer at least one of these services—HVAC, weatherization, or water heater installation—because they would be unlikely to participate in an IOU financing program. Cadmus offered a \$100 online gift card as an incentive to contractors who participated in the second round of interviews.

Table 3 shows key characteristics of contractor interviewees in each group.

Table 3. Contractor Interviewees

Description	Selected by Renovate America (n=15)	Randomly Selected (n=8)
Contractor Service Area	Riverside/Los Angeles: 9 San Diego: 2 All southern California: 1 Fresno/Sacramento: 2 Bay Area: 1	Riverside/Los Angeles: 2 San Diego: 0 All southern California: 2 Fresno/Sacramento: 2 Bay Area: 2
Market	All or mostly residential: 13 Residential/commercial: 1 N/A: 1*	All or mostly residential: 6 Residential/commercial: 2
Services	Energy audits/whole house: 4 HVAC: 11 Windows/doors: 4 Roofing/siding: 2 Plumbing/water heaters: 4 Solar: 7 Turf install: 2 Marketing: 1	Energy audits/whole house: 1 Weatherization: 1 HVAC: 4 Windows/doors: 5 Roofing/siding: 2 Plumbing/water heaters: 1 Solar: 3

*One contractor provided marketing support for other contractors and did not directly perform installations for customers.

HERO Marketing Review

Cadmus conducted a limited marketing review by incorporating marketing-specific questions in interviews with stakeholders, reviewing available marketing materials, and evaluating the HERO website. The goal of the review was to understand how HERO is marketed in terms of its delivery channels, promotion, target audience, and messaging.

Renovate America provided examples of marketing materials used to promote HERO (listed in Table 4 and included in Appendix C. Marketing Collateral). Cadmus reviewed these materials to assess how they aligned with best practices for marketing collateral, which include clarity of content, clear call-to-action, and consistency in messaging and branding. These materials are tailored for customers or contractors.

Table 4. Materials Reviewed

Material	Audience
Program Information Flyer	Customers
Consumer Protection Policy Pamphlet	Customers
Contractor Recruitment Card	Contractors
Program Overview Brochure	Contractors
HERO Promotion Card (customizable template material)	Customers
HERO Promotion Mailing (customizable template material)	Customers



Cadmus reviewed the HERO Program website for its alignment with website usability best practices,⁴ which include the following:

- Content and layout designed with the users’ goals in mind
- Ease of navigability
- Presence of text, typography, and images that are easy and pleasant to read and view
- Clarity of information presented

Residential Survey

Cadmus surveyed homeowners in select zip codes in Riverside and San Bernardino counties, where HERO has been active the longest. The survey’s primary purpose was to collect data to test various methods for the savings allocation analysis. In addition, the surveys provided information on homeowners’ decision-making processes, experience with rebates and financing, and access to financing. See Appendix B for the full survey instrument.

Cadmus stratified the sample frame to represent as many HERO and rebate participants as possible then weighted results in order to extrapolate to the population. Table 5 presents the sample frame, target sample, final response rate by population segment, and the weight used to extrapolate results to the population. The study categorized respondents as HERO or rebate users, both, or neither, based on their responses.

Table 5. Survey Sample Frame and Distribution

Segment	Population Estimate	Population Proportion	Sample Count	Sample Proportion	Weighting
HERO Only	10,000	1.56%	262	7.48%	0.208725
Rebates Only	8,700	1.36%	301	8.60%	0.158063
HERO/Rebates (both)	4,200	0.66%	113	3.23%	0.203258
General Population	617,300	96.4%	2,825	80.7%	1.194962
Totals	640,200	100%	3,501	100%	–

⁴ HERO. Accessed 6/1/2016: <https://www.heroprogram.com/>

Findings of the HERO Program Profile Study

Program Structure and Process

This section describes the HERO Program's structure and operations and identifies the aspects of the program that are critical factors in the program's rapid growth.

Program Structure

PACE programs must be sponsored by a governmental or quasi-governmental entity with the legal power to create a special PACE district that can enter into assessment agreements with property owners. As a JPA, WRCOG is the quasi-governmental entity that created the original HERO special district and that sponsors and oversees the HERO Program. WRCOG elected to use a third-party administrator for its PACE program and contracts with Renovate America.

One of the primary benefits of HERO from an administrative perspective is that the sponsoring local government does not need to fund the program in any way. Participating homeowners pay a one-time administrative fee equal to 4.99% of the total amount funded. The fee covers all WRCOG costs for the program, including internal management and staff, external advisors, and third-party implementation provided by Renovate America. The only public money used to support HERO, and other PACE programs, is the funding to create and manage the California PACE loan loss reserve (LLR), although no claims have been made against the LLR to date. The program presents no net expense to the communities where it operates and, with the exception of WRCOG, requires few resources or labor from participating jurisdictions.

Renovate America

Renovate America manages most of the program's day-to-day operations, manages program marketing, recruits and manages the contractor network, processes applications electronically, and maintains document tracking and the website portal that promotes HERO to homeowners. It developed the application and funding process and the list of eligible measures. In addition, Renovate America operates a sizable call center in San Diego, which is available seven days a week with staff well-trained on the HERO PACE loan and the application process. Several contractors indicated that, as part of their regular sales process, they have the call center on the line as they walk through an application with a customer.

Renovate America's founders came from the software industry and developed the information technology infrastructure that supports the HERO Program. The program provides contractors a proprietary software platform known as HERO Pro, through which they can review leads, develop proposals, submit applications, and track project funding. Renovate America also offers local governments a software platform known as HERO Gov that allows local elected officials and staff to monitor HERO activity in their jurisdiction, including the number of funded projects, total amount of financing, and water and energy conservation metrics such as greenhouse gas reduction. Renovate America also developed the HERO website.



WRCOG

As the primary sponsor of the HERO Program, WRCOG is active in the day-to-day program operation, by signing assessment agreements and coordinating with participating county agencies to file assessments and establish the assessment on tax bills. WRCOG serves as a coordinator for the county activity and the trustee that receives the assessment payments from the tax collector and disburses the payments to investors who bought the bonds secured by the assessments. In addition, WRCOG supports Renovate America's efforts to recruit new counties and to address any customer complaints.

WRCOG initially offered HERO only in its own jurisdiction. In April 2013, WRCOG's executive committee decided to expand statewide, offering HERO as a turnkey program to other communities. Cities and counties outside WRCOG can adopt a resolution of participation and sign a JPA agreement to become an associate member of WRCOG. Within a month of signing the agreement, WRCOG holds a public hearing to confirm the agreement. After adding a county, WRCOG initiates a judicial validation process to preempt future legal challenges and reassure investors about the security of the assessments. WRCOG can then administer the program within the associate member's territory.

As of June 2015, over 340 cities and counties have signed on to the HERO Program, representing roughly 70% of all cities and counties statewide.

Other Local Governments

The role of other local government sponsors has primarily been to adopt the WRCOG's HERO Program and, in the case of counties, collect PACE assessments on their property tax bills. San Francisco and Sonoma County used an RFP process to determine the programs they would authorize within their jurisdictions. San Diego decided to simply accept programs that approach it.

After a local government completes the process to join HERO, it needs to do little else. San Diego, for example, reported it anticipates 10 hours of labor per year to manage its participation. That, however, does not include the tax collector's time; instead, tax collectors are compensated by the HERO Program with a small fee that varies from county to county. This fee is covered through an annual administrative fee of \$35 to participating homeowners.

Of the local governments Cadmus interviewed, Sonoma County is the only one other than WRCOG that sponsors and administer its own PACE Program. (Other PACE programs operated directly by the local government do exist in California, notably the mPOWER Program that operates in Placer and Folsom Counties.) Sonoma County has offered the Sonoma County Energy Independence Program (SCEIP) since 2009. Each community we interviewed has considered offering its own programs since 2009, but all except Sonoma County decided not to proceed. San Francisco revisited the idea of launching its own

program in 2013 but canceled its program and instead issued an RFP for a third-party administrator, ultimately selecting the HERO program and two other PACE programs.⁵

Although local governments participating through the JPA are not involved in marketing HERO, local governments do generate awareness of the program. Most promote HERO as part of their efforts to promote energy efficiency or water conservation more broadly. Fresno has been very active, operating a program called the Central Valley Energy Tune-up Program that extends across PG&E's territory in eight counties. The program promotes utility and local rebates and provides other program support for energy efficiency, including supporting the PACE Program. SCEIP also offers general energy efficiency guidance and support. San Francisco and San Diego actively design and launch multifaceted programs to support their climate action plans and other societal goals.

How HERO Works

HERO requires homeowners to apply through a participating contractor. The program is designed to deliver an affordable and accessible financing product and give homeowners confidence that they are selecting quality contractors and efficient home improvements. To support this offer to homeowners, HERO provides software tools to contractors, making it simple for them to present a financing proposal to customers, prepare applications, and get projects funded. In addition, HERO provides contractors with intensive marketing and sales support to facilitate project flow. Renovate America provides contractor staff with comprehensive training on how to present the financing product. Renovate America also provides marketing materials including a three-minute online video that explains the program to the homeowner, other print collateral, the HERO website with customized landing pages for different jurisdictions, and lead generation support.

To initiate a HERO project for a customer, the contractor logs into the HERO portal and opens an application. Several contractors said they call into the HERO call center as a matter of course during the application process so HERO staff can answer any questions the customer may have. The customer, with the support of the contractor or HERO staff, fills out a simple online application and signs it electronically. The application process usually takes a few minutes, and approvals are typically available within while the contractor is in the home.

To finalize the project and release funds, contractors must submit an invoice and a notice of completion signed by the customer. As with the application, the notice of completion is signed electronically and uploaded to the HERO system. For jobs that require a permit, HERO requires evidence that a permit has been opened, but it will fund the project before the permit is closed.

⁵ San Francisco intended to use the framework allowed under the Mello-Roos Community Facilities Act of 1982 rather than the framework authorized under the Improvement Act of 1911, as amended by AB 811, which WRCOG uses. In 2014, however, a court found fault with a Mello-Roos tax district in San Diego, creating some uncertainty about how Mello-Roos districts could be established in the state.



Renovate America reviews invoices to ensure measures are eligible, pricing is within range of what other contractors are charging, and a permit has been opened, if required. In cases where paperwork is complete and raises no flags, contractors reported receiving funds within 48 hours. Because applications are processed online, trade allies can track a project's progress from initiation to payment through the HERO portal.

Eligible Products

HERO provides financing for water saving, energy saving, and renewable generation equipment and installations in participants' homes. Renovate America maintains a detailed set of product specifications, available on its main website, that define what criteria projects must meet in order to be eligible.

For many product types, HERO simply adopts ENERGY STAR or WaterSense minimum standards to ensure equipment is saving water or energy. Other product specifications partially meet ENERGY STAR criteria, but ENERGY STAR certification is not required. For example, while ENERGY STAR recognizes different three region-specific windows standards in California, the Program has single requirement, that meets the ENERGY STAR criteria for the South-Central region (U-factor of 0.30, SHGC of 0.25).

In cases where ENERGY STAR has recently changed its specifications, Renovate America reported the HERO program may temporarily abandon the certification requirement, and hold the program requirement at the previous ENERGY STAR level, while the market adjusts. For example, HERO does not require ENERGY STAR certification for most HVAC measures, and the program's minimum standards for central air conditioners, heat pumps, and furnaces are slightly below the current ENERGY STAR minimum. Renovate America issued a notice to participating contractors that the specifications for central air conditioners, heat pumps, and mini-split heat pumps will be updated to conform to ENERGY STAR criteria as of November 2016.

Finally, ENERGY STAR or other third-party criteria are not available for some products, such as for attic fans or insulated siding. Instead HERO requires an industry standard that ensures minimum product quality (such as AHRI certification or an ASTM International standard) or cites an alternative third-party reference, such as the California Energy Commission Appliance Efficiency Database.⁶

Quality Assurance and Oversight

Renovate America performs a site inspection of the first five projects performed by a new contractor or all projects during the first three months if less than five. It also calls a sample of customers for feedback on the contractor. Renovate America calls all customers who speak English as a second language or who are senior citizens to make sure they understand the agreement they have signed. Two contractors reported that Renovate America had made them aware of an instance where one of their sales representatives had not properly presented the program. Both said the sales representative received additional training. However, several contractors reported that they were aware of Renovate America

⁶ HERO Program Residential Eligible Product List, last updated April 2016. Accessed online August 30, 2016: <https://9662473e561b2ca15fec-e991096dabe6d2069d3f005000c6b73d.ssl.cf2.rackcdn.com/HEROEligibleProductsList.pdf>

interceding with other contractors they knew of, to ensure that other contractor was not making incorrect statements about HERO. Contractors felt it was important that HERO take these steps to maintain a level playing field among contractors, and protect the public perception of PACE financing. (Cadmus notes that although we assured contractors of anonymity, they may have been disinclined to report these instances in our interviews.)

Renovate America also monitors contractor pricing for individual measures and establishes an acceptable price range that adjusts frequently based on incoming applications. If contractors submit an invoice with a price above the acceptable range, they must justify that the project merits an exception or adjust their pricing. Three contractors reported that on occasion Renovate America has questioned the pricing or measures they included in the invoice. For example, one contractor in the randomly selected group said, “I often sell big jobs, or do things in an unusual way. If my jobs look [like they are priced] above industry average, there is a delay in my funding. Fortunately, I have a good rep and usually I get it funded, but there is a delay.”

Local governments reported they are not involved in quality assurance and oversight, although WRCOG may get involved in customer complaints that are forwarded by Renovate America or come in through other channels. WRCOG did not provide the specific number of complaints received, but considered customer complaints to be infrequent. Local governments have ultimate authority over the HERO Program within their jurisdiction and can cancel the program at any time. However, no local government reported actively overseeing any HERO projects or program operations. Most communities have little or no budget available for managing the program and rely on WRCOG to oversee program activity.

HERO Marketing Strategy

Marketing Roles

Renovate America develops most of the marketing materials for the HERO Program, with review and approval by WRCOG. Renovate America operates the HERO website and social media sites and assists contractors with marketing by providing them with training and materials that can be shared with customers. It is responsible for the branding of the HERO Program and assists contractors in communicating with customers about the program.

Although Renovate America develops HERO materials and messaging, the program relies heavily on contractor’s presentations at point of sale to deliver it to customers. Some contractors reported they mention available financing in their advertising, and small number said they mention HERO specifically. However, the majority of contractors do not include these messages in their print or online ads. Instead, contractors mention HERO when talking face-to-face with the customer, either after or as part of presenting a specific project proposal. Several contractors pointed out that they do not think in terms of selling financing, but rather, using financing to sell services and equipment.

Local government entities, especially WRCOG, also play a role in marketing the program. They help spread information in town meetings and other venues and mention the program on official websites



and other materials. Renovate America has created special customized homepages for some cities and counties, with the government’s seal and messaging specific to the local area. This support from local governments lends credibility to the program. The Fresno representative reported that the city’s previous focus group research indicated people in the area had a deep mistrust of contractors. Fresno offers a home energy audit program and found that people were more open to an audit if the city performed it. HERO benefits similarly from its association with the city.

The San Francisco representative said relying on local government sponsorship provided an important key to marketing the program. In Sonoma County, having the county program team reach out to each city within its jurisdiction to gain the required authorization for the program proved crucial to its success. Alternatively, according to the San Diego representative, San Diego citizens expressed impatience regarding the program’s availability and wanted the city to “do its thing and get out of the way.”

Marketing Support and Resources for Contractors

Renovate America provides contractors with several marketing resources to help them promote the program. All participating contractors list their business information on the HERO website and have access to select HERO-branded collateral, including cards, brochures, and a program overview. In addition, all participating contractors have access to an online look-up service called “Know Before You Go,” where contractors can look up a specific address to learn if the property owner is likely to be eligible for HERO (low, medium, or high probability) and to get an estimate of the amount of equity in the home. (Final financing approval goes through project pricing and underwriting criteria.) Renovate America also provides contractors with training on how to present the program to customers and how to adjust the presentation based on each customer’s decision-making factors (e.g., cost, energy savings, tax benefits). Contractors noted that Renovate America’s detailed training sessions that addressed different ways to present the program, as well as providing readily accessible trainers and staff, were highly useful in relaying information about HERO to customers and encouraging participation. Many contractors cited the HERO sales training as the most useful marketing-related support they receive from the program.

Although Renovate America provides support to all participating contractors, certain contractors reported they received additional support and resources not offered to other participating contractors. These contractors said that based on their large size and ability to drive high volumes of participation, Renovate America designated them “channel partners” with the program. These channel partners reported receiving special benefits such as a marketing budget for direct mail campaigns and enhanced lead-generation assistance in the form of lists of customers who have inquired about HERO and are preapproved to use the program. Other support for these contractors included co-branded marketing materials, a “spotlight” on the HERO website that features the contractor, and, if desired, a customized landing page on the HERO website.

The preferred channel partners cited these resources, particularly the lead generation lists, as helpful. Most non-channel partners were not aware of the additional support given to channel partners.

When asked what additional support, if any, would be useful in describing the program to customers, contractors cited continued trainings, more marketing collateral, more lead-generation support, and financial incentives for salespeople to promote the program (e.g., via bonuses).

Marketing Materials

Cadmus reviewed six pieces of collateral provided by Renovate America for this study, ranging from customer-facing flyers to contractor recruitment materials (see Table 4 on page 15; Appendix C. Marketing Collateral includes copies of the collateral). All of these materials include clear and easy-to-understand content. The customer-facing collateral explains the program's benefits, how to participate, and product eligibility in concise, nontechnical jargon. Similarly, contractor recruitment materials and the brochure providing an overview of the HERO Program are succinct, highly informative, and provide details on program participation in a clear format.

All materials include clear calls-to-action. Customers are invited to check their participation eligibility by visiting the HERO website. Contractors are asked to register by going online or by calling the HERO phone number to begin training.

Branding for all materials is stylistically consistent in terms of using the HERO logo and the same color palette, fonts, and layouts.

HERO Website

The HERO Program website can be accessed at <https://www.heroprogram.com/>. This main site includes general program information directed at homeowners, contractors, cities and counties, and real estate professionals, although it focuses on homeowners. Figure 2 and Figure 3 present screenshots of the home page. The website includes basic information about the program and frequently encourages customers to call either a contractor or the HERO call center for more detailed information.

Style and Content

Overall, the website's structure and content are attractive and easy to navigate. The content focuses on high-level statements of the benefits of the program and the basic steps in the application process. It emphasizes that using the program is easy (i.e., approvals are not based on credit scores, no money down is required) and generally presents the process as three simple steps. The site makes liberal use of videos,⁷ and it presents content in large, easy to read text. Headings are followed by graphics and one or two more detailed statements, which are in turn followed by a clear transition, either a link to click or visual break and change of subject if scrolling down.

The website provides specific, tangible examples of savings and return-on-investment that customers have achieved by making energy improvements. For example, the main home page opens with three horizontally scrolling photos and videos of families, with captions explaining their savings. These

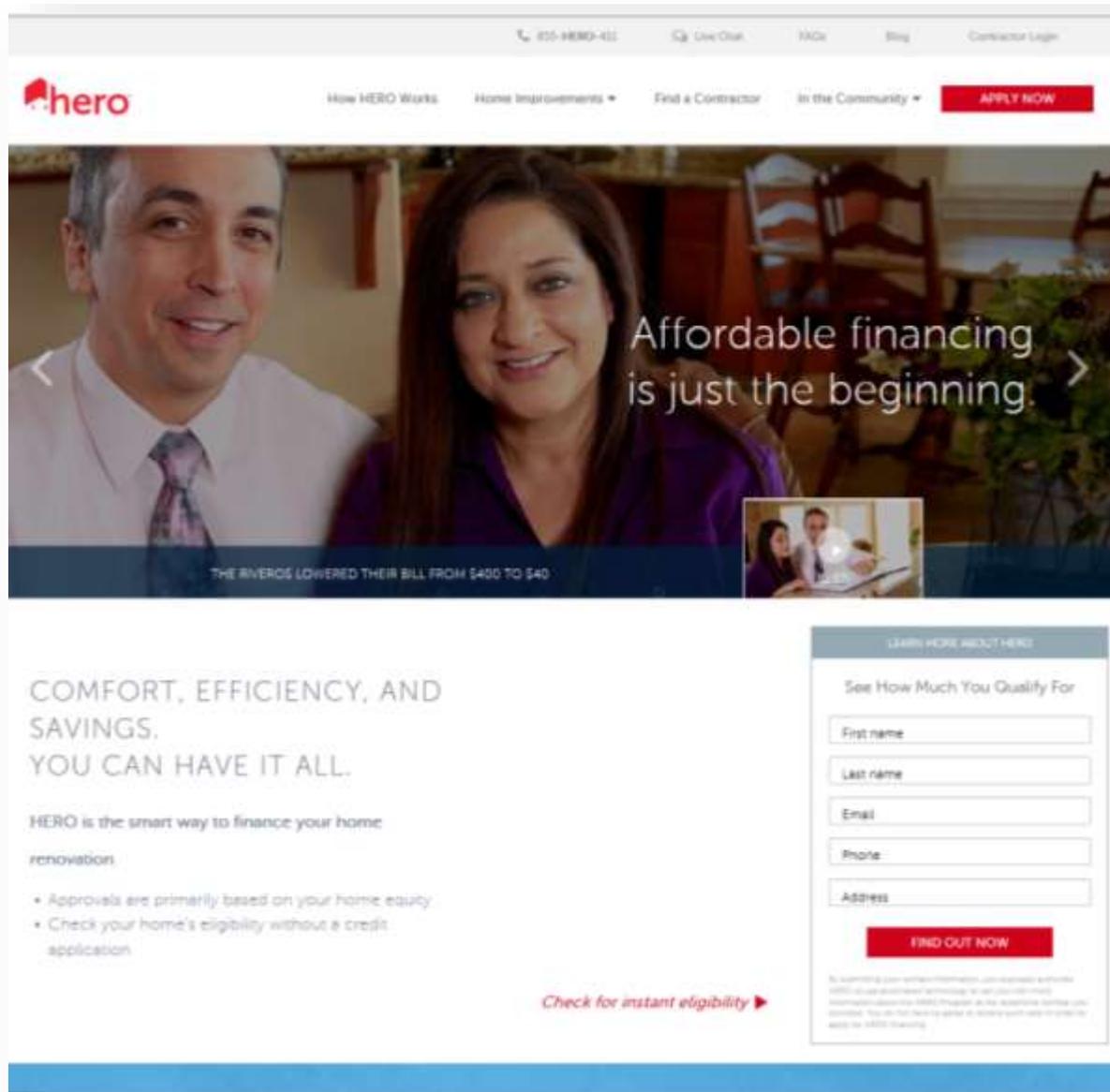
⁷ For example: "How the HERO Program Works for Home Renovation Financing" (video). Available at: <https://youtu.be/C6t1H7gS-Y4>.



effectively personalize the website and provide customers a measurable sense of potential benefits from projects financed through HERO.

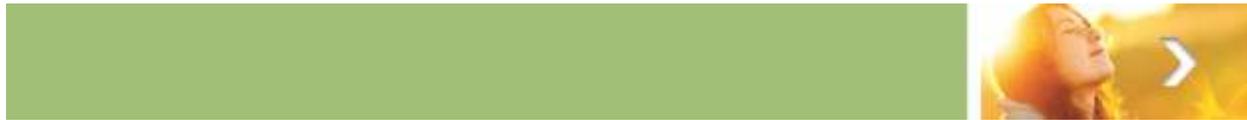
The website also offers general guidance on energy savings benefits associated with common measures. For example, the website states “You can save up to \$115 or more per year by switching to high efficiency heating, ventilation, and air conditioning systems (HVAC).” This statement is closely followed by buying guidance that directs customers to higher-efficiency items: “*HERO Pro Tip*: the higher the SEER rating, the more energy-efficient the air-conditioner. You’ll want a SEER rating of at least 14.”

Figure 2. HERO Home Page – Initial View



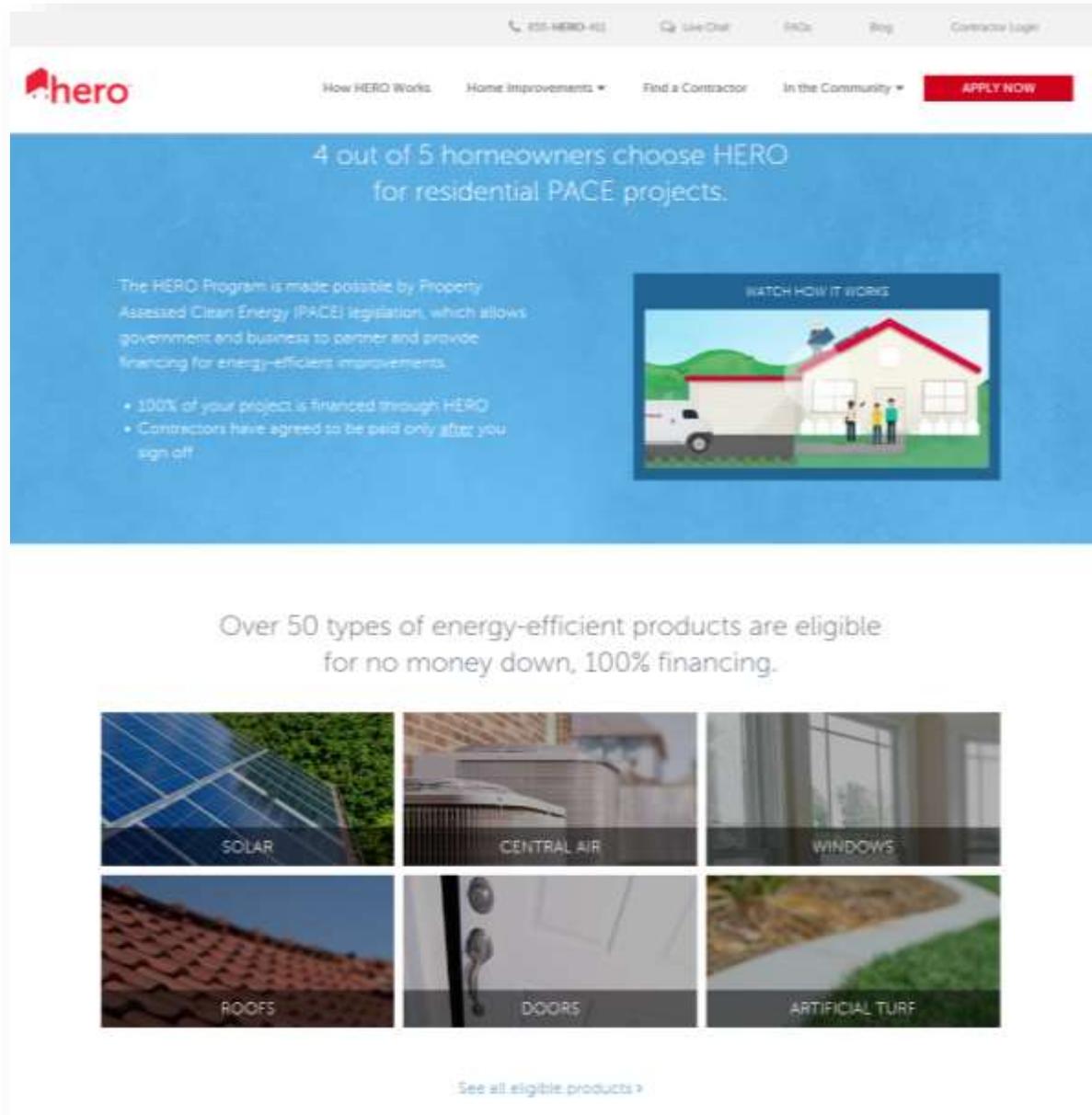
Source: <https://www.heroprogram.com/>

Headings on most pages make brief, clear statements about the comfort and conservation benefits of projects financed through HERO, a simple application process, flexible equipment options, or the popularity of HERO and PACE. (Examples include “More than 50,000 families love coming home to lower utility bills.” and “Over 50 types of energy-efficient products are eligible for no money down, 100% financing.”) Other messaging addresses a broad list of eligible projects, a network of qualified contractors, and connections to local and federal government agencies (specifically, program



sponsorship by local government, PACE endorsement by President Obama, and program reliance on state or federal efficiency standards).

Figure 3. HERO Home Page – First Scroll Down



Source: <https://www.heroprogram.com/>

On the main site, detailed content relating to customer and project eligibility requirements, specific terms of the financing, implications for real estate transactions, and other information is available primarily on the frequently asked questions, or “FAQs,” page. This page is easily accessible through the

fixed banner at the top of the screen. The page lists six topics at the top of the screen: General, Eligibility, Costs and Rebates, Program Details, Real Estate Transactions, and Solar Lease Program. Under each of the six topics are listed several questions and answers related to each topic. The responses typically consist of no more than a few lines of text. Several answers encourage the reader to call a phone number for more information or contact a contractor.

On the main page, information that may allow a homeowner to compare the cost of HERO financing with other financing products is limited or difficult to find. Presumably, users are expected to contact the program directly to receive that kind of information. Interest rates are not specified, though the text does indicate they vary with the loan length. Fees and fee amounts are not listed. On the FAQ page, under the question “Are there application fees?” the answer text is simply “No.” This main site FAQ page makes no mention of any other fees. This page states that the assessment may allow tax deduction benefits, but it provides no other details and directs users to contact a tax advisor.

There are separate landing pages for individual counties and cities that have customized information specific to that jurisdiction and which do present more detail on the terms of the financing. These sites have a “Costs and Terms” page that provides more detail on term options, states the minimum and maximum financing amounts, states the specific recording and administrative fee amounts for the jurisdiction, and provides details on how the payments are calculated, options for prepayment, and conditions for transferring the assessment with a sale. The Costs and Terms page also states that an administration fee is included in the total financing amount but does not state the amount of the fee. (The administration fee is 4.99% of the total project cost; although the website does not say this, other sources state homeowners have the option to pay the fee up front rather than roll it into the financed amount.) These jurisdiction-specific sites also have a How it Works page with a link to a sample financing document. This document is a PDF of a sample HERO application, including the language of the assessment contract, where all details on fees and fee amounts, as well as other legal details, are fully described.

Calls to Action

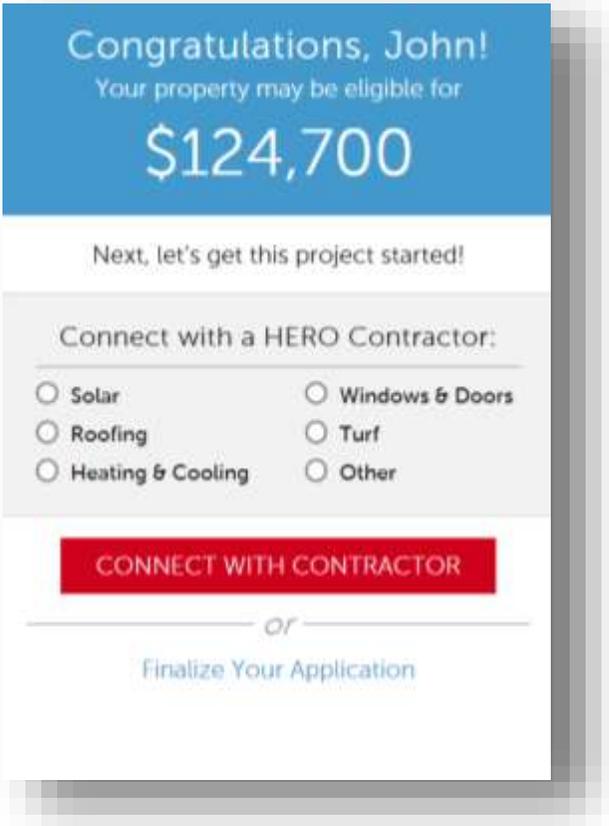
The minimal information provided on each screen encourages customers to move rapidly through the website, scrolling a clicking links. Several links lead to additional brief pieces of information, but most ultimately direct users to a phone or chat conversation, either with a contractor or the HERO call center, or request that users to provide contact information. As shown in Figure 2, the website features a top banner with the HERO logo, key subject links, and the critical call to action, a red button that reads “Apply Now.” This banner remains consistent at the top of the screen as the user browses through the pages. The banner also includes the call center phone number, a “Live Chat” link, and a “Find a Contractor” link, in addition to other links that lead to more information on the Program.

After clicking the “Apply Now” button, the user is asked to provide contact information and address in order to verify their eligibility. If the user enters an address that the system does not recognize, a message pops up offering help via a phone number (available seven days a week). If the property is eligible, a pop-up (Figure 4) presents an estimate of available funding, presumably based on the owner’s



equity in the property, estimated from public and/or private-sector real estate data. The pop-up prompts the user to take the next step of connecting with a contractor or finalizing their application. The application is a simple one-page form, which includes the homeowner’s authorization for a credit check (although credit scores are not actually used in determining eligibility), certification that the property tax payments have not been late more than once in the last three years, and a link to terms and conditions. Each screen asks for a few simple pieces of information and offers a concrete result once that information is entered.

Figure 4. Pop-up Prompting Next Step



Source: <https://www.heroprogram.com/>

The HERO website has changed significantly over the course of conducting research for this report. For example, the home page once prominently featured a square with four labeled images, with each image linking to a page tailored to one of the four target audiences (homeowners, contractors, communities, and real estate professionals). The home page subsequently returned to focusing on homeowners, with links for other audiences at the bottom of the page along with other links (e.g., FAQs, Live Chat, Find a Contractor, Contactor Log-in).

Messaging

The key benefits conveyed in the marketing collateral and on the website vary depending on the target audience. Renovate America has pages on the website and pieces of collateral that are specifically directed to contractors, local governments, and real estate professionals. For contractors, the program materials feature the following messages:

- No registration fee
- Live support seven days a week
- Comprehensive product and sales training
- Co-marketing program
- Payment issued in two business days
- More homeowners qualify
- Fast approval in as little as 30 seconds, with electronic signature capabilities
- HERO Pro makes the estimating, approval, documentation, and funding process easy

For local governments, the program promotes benefits as follows:

- Environmental benefits – CO₂ reductions, decreased energy consumption, water savings
- Economic stimulus – lower utility bills, job creation, increased property values
- Consumer protections – support at every step, contractor pricing checks, dispute resolution
- Data solutions – HERO Gov offers reports on program performance and customer support
- Awards and recognition – for excellence and innovation

For real estate professionals, the program features messages as follows:

- Readily available help, by phone or online
- Simple instruction and FAQs to list a home or transfer a remaining balance
- Testimonials from other real estate professionals
- Free webinars or workshops in your office

Program Partner Experience

Renovate America relies on two levels of recruitment to grow and deliver the program. First, a local government (a county or a city) must pass a resolution to approve HERO. Second, it needs to recruit local contractors who, if they choose to participate, can offer the HERO financing option to their customers. Local government and contractor recruitment, motivations for joining, and satisfaction with the program are discussed in this section.



Local Governments

Cadmus interviewed six representatives from the following governments and agencies that sponsor the HERO Program:

- WRCOG
- City of Murietta (located in Riverside County)
- City and County of Fresno
- City and County of San Diego
- City and County of San Francisco
- Sonoma County

Interviews addressed motivations for joining the program and satisfaction with program implementation to date.

Motivations and Goals

When asked why they joined PACE, local governments roughly fell into two main camps. Some, like WRCOG, were primarily interested in a tool for economic stimulus, with the conservation aspect of the program as a secondary benefit. Other communities were primarily interested in the conservation aspect. Both groups saw the lack of available financing for qualifying projects as an obstacle to achieving their goals and believed HERO was the solution. All of these local government representatives believed PACE offered unique benefits that were not otherwise available to consumers in the market. Key among these benefits was the fact that PACE made financing available to people who did not qualify for traditional credit-based products. Other benefits included the ease of application (compared to a home equity lines of credit [HELOC] or second mortgage) and reasonable cost (compared to credit cards and contractor financing).

In addition, local governments appreciated the vetted contractor list, the energy focus, and the guidelines for energy- and conservation-related projects. Renovate America also ensured that its program was as flexible as necessary to meet diverse needs among communities. For example, San Francisco wanted the program to integrate with its workforce development program, and Renovate America dedicated senior staff to work closely with city officials to adjust the program to meet the city's requirements.

Some local governments reported that the program has actually resulted in increased revenue from additional permit fees. The Murrieta representative noted the program has resulted in noticeable upticks in home improvement activities in the city and the corresponding permit applications. Murrieta had to lay off several employees in 2009 and, since starting HERO in 2012, it has hired outside contractors to assist with the increased activity.

WRCOG, which does contribute significant labor to managing the program and covers its costs through program fees, also reported that the revenue from managing the program has helped stabilize its labor pool. The 4.99% administrative fee charged for each project enables WRCOG to manage the program,

with five full-time staff currently dedicated to supporting HERO. Local government employment is not a HERO program goal but helping the local governments maintain adequate staffing improves their ability to provide necessary services in their communities in a flexible and responsive manner.

Satisfaction and Lessons Learned

Local government representatives reported being very satisfied with their experience with HERO. WRCOG, which has been deeply involved in the design, launch, and management of the program, reports being very satisfied with program performance and all program elements, including the effective interest rate and terms, eligible measures, contractor recruiting and management, and marketing. Uptake has been strong, and HERO has garnered awards and positive attention for western Riverside County. Most importantly, although the program has not yet met its participation goal of 10% of the 2010 housing stock, HERO has achieved its goal of economic stimulus. WRCOG estimates that \$2.70 goes into the community for every \$1.00 of HERO projects funded (based on IMPLAN analysis of direct, indirect, and induced spending).⁸

WRCOG reported it learned these lessons from four years of implementation experience:

- **Capital.** Capital is available for PACE programs, but a flexible approach is required. The program was originally intended to issue municipal bonds for funding. However, the Federal Housing Finance Agency (FHFA) issued its directive regarding concerns about PACE, and the market for municipal revenue bonds backed by PACE assessments effectively vanished. The program successfully switched to asset-backed bonds instead. WRCOG considered issuing individual bonds for each project but recognized it would have been quickly overwhelmed with the high volume of projects.
- **Home values and marketing.** PACE's impact on home values and marketability is often a concern with audiences that are not familiar with PACE. Real estate agents sometimes help homeowners decide to participate in the HERO Program or accept the transfer of a PACE assessment. WRCOG generally has been pleased with Renovate America's outreach and marketing efforts, an opinion several local governments shared. WRCOG and Murrieta, however, said that greater outreach to the real estate community would have been helpful ahead of the program's launch and that this remains an area where more effort is needed.
- **Program management.** Although the HERO Program functions well, it has required more effort to manage than WRCOG originally anticipated. One reason for the added workload is higher-than-expected participation. Another is that coordinating among the various organizations involved in operating HERO has also been a more time-intensive process than anticipated. For example, WRCOG did not expect to navigate different recording requirements in each county. In addition, WRCOG staff had to work with title companies to ensure the PACE lien was identified properly in the closing documents and did not appear as an exception to title insurance coverage in the title report.

⁸ IMPLAN Group, LLC, IMPLAN System (data and software). Available online: www.IMPLAN.com.



- **Management continuity.** Although WRCOG did not state this, a lesson evident to Cadmus was that management continuity at WRCOG (and also at Renovate America) has proved important to the smooth implementation and growth of the HERO Program. WRCOG’s Barbara Spoonhour has managed the HERO Program from the beginning, bringing institutional knowledge, experience, stability, and entrepreneurial flexibility to a very rapidly growing program.

Except for Murrieta, which joined the WRCOG HERO Program when it first launched, the remaining local governments we interviewed have had much less experience with the HERO Program in their jurisdictions. Fresno has had the longest implementation history, at just over a year, while San Francisco has had less than a month at the time of the interview. All representatives discussed their experiences with the process of entering the program and with actual implementation after launch.

In 2009, Fresno, San Francisco, and San Diego all intended to operate their own PACE programs, and Sonoma County launched its own program. San Francisco in particular wanted to retain local control of program operations. However, FHFA’s concerns about PACE ended these plans. Once the HERO Program was successful and FHFA did not take further action, and after the state created the PACE LLR, all four jurisdictions joined the HERO Program and expressed satisfaction with the outcome. San Francisco’s representative stated that HERO staff has dedicated time and energy to coordination whenever needed, and the city has not lost anything by giving up control of the program. Instead, it can operate much more efficiently and dedicate more resources to other initiatives. San Diego also had concerns ahead of HERO’s launch, particularly about protecting homeowners and ensuring responsible financing. HERO worked with San Diego to make sure the program met its expectations.

Sonoma, Fresno, and San Francisco representatives worked to establish the program at the city and county levels in their jurisdictions and were involved in the property tax collection process. These representatives had more exposure to WRCOG and Renovate America than did Murrieta or San Diego. San Diego in particular had some contact with WRCOG and Renovate America when setting up the program, but its only contact now is a periodic report on participation distributed by Renovate America. San Diego did not view this as a problem and preferred dedicating very little time to the program.

Unlike WRCOG, none of the other local governments has established quantitative goals specific to HERO or PACE. In addition, though all representatives reported they were satisfied with the program’s implementation and participant uptake to date, not all expect HERO to have a major impact in their jurisdiction even where HERO has not been in operation long.

Fresno, where HERO has been active for over a year, has experienced millions of dollars of activity per month. Nevertheless, Fresno’s representative referred to PACE as a niche product. Similarly, San Francisco’s representative stated that, although appreciating HERO’s attention to customizing the program, the government has conservative expectations for HERO. The representative noted that in San Francisco the weather is mild, two-thirds of the population rent, and there is a great deal of “new money”—meaning financing may not be necessary if people choose to undertake a retrofit.

Sonoma County and San Francisco representatives also described these lessons learned from their experiences with PACE and HERO:

- **Contractors.** The Sonoma County representative said the critical roles contractors have in the program were highlighted in 2010, when the FHFA controversy reached its peak. Although the county continued the program, in part because of organized advocacy by contractors, contractors were not entirely comfortable offering the program to their customers. The program participation rate dropped sharply. Participation has recovered slowly to nearly the pre-FHFA levels but has now leveled off. SCEIP staff hope HERO's marketing will revitalize PACE in the county. (For more detail on the FHFA controversy, see Appendix A. Policy Considerations.)
- **Flexibility.** SCEIP experienced negative results from trying to emphasize the program's energy efficiency aspect. In 2011, it sought to establish a loading order, which required that homeowners address efficiency issues before adding renewables, but this had a negative effect on participation.
- **Marketing clarity.** San Francisco said it carefully monitors program marketing by the three residential PACE programs it has approved. The city sees the potential for customers to become overwhelmed with the different financing options, though no such problems have been identified so far. The city also contemplates adding the IOU's residential financing pilot program, REEL, to the menu of residential financing options.

Contractors

Contractors are the key delivery channel for the program. Although Renovate America does some program marketing, it primarily relies on contractors to deliver the program. Because the customer is with the contractor when making a decision about financing, the contractor is typically the gateway for any financing program.

Information in this section derives primarily from the contractor interviews. Cadmus interviewed two separate groups of contractors (the first selected by Renovate America and the second randomly selected). More contractors in the first group appear to be channel partners with Renovate America, which grants them special marketing privileges and support in return for delivering a certain level of loan volume. However, there were few other differences between the groups about their services or their experiences with HERO. The randomly selected contractors were just as pleased with HERO, offer a similar range of products, and were as likely to indicate HERO was a large and growing percentage of their business as were the contractors selected by Renovate America.

Channel Partners

Through interviews, Cadmus learned that Renovate America granted certain contractors a special designation as "channel partners." According to Renovate America, channel partners are selected because they have a high customer service record with HERO customers, very low contractor compliance issues, and a commitment to energy efficiency, renewable energy, or water conservation projects. However, some contractors reported receiving channel partner status upon joining the



program and believed the designation granted them special benefits that recognized their ability to deliver a high volume of projects.

Benefits for channel partners, according to the contractors, appeared to vary. Contractors reported receiving benefits including funding for direct mail, packaged leads from Renovate America (lists of homes citing value, probably amount available PACE funding, and likelihood of eligibility), and their own landing page on the HERO website. Most channel partners appeared to receive more on-site training than other contractors, with on-site visits on demand and continuing once a week for several months after the contractor joined. Renovate America staff did not provide additional details regarding the structure of the channel partner relationship. We were not able to determine the exact nature of the channel partner relationship, or the number of channel partners in the program, because we learned about this designation after we had already conducted several interviews.

Recruiting

According to Renovate America staff and contractors, the program recruits contractors by setting up direct meetings with top-level management to pitch the program. However, the majority of contractors we interviewed knew about the program before being solicited by a HERO representative. Of the eight randomly selected contractors, four learned about the program from a colleague, two from a vendor or supplier, and only two first learned about HERO through direct solicitation by Renovate America. Among contractors Renovate America selected for interviews, six of 15 learned about HERO through word of mouth.

Motivation

When asked why they decided to offer HERO, contractors cited a range of factors. The two most common responses were that HERO offers attractive and affordable financing for customers and that the product allows them open their business to a new market segment by selling to customers who would not qualify for financing underwritten by a credit score. Other common reasons were that the program does not charge dealer fees, uses a quick and easy process, and offers an attractive product to customers. Table 6 presents the distribution of responses across the two contractor groups. The question was asked in an open-ended manner, so several interviewees gave multiple answers.

Table 6. Contractor Motivation for Joining HERO

Motivation	RA Selected (n=11)	Randomly Selected (n=7)
Attractive/affordable financing product for customer	5	2
Access new markets by offering financing to people with limited payment options	3	4
No fees to the contractor	4	1
Easy process, fast payments	4	1
Adds to professionalism, credibility	1	0
Potential for increased sales (larger projects)	1	0
Market differentiator	1	0

Contractors reported that other financing products they offer, such as Synchrony (formerly GE Capital) and Wells Fargo, charge high fees to contractors and come with higher interest rates for customers than the PACE financing. In addition, these other products have lower maximum loan amounts than what many people can borrow through PACE. According to one contractor, his average ticket size is around \$40,000, while Synchrony allows customers to borrow only \$20,000. Contractors also appreciated that the customer can be approved during the sales visit, in a matter of minutes, and signatures can be completed electronically, also making the process easy and fast for the customer.

Impact and Satisfaction

Overall, both groups of contractors were very pleased with all aspects of the HERO Program. Contractors found the most important program benefit was, in most cases, increased business. Because HERO allowed them to sell to people who otherwise might not qualify for financing, contractors could expand into new market segments. Several contractors from both groups of interviewees said that with HERO they increased the number of customers they sold to or their average ticket size (i.e., dollar value of an individual project). Many said it did both.

On average, contractors reported that just over 40% of their customers used PACE, with estimates ranging from 2% to 90% of all the business's residential customers. (Nearly all of this activity is through HERO, though some contractors also offer financing through CaliforniaFIRST or YGRENE on occasion). According to one contractor, "Once you make that decision that you are going to borrow, you are more open to add-on sales. And the efficiency requirements steer customers away from low-end products."

Virtually all contractors in both groups reported they were very satisfied with training, the program process and rapid payments, support resources for customers, and marketing support. Contractors described the process to join the HERO Program as simple, requiring only a short application submitted online and management and staff training. Senior managers received an in-person overview of the program and contractor requirements. All sales staff received at least a two-hour, in-person training on the PACE financing product and the proprietary HERO Pro software platform that contractors use to upload and track project applications.

One of the most popular features of the program for contractors was the level of support they received from Renovate America staff. In addition to the basic training required to offer the program to customers, Renovate America also provides ongoing, on-site sales training on subjects such as how to present the HERO product to customers and how to explain the benefits of efficiency and conservation to encourage customers to invest in more expensive equipment or more measures. In addition, each contractor has a designated account representative at Renovate America as the primary point of contact. Finally, Renovate America operates a large call center in San Diego that is available seven days a week.

Account representatives visit contractor offices regularly to hold "open hours" for any sales representatives who have questions on the product. Several contractors reported that their



representative visited weekly for the first months they participated in the program and continued to visit each month or as needed. Channel partners appeared to receive more frequent visits than non-channel partners.

Several contractors reported that they preferred HERO to other PACE programs and other financing options, such as Synchrony and Wells Fargo, because of the efficient process and the level of support they received. HERO appears to set the standard for speed of payment and access to support.

Suggestions for Improving HERO

In general, contractors believed the application process was streamlined and well-supported by Renovate America staff. However, several contractors reported that the process can slow down significantly if the home belongs to a trust because multiple signatures are required. A few contractors requested that HERO allow for individual items to be funded as they are installed, rather than requiring that all items be installed before any money is released.

Most contractors were very satisfied with the level of service from Renovate America, but a few complaints emerged. One contractor reported that his company was not notified if there was an issue with documentation required to fund a project; therefore, the company needed to follow up on each application. (This may have changed, because two other contractors said program staff notified their companies by e-mail if issues arose with an application.) Three contractors reported their initial account representative at Renovate America was sometimes unavailable or difficult to work with, though two of these respondents added that Renovate America had replaced that person with someone better. One contractor reported having difficulty reaching the right support person on the phone when calling the Renovate America call center, though several others said the call center service was very good.

Several contractors reported that the HERO financing was an affordable, attractive product for customers. However, two contractors in the group identified by Renovate America said the annual percentage rate (APR) sounded expensive to customers unless the tax deduction was applied. Several contractors said the tax deduction could be a major selling point for the financing, but others said they were not confident that the tax deduction was valid and therefore did not mention it to customers.

Two contractors said they wanted HERO to expand to measures beyond energy and water conservation. (However, PACE is limited in its ability to fund measures that do not have at least an indirect impact on energy conservation; water conservation measures meet this requirement because water uses energy for pumping. In California, PACE may also be used for earthquake reinforcement measures.) Several contractors said they used HERO wherever it was available, but it was not available in all areas in which they work.

Suggestions for Alternative Financing Products

Contractors, while very happy with HERO, were nevertheless open to new financing products. Their suggestions included that any new program offer a simple application process, no vendor fees, and fast

payments (typically less than seven days)—services similar to what HERO offers. They also asked for these features that are not available from HERO:

- “Same as cash” options
- Below market rates (7% or less)
- Progress payments or by-measure payments for projects involving multiple measures
- Broad geographic coverage (for contractors on the edges of HERO territory)
- A strong, creditable market presence, such as having a utility brand

Contractors had mixed views about working with the IOUs. Three contractors said they saw a great deal of potential in the marketing power of the utility and looked forward to learning more about utility financing programs. However, several reported they stopped participating in utility rebate programs because of the cumbersome paperwork and frequently changing requirements.

Customer Experience

To understand the customer’s perspective on the HERO experience, Cadmus conducted a survey of the general population of single-family homeowners in Riverside and San Bernardino counties, where HERO has been active the longest. The survey collected information on how homeowners made decisions about energy upgrades to their homes as well as demographic information about the respondents.

One of the key questions we evaluated through the survey was how the availability of HERO financing or rebates influenced a homeowner’s decision to complete a project. We compared typical participants and projects in four groups identified by the survey:⁹

- HERO participants
- Rebate participants
- Nonparticipant homeowners who completed a standard-efficiency home energy improvement
- Nonparticipant homeowners who completed a high-efficiency home energy improvement

The survey defined a home energy improvement project as a project that included at least one of the following six types of improvements:

- Heating, ventilation, or air conditioning (HVAC) equipment
- Windows
- Insulation
- Air sealing or duct sealing

⁹ Some survey respondents participated in both HERO and rebate programs. In our analysis, we included these respondents in both the HERO and rebate groups (essentially double-reporting these responses, but allowing for a complete assessment of HERO participants and a complete assessment of rebate participants.

- 
- Water heaters
 - Pool pumps or motors

Cadmus categorized any project where the homeowner used HERO financing or a rebate for at least one item as a high-efficiency project. However, if the homeowner did not use either HERO or a rebate, we relied on the respondent to identify whether the improvement project was high-efficiency or standard-efficiency, guided by information and questions we provided in the survey. Figure 5 shows survey language that helped respondents select high-efficiency or standard-efficiency to describe their project.

Several factors limited our ability to precisely define a high-efficiency or a standard-efficiency project. One factor was that HERO and the IOU rebate programs have different criteria for measure eligibility, and the criteria in both programs changed multiple times over the period addressed by the survey. In general, HERO's criteria are more expansive than rebate criteria, so we used HERO criteria to guide survey respondents. As a result, the reader should keep in mind that the definition of high-efficiency in this report does not equate to eligibility for IOU incentives.

Another limiting factor was the reasonableness of asking survey respondents to precisely determine the efficiency level of each of the measures they installed. We expected respondents would not be able to accurately report information such as SEER levels or R-values. We therefore we used more general language, but at the cost of reduced understanding of what equipment respondents actually installed. Finally, to avoid overburdening survey respondents, we asked respondents to categorize their home improvement at the project level rather than the measure level. We then qualified a project, which could consist of one or more measures, as a high-efficiency project if the respondent said at least one measure in the project was high-efficiency.

Survey results show that the majority of nonparticipant homeowners who made a home energy improvement believed their upgrade was a high-efficiency project (Figure 6). Cadmus could not independently verify the efficiency level of the nonparticipant home energy improvement projects.

Figure 5. Efficiency Guidance for Respondents

For the rest of the questions, please respond only about the improvement(s) you just selected on the list, NOT about any other energy improvements you may have made such as solar panels or kitchen/laundry appliances.

For the improvement(s) you selected, you probably had a choice between standard efficiency and high-efficiency alternatives. Which did you choose? An improvement was probably a high-efficiency improvement if it was:

- Eligible for utility rebates, or
- Eligible for the HERO financing program, or
- More efficient than other alternatives that were available, or
- ENERGY STAR-labeled. Not sure? Check for an ENERGY STAR logo on the yellow Energy Guide sticker.



Do you think any of the improvements you chose were high efficiency?

Yes, I think I chose at least one high-efficiency improvement.

No, I think I chose standard efficiency.

Not sure.

Typical Projects and Participants

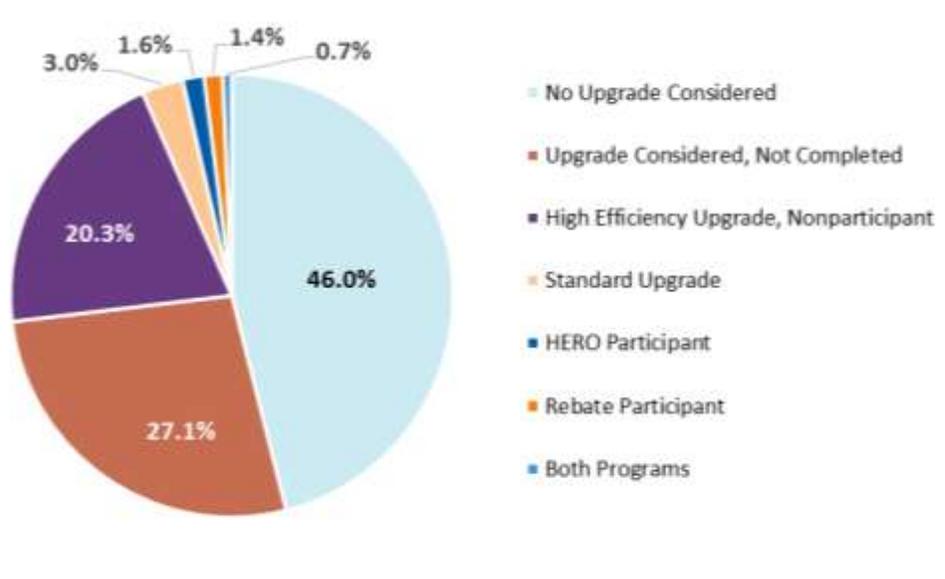
Cadmus compared project types and respondent characteristics and assessed if the respondent completed a major energy upgrade in the last three years, if the project was a high-efficiency or a standard-efficiency installation, and if the respondent used the HERO Program or IOU rebates. The survey findings presented in this report have been weighted to represent the homeowner population in the targeted areas of Riverside County and San Bernardino County where the survey was administered. (See Table 5 for the full survey disposition; see the *HERO Program Savings Allocation Methodology Study*, the companion report to this study, for a more detailed discussion of the survey design, implementation, weighting, and analysis.)

Figure 6 shows the distribution of home energy upgrades and participation in HERO or IOU rebates among the general population of homeowners in the survey area. Nearly three-fourths of homeowners,



73.1%, have not completed a home energy upgrade in the last three years. Of those who have (20.3% of the total population), the majority said they had completed a high-efficiency upgrade but did not participate in either the rebate programs or HERO. A much smaller fraction, 3% of the total population, said they had completed a standard-efficiency upgrade. Less than 4% of all homeowners participated in HERO, a rebate program, or both, with a slightly larger proportion participating in HERO than in a rebate program (2.3% participated in HERO compared to 2.1% who participated in a rebate program).

Figure 6. Distribution of Population Segments (n=3,501)



Typical Home Upgrade Projects

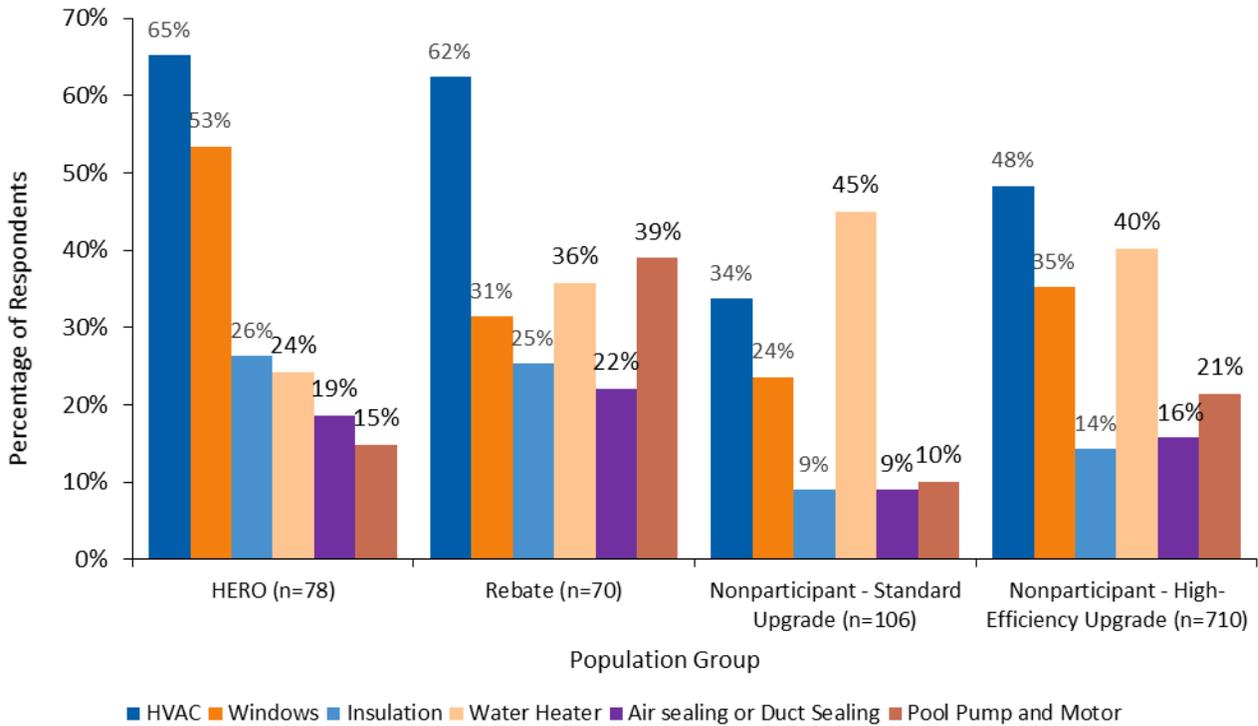
Surveys determined if respondents considered or completed any of six measure types eligible for utility rebates: pool pumps and motors, water heaters, air and duct sealing, insulation, windows, and HVAC. Figure 7 shows the frequency of measure types among all respondents completing a project in the last three years.

HERO and rebate participants were more likely than other groups to make HVAC installations, the most common measure type for both groups. HERO and rebate participants were about equally likely to install insulation, air-sealing, or duct-sealing measures (between 19% to 25% for both groups). However, the two groups differed regarding other items. HERO participants were more likely than rebate participants to install windows (53% and 31%, respectively). HERO participants were less likely than rebate participants to install pool pumps or motors or water heaters, and they about equally likely to install insulation, air sealing or duct sealing.

Nonparticipant projects differed from HERO and rebate projects primarily because nonparticipants were less likely than either participant group to install HVAC equipment; nevertheless, nonparticipant high-efficiency projects were more likely to include an HVAC item than were nonparticipant standard-

efficiency projects. In addition, both nonparticipant groups were less likely than rebate participants to install pool pumps and motors and more likely than HERO participants to install a water heater.

Figure 7. Type of Improvements Completed*

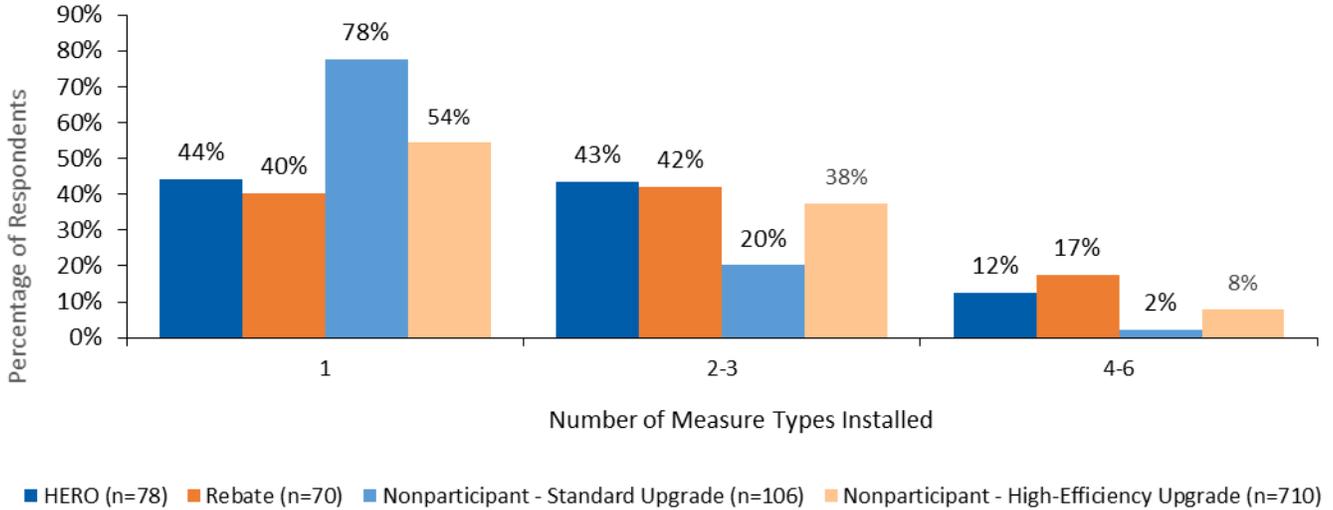


*Respondents using both HERO and a rebate are included in both groups.

HERO participants and rebate participants were about equally likely to install multiple items in a single project, and both of these groups were more likely to install multiple items than were both nonparticipant groups (Figure 8). The difference was more pronounced for nonparticipants who completed standard-efficiency projects—they were the least likely to install more than one measure type, with less than 25% of standard projects involving multiple items.



Figure 8. Multiple Measure Installs*



*Respondents using both HERO and a rebate are included in both groups.

Project Cost

Survey respondents estimated the cost of their improvement project (excluding any costs associated with solar PV). Table 7 shows the average total project cost by population group.

Table 7. Average Project Cost

Population Group	Average Project Cost
Both Programs (n=20)	\$21,370
HERO Only (n=38)	\$19,702
Rebate Only (n=47)	\$9,957
High-Efficiency Nonparticipants (n=701)	\$7,380
Standard-Efficiency Nonparticipants (n=104)	\$3,354

Respondents using both HERO and rebates reported the highest average project cost (\$21,370), followed closely by those using only HERO. Rebate, high-efficiency nonparticipants, and standard-efficiency groups spent much less on average. Among these, rebate projects were the largest, and standard-efficiency upgrade projects cost the least (which corresponds to the propensity for standard-efficiency projects to have only one measure). The standard-efficiency group was also the only group whose project costs averaged below the minimum threshold for HERO.

One reason for the difference in average project costs between respondents who used HERO and those in the other groups was probably because HERO sets a \$5,000 minimum, whereas other financing options had no set minimum. However, even for projects that cost at least \$5,000, the average cost of HERO projects was larger than the average cost of projects financed through other methods or paid for in cash (Table 8).

Table 8. Average Project Size by Payment Method, for Projects over \$5,000

Payment Method	Average Project Cost
HERO (n=55)	\$21,267
Credit cards with the intent to make incremental payments, and other financing (n=129)	\$16,023
Cash or credit card with the intent to pay off immediately (n=219)	\$13,521

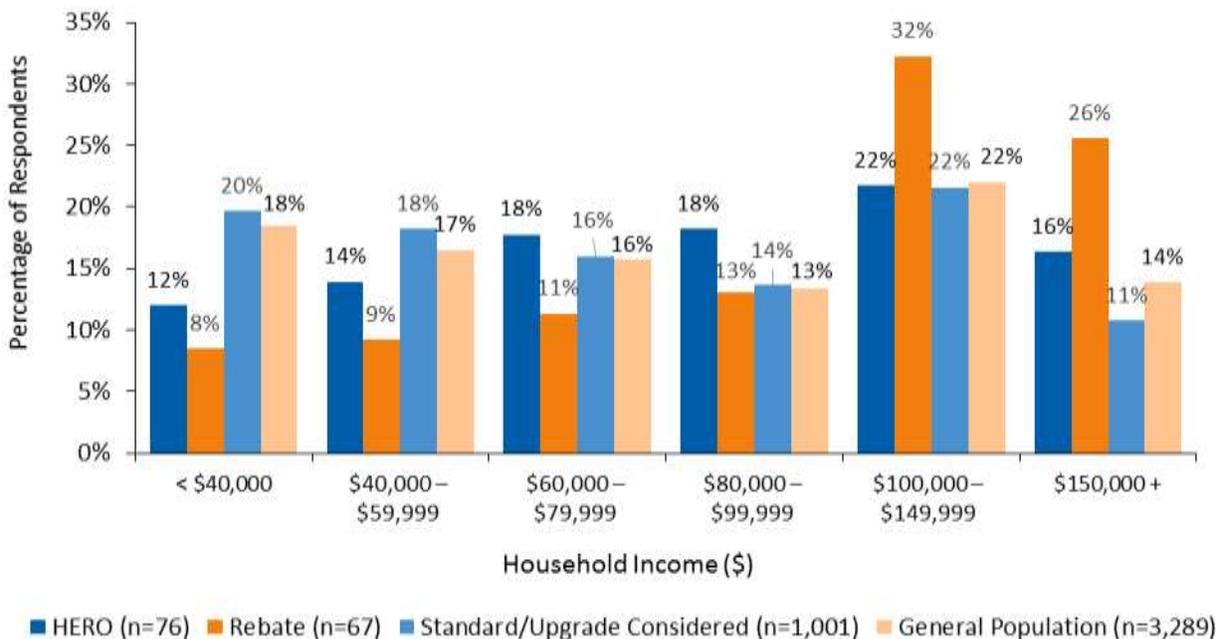
Typical Participants

This section compares basic demographic data (income, education, and age) among these four groups—HERO participants, rebate participants, homeowners who completed a standard upgrade or considered but did not complete an upgrade, and the general population targeted in the survey. In this section, we included the group identified as having completed a standard upgrade or considered but not completed an upgrade because it represents the most likely target market for the REEL program.)

Household Income

Figure 9 shows yearly household income for key respondent groups and the target population.

Figure 9. Household Income*



*Respondents using both HERO and a rebate are included in both groups.

HERO participants and those completing a standard efficiency project had an income distribution similar to the total population. Rebate participants, on the other hand, were more likely than the general population to be in a higher income bracket—58% of rebate participants reported an income of



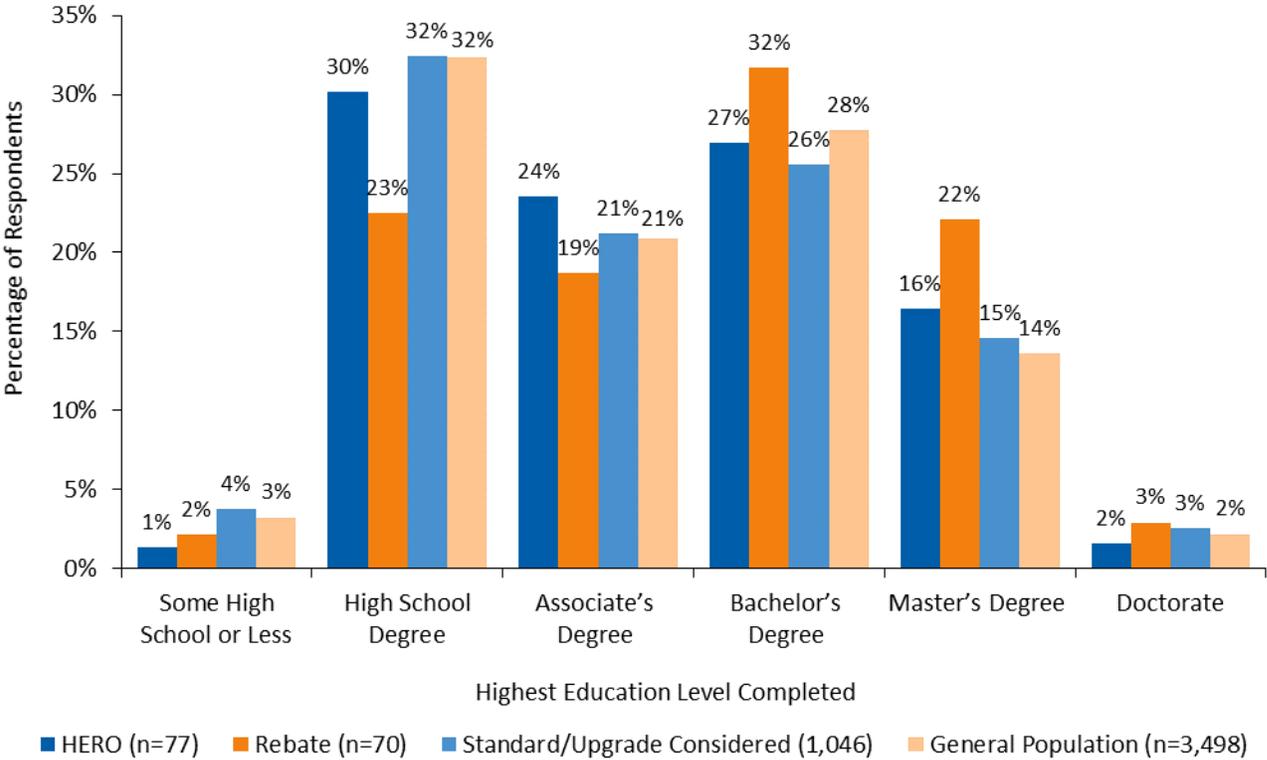
\$100,000 or more compared to 36% of the general population and 38% of HERO participants. Although both HERO and rebates were underrepresented among lower-income respondents, HERO participation was more common than rebate participation—of respondents reporting an income lower than \$60,000, 26% of respondents used HERO compared to 17% who used a rebate.

Customers who performed a standard-efficiency upgrade or considered a project but did not follow through exhibited incomes mostly consistent with the population as a whole. Incomes across the total population were dispersed relatively evenly, with 13% to 22% of the population in each income bracket.

Level of Education

Respondents were asked to indicate their highest level of education (Figure 10). As is typical, education and income were closely related. The average rebate participant had a higher level of education than the total population, while the average HERO respondent had slightly less education than the total population. The distribution of education levels among those completing a standard upgrade or considering but not completing an upgrade conformed to the general population.

Figure 10. Highest Level of Education*

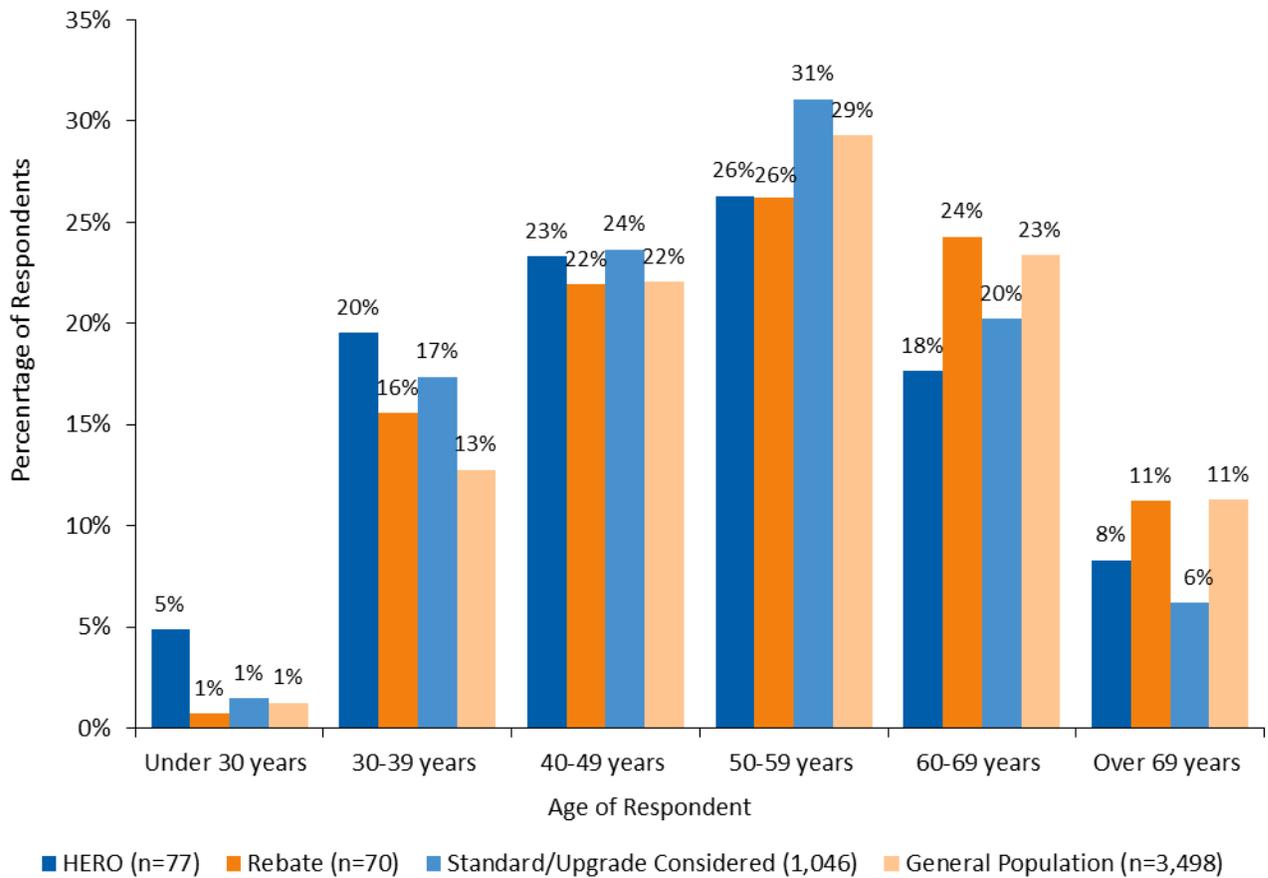


*Respondents using both HERO and a rebate are included in both groups.

Respondent Age

HERO participants tended to be younger than the general population, while rebate participants more closely fit the general population age distribution. The difference is most notable for older and younger homeowners. Homeowners 60 and over make up 34% of the general population and 35% of the rebate participant group but make up 24% of the HERO participant group. On the other hand, homeowners under 40 years old make up 25% of the HERO participant group, compared to 14% of the general population and 17% of rebate participants. Respondents completing a standard-efficiency upgrade are also less likely to be over 60 than the general population but are more concentrated in the 40 to 59 age range than are HERO participants. Figure 11 shows the age distributions for each population group.

Figure 11. Participant Age*



*Respondents using both HERO and a rebate are included in both groups.

Benefits to Customers

Interviewees and participants tended to agree on several of the benefits that HERO provides compared to other financing options. At the same time, all agreed that HERO also presents certain challenges. This



section describes the positive and negative aspects of HERO financing for homeowners from the perspective of stakeholders and participants.

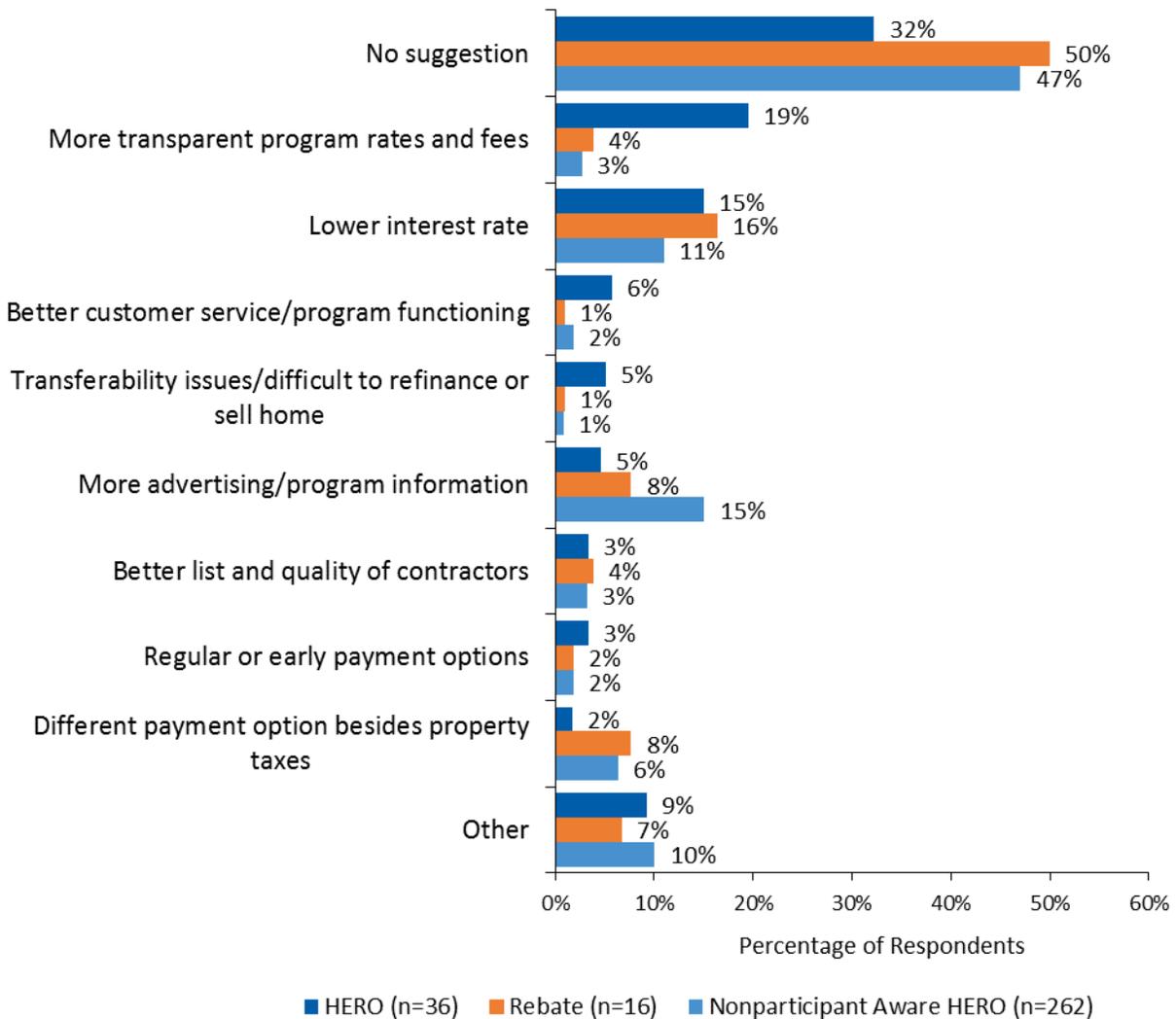
Stakeholder Perspective

These are several aspects of PACE financing—common to HERO and other PACE programs—that local government representatives, contractors, and Renovate America cited as benefits for customers:

- Because PACE eligibility is not based on credit scores, local government representatives and contractors view it as an option for many people who may not have other financing avenues. Interviewees generally considered this the most important benefit of PACE.

The interest portion of each PACE assessment may be tax-deductible. (A FAQ on the HERO website website notes: “Certain items on your property tax bill may be deductible. You are urged to consult a tax advisor regarding the deductibility of such payments.” Though Cadmus notes that some some customers have been confused about the tax deduction (see Cadmus asked HERO participants and other respondents who were aware of HERO to provide what suggestions, if any, they might have for improving the Program. Figure 14 shows suggestions by three groups—HERO participants, rebate program participants who were aware of HERO but did not use it, and nonparticipant homeowners who made an improvement and were aware of HERO but did not participate in HERO or a rebate program.

Figure 14. Customer’s Suggested Improvements for HERO*



*Respondents using both HERO and a rebate are included only in the HERO group.

The most common response from all three groups was that the respondent had no improvements to suggest. Nineteen percent (n=36) of HERO participants suggested more transparency about program rates and fees. Their comments indicated that many customers had not clearly understood the costs of HERO financing at the time of closing, in some cases referencing confusion about fees and in some cases referencing tax deduction issues. Only 4% of rebate-only participants and 3% of non-participants reported this as an issue, indicating this concern was not a barrier to participation.

The second most common suggestion of the three groups was to lower the interest rate, cited by 11% to 16%, across the three groups. HERO participants were slightly more likely than the other two groups to suggest better customer service or more information about the ability to transfer the loan upon resale,



which is not surprising since this group would have more experience with these than the other two groups.

- Limitations of HERO section), the IRS released guidance on June 20, 2015, that provides more clarity for this deduction.)
- PACE assessments can transfer to subsequent homeowners upon sale of the home, making it easier for homeowners to justify making improvements even if they are not sure they will stay in the home for the full duration of the assessment. (Although, stakeholders also noted there is confusion in the real estate market about the implication of PACE financing for securing a refinance or mortgage upon sale, and about the mechanics of how to transfer an existing PACE assessment; that confusion is currently a limitation of HERO.)
- The unusually long terms available with HERO (up to 20 years) help reduce the size of annual assessments, making them easier to manage financially, and making it more likely they can be covered by the energy savings resulting from the improvements. These long terms are possible because the PACE lien uses a high security level—the home’s property tax obligation. Cadmus notes that, in most cases, a longer financing period provides more benefit in terms of lowering the payment amount than, for example, lowering the interest rate. Extending the term by a year typically reduces the size of the payment by a greater amount than reducing the interest rate by a percentage point.

Although not cited as a specific benefit, WRCOG noted that an assessment in default can legally lead to a relatively quick tax foreclosure sale, but it has not yet put this into practice by initiating a foreclosure. In the past, WRCOG has assigned its rights of collections to a third party, which allows the delinquent property to remain on the tax roll and, if not paid within five years, to fall under the jurisdiction of the county to initiate a forced sale for unpaid property taxes. WRCOG can justify such forbearance because the PACE lien provides a high level of security. Furthermore, unlike a typical loan that becomes “due in full” upon default, a PACE default can be cleared by paying just the past-due assessments; that is, if a property goes to a foreclosure sale, the sale proceeds are used only to pay the past-due assessments payment, not the entire assessment amount. This helps minimize potential impacts on mortgage lenders and others standing behind the PACE lien.

HERO also offered benefits unique to the program itself that other PACE programs may or may not provide. It is specifically designed to be as fast and convenient for the customer as possible. The application and funding processes are completed online, including online signatures. HERO participants receive preapproval while the contractor is present, allowing them to quickly evaluate their project and payment options together.

In addition, HERO affords more consumer protections than traditional home improvement loans and, according to WRCOG and Renovate America, than other PACE programs. WRCOG and Renovate America both appear to be committed to strong consumer protections, in part because they recognize any complaints from constituents could cause local officials to reconsider their support of HERO.

HERO performs the following to support its participants:

- Discloses all applicable fees and interest in the financing documents presented to the customer¹⁰
- Requires a Certificate of Completion signed by the customer prior to funding an assessment
- Verifies that a permit has been opened for all applicable installations (although the program does not verify the permit is reviewed or closed).
- Prequalifies contractors and eligible improvements
- Inspects the quality of a contractor's first five projects with HERO
- Calls a random sample of a contractor's initial customers to verify the contractor presents the product accurately¹¹
- Calls applicants who do not speak English as their first language or who are over the age of 65 to make certain they understand the program
- Mediates homeowner disputes with contractors
- Suspends and removes any contractors who misrepresent HERO or fail to meet program guidelines

Customer Perspective

Although most customer respondents agreed on the benefits listed by stakeholders, Cadmus found that the relative importance of these benefits, as reported by customers, did not necessarily correspond to what interviewees predicted. Interviewees believed eligibility for those with bad credit was the most important factor; however, Cadmus' survey of homeowners found that 65% of HERO users cited convenience as a factor in their payment decisions (45% of respondents using other types of financing cited convenience). In addition, most contractors and local government representatives did not think transferability was a critical feature of the program, but 48% of HERO users said they considered this factor. Surprisingly, given the lengthy tenor options available through HERO, HERO respondents were about as likely as those using other financing to say manageable payments was a key decision factor.

On other points, HERO participant responses appeared to bear out stakeholder perspectives. HERO participants were more likely than those using other types of financing to indicate they needed financing—47% of HERO participants said paying cash would have been difficult, compared to 31% who used other financing. In addition, 13% of HERO users said their credit scores (or eligibility for financing)

¹⁰ In September, 2016, the California legislature passed Assembly Bill 2693, which requires all PACE providers to offer consumers disclosure forms modeled after the Consumer Financial Protection Bureau's (CFPB) Know-Before-You-Owe disclosures and adapted to PACE. Renovate America reported that while the effective date for AB 2693 will likely be in 2017, HERO will implement this form on October 3, 2016.

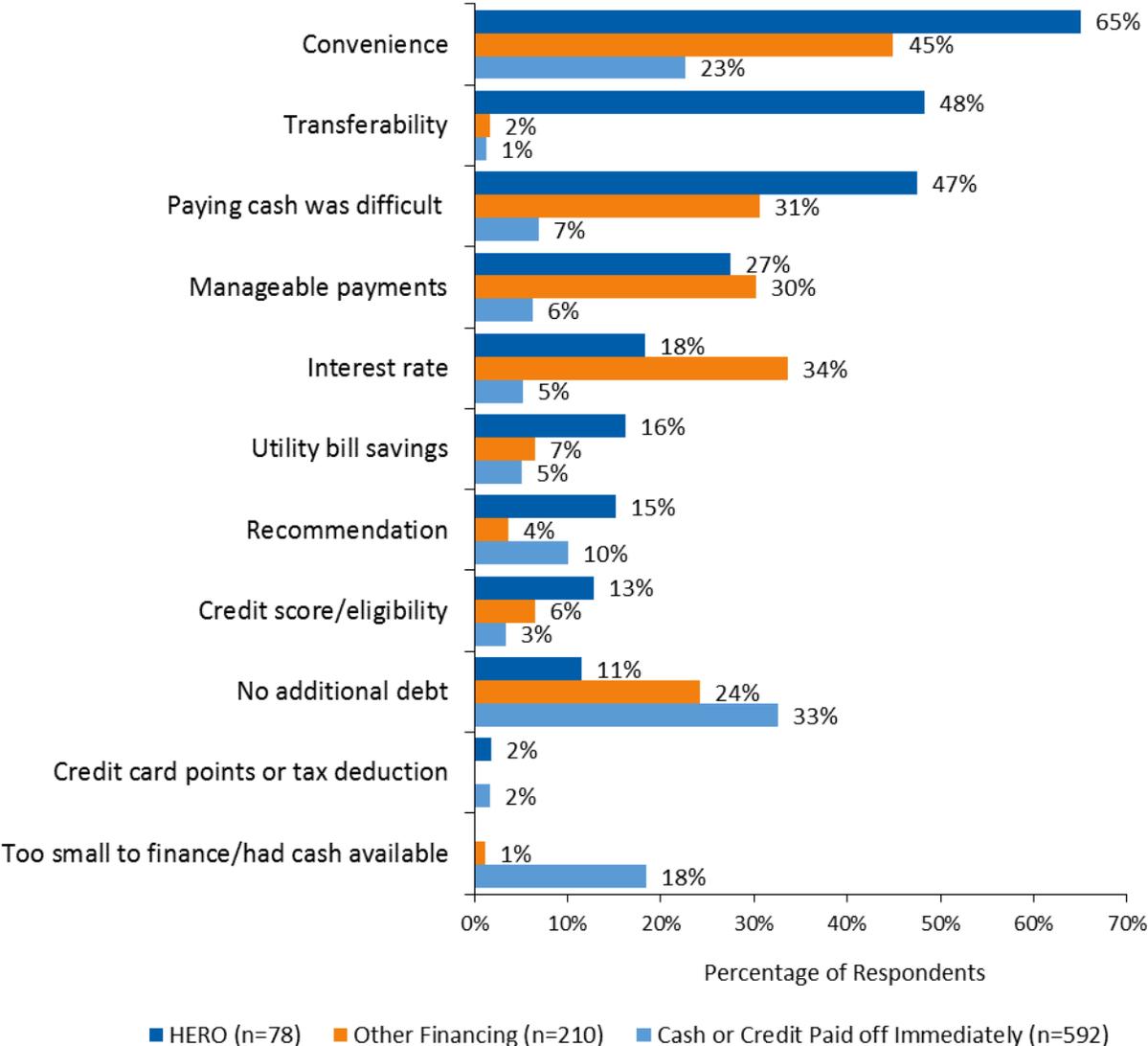
¹¹ In September, 2016, Renovate America instituted an expansion of this policy, requiring all borrowers, prior to receiving financing documents, to engage in a live, recorded phone call with a HERO representative, where all of the key financing terms – e.g., the amount of the financing, the products to be installed, the repayment of the assessment through one's property taxes, the recording of an additional assessment to one's existing tax lien, transferability and tax deductibility considerations – are reviewed.



were an issue, compared to 6% of those using other financing. Local government representatives and contractors reported that some customers considered the HERO Program APR to be relatively high. As they predicted, respondents using other financing were almost twice as likely as HERO users (34% compared to 18%) to cite reasonable interest as a concern.

Two-thirds of respondents paid for their projects with cash, or they used a credit card and intended to pay it off immediately (taking advantage of reward points). Of those who paid cash, the most common factor—reported by 33%—was to avoid taking on new debt, followed by convenience (23%). About 7% in this group cited factors related to financing (e.g., interest rate, monthly payment, or ability to qualify) to support their decision to pay cash instead.

Figure 12. Important Factors for Payment Choice*



Participant Satisfaction

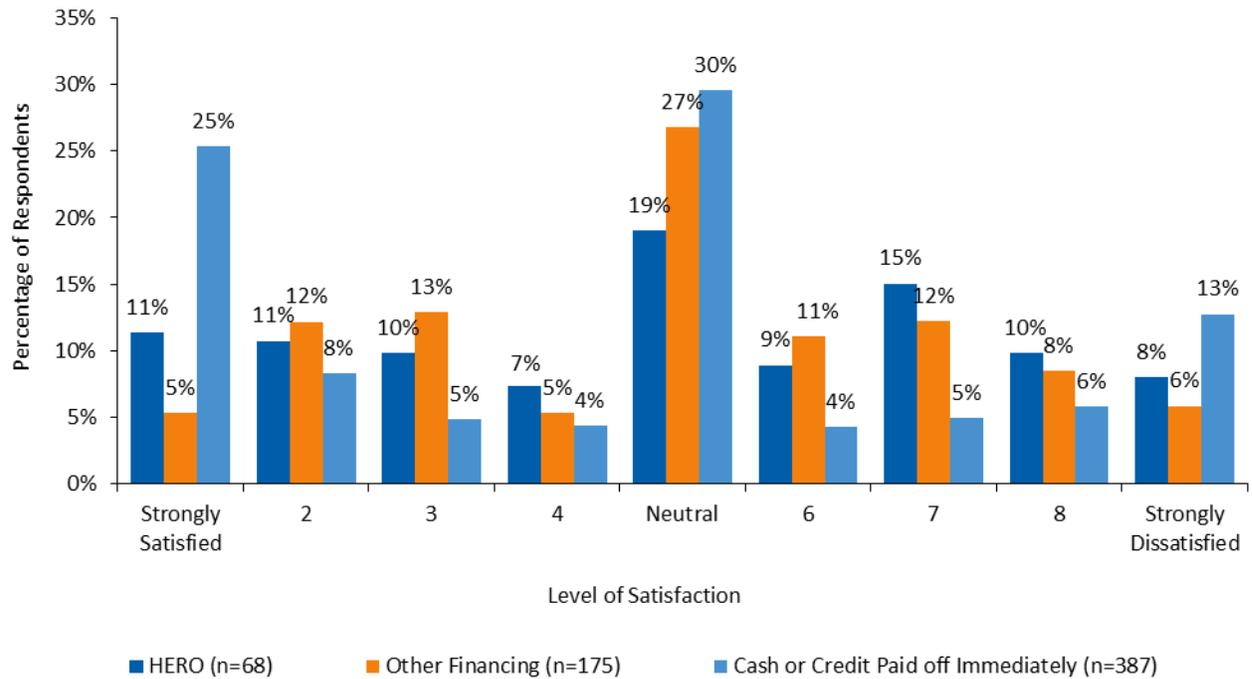
The rapid growth in HERO and its continued geographic expansion are clear indicators that it is a popular financing choice with homeowners. Renovate America delivers an exit survey to all customers and reported that 95% are very satisfied or satisfied. This was corroborated by contractors, WRCOG, and local government representatives, who reported their customers and constituent homeowners had few if any complaints about the HERO Program. However, the homeowner survey conducted for this report found that satisfaction with HERO was more widely distributed from positive to negative.

The homeowner survey asked all respondents who completed a home improvement project to rate satisfaction with their method of payment on a scale of 1 to 9, with 1 strongly satisfied and 9 strongly dissatisfied (Figure 13). Responses from HERO participants were fairly evenly distributed from strongly satisfied to strongly dissatisfied—32% of HERO users rated themselves 1, 2, or 3, and a nearly equal percentage of HERO participants, 33%, rated themselves a 7, 8, or 9.¹² The distribution among HERO participants was similar to the distribution among customers who used different forms of financing, and both groups tended to be less satisfied than homeowners who paid for a project with cash or a credit card they intended to pay off immediately. (As a point of comparison, the survey found that, of 45 respondents that used a rebate, 43% rated their satisfaction with the rebate program a 1, 2, or 3, and 23% rated their satisfaction a 7, 8, or 9.)

¹² The 1-9 scale, though unusual in most contexts, is typical for studies using analytical hierarchy process, one of the methodologies Cadmus reviewed as part of this study. We used the same scale for all survey questions for consistency.

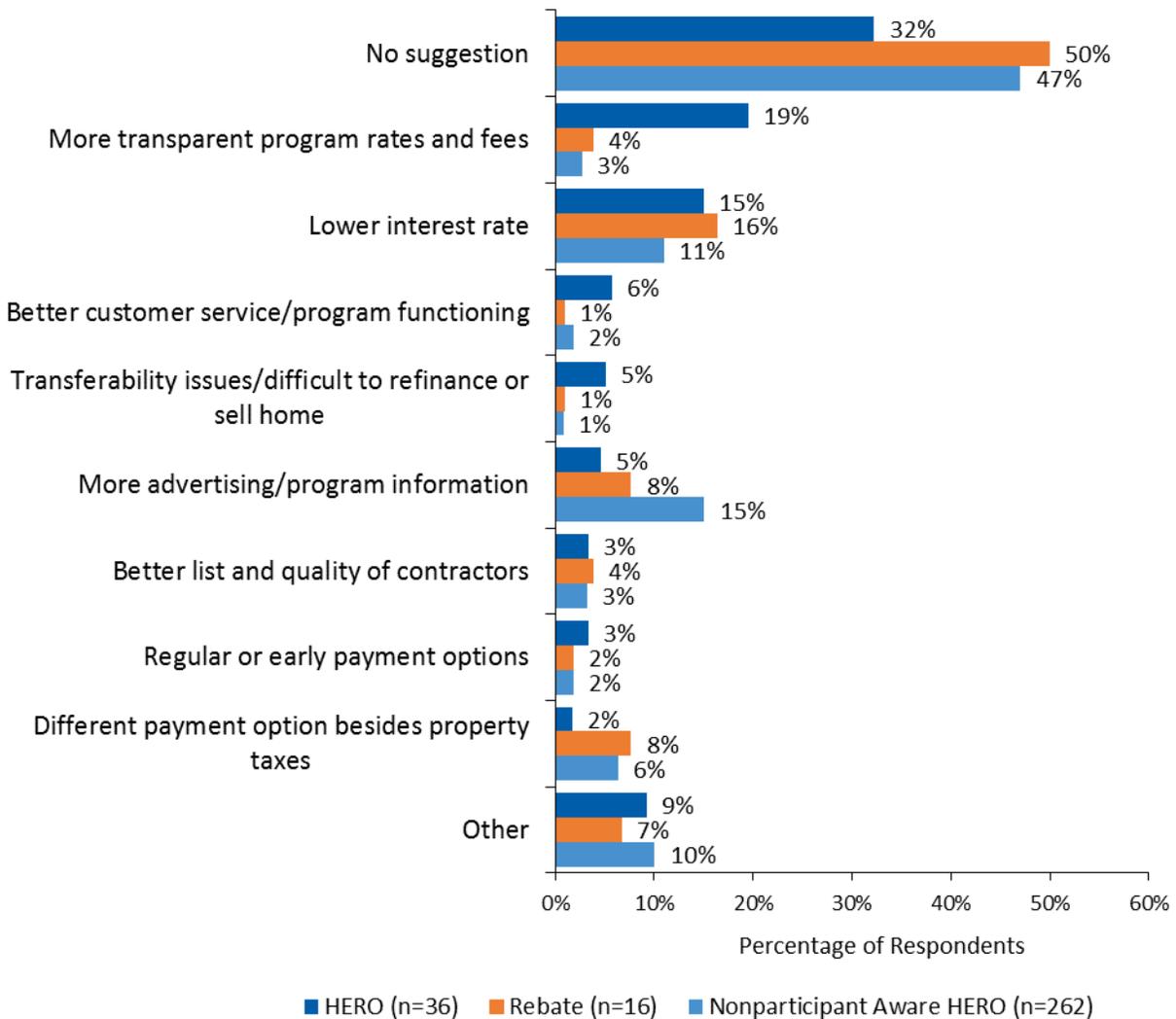


Figure 13. Satisfaction with Payment Method



Cadmus asked HERO participants and other respondents who were aware of HERO to provide what suggestions, if any, they might have for improving the Program. Figure 14 shows suggestions by three groups—HERO participants, rebate program participants who were aware of HERO but did not use it, and nonparticipant homeowners who made an improvement and were aware of HERO but did not participate in HERO or a rebate program.

Figure 14. Customer’s Suggested Improvements for HERO*



*Respondents using both HERO and a rebate are included only in the HERO group.

The most common response from all three groups was that the respondent had no improvements to suggest. Nineteen percent (n=36) of HERO participants suggested more transparency about program rates and fees. Their comments indicated that many customers had not clearly understood the costs of HERO financing at the time of closing, in some cases referencing confusion about fees and in some cases referencing tax deduction issues. Only 4% of rebate-only participants and 3% of non-participants reported this as an issue, indicating this concern was not a barrier to participation.

The second most common suggestion of the three groups was to lower the interest rate, cited by 11% to 16%, across the three groups. HERO participants were slightly more likely than the other two groups to suggest better customer service or more information about the ability to transfer the loan upon resale,



which is not surprising since this group would have more experience with these than the other two groups.

Limitations of HERO

Although the overall perception was that HERO worked well for many homeowners, interviewees and survey respondents also identified limitations. Some limitations result from confusion among homeowners, contractors and other parties about tax rules, implications for securing a future mortgage, and implications for resale. As the market for PACE matures and tax and mortgage lending policy is clarified, some of these may be resolved or may result in significant changes to the loan product or program. Other limitations are simply characteristic of the PACE structure and are unlikely to change, even as HERO and PACE become more well known. This section describes in more detail the limitations cited by local government representatives, contractors, and participants.

Transferability

PACE loans are technically transferable upon the sale of the property, if both parties are willing. The buyer simply continues making the payments as part of assuming the rest of the property tax obligation for the home. The seller has no remaining obligation to the loan. On its face, this is usually considered a benefit of HERO. The general population survey found that, for 48% of HERO participants, this was a factor in their decisions to use HERO (Figure 12 above).

However, according to local government representatives and some contractors, homeowners and real estate agents have expressed concerns about how PACE might affect the marketability of a home. Although technically transferable to a buyer upon sale of a home, the PACE assessment works only if buyers are willing to accept the transfer of the assessment. Local government representatives reported that some real estate agents were worried about the lien being a surprise to a potential buyer midway through a sale process. WRCOG reported it worked closely with some participating county recording offices to ensure that the PACE lien was recorded appropriately so that it would be noted upon sale and easily identified in a title review. To address this issue, Renovate America created a team of real estate experts called HERO Property Advisors to advise homeowners, real estate agents, lenders, and title and escrow officers to advise on how to work with a HERO assessment in the event of refinancing or selling. The team, which has been in operation since 2015, reaches out to HERO homeowners as soon as soon as the property is listed to make sure that they and their listing agent are aware of the assessment and their options.

Local governments and contractors also reported that some real estate agents advised clients that the home may not be eligible for traditional mortgage financing if it has a PACE lien attached. This concern relates to statements made in 2010 by the Federal Housing Finance Agency that it might advise Fannie Mae and Freddie Mac to avoid financing homes with PACE or even redline entire counties that authorize PACE programs; its reasoning was that PACE created unfair risk for mortgage lenders because the PACE lien, like the property tax obligation, takes a first position relative to the mortgage in the event of foreclosure. Since 2010, the FHFA has taken no further action. In addition, recent statements from the White House and action by the Federal Housing Administration have provided increased security for

PACE participants. Finally, HERO offers participants the option to define the PACE assessment as a subordinate obligation when refinancing or selling the home. However, there is lingering confusion among homeowners, real estate agents and other stakeholders about the level of risk to a home's resale value, and the appetite of buyers to accept or understand the assessment. (Appendix A. Policy Considerations for Residential PACE presents a more detailed discussion of this issue.)

The transfer benefit is being tested as properties with PACE assessments go on sale. WRCOG and Sonoma County carefully watch the assessment transfer rate, which, to date, has been higher in Riverside County than in Sonoma County. WRCOG reported that, after more than 600 sales in Riverside County, about 80% of assessments remained in place upon refinance and 50% to 60% transferred upon sale. Sonoma County reported that 60% of assessments persisted upon refinance and 25% transferred upon sale.

Tax Deduction

As discussed earlier, a HERO benefit is that the interest portion for each PACE assessment may be tax-deductible. This might, however, present a corresponding disadvantage. There is inconsistent guidance among PACE programs in California about how much of the assessment is deductible and what the conditions for deduction may be. The HERO and CaliforniaFIRST websites advise that only the interest portion of the assessment may be deductible and that participants should consult a tax professional. The Ygrene website says there "may be tax benefits," and it also advises customers to consult a tax advisor.

However, many contractors reported that the programs had trained them to use the tax deduction as a major selling point for the financing, because it offset the fees and reduced the overall cost. Others reported that they did not explain that individual projects may or may not be eligible for deduction. In addition, some did not distinguish between deducting just the interest portion versus the entire assessment. Further confusing the issue, contractors said they received different guidance from different PACE programs. According to several contractors, Ygrene had informed them that it, unlike other PACE products, was structured so that customers could deduct the full assessment amount. (Following these interviews, IRS issued guidance regarding PACE assessments that indicates only the interest portion of the assessment is deductible, and not in all cases.)

One contractor noted: "I don't like the vagueness around the tax code part. Each of the three [makes a different claim]. CaliforniaFIRST says interest only [is deductible], but all the time. Ygrene says the entire payment is deductible all the time. And HERO is vague—they say "consult your CPA"—so people don't know what to do."

This contractor nevertheless used the tax deduction as a selling point in marketing the program. One contractor said he did not mention it to customers at all because of the uncertainty, and another said his team mentioned it but "carefully."



Market Segments Not Served by HERO

Other reported disadvantages included the home equity requirement (i.e., mortgage-related debt must not exceed 90% of the property's value) and high interest rates compared to a HELOC. Note that one interviewee cited the interest rate as a benefit, given its lower rate compared to some unsecured or credit card options.

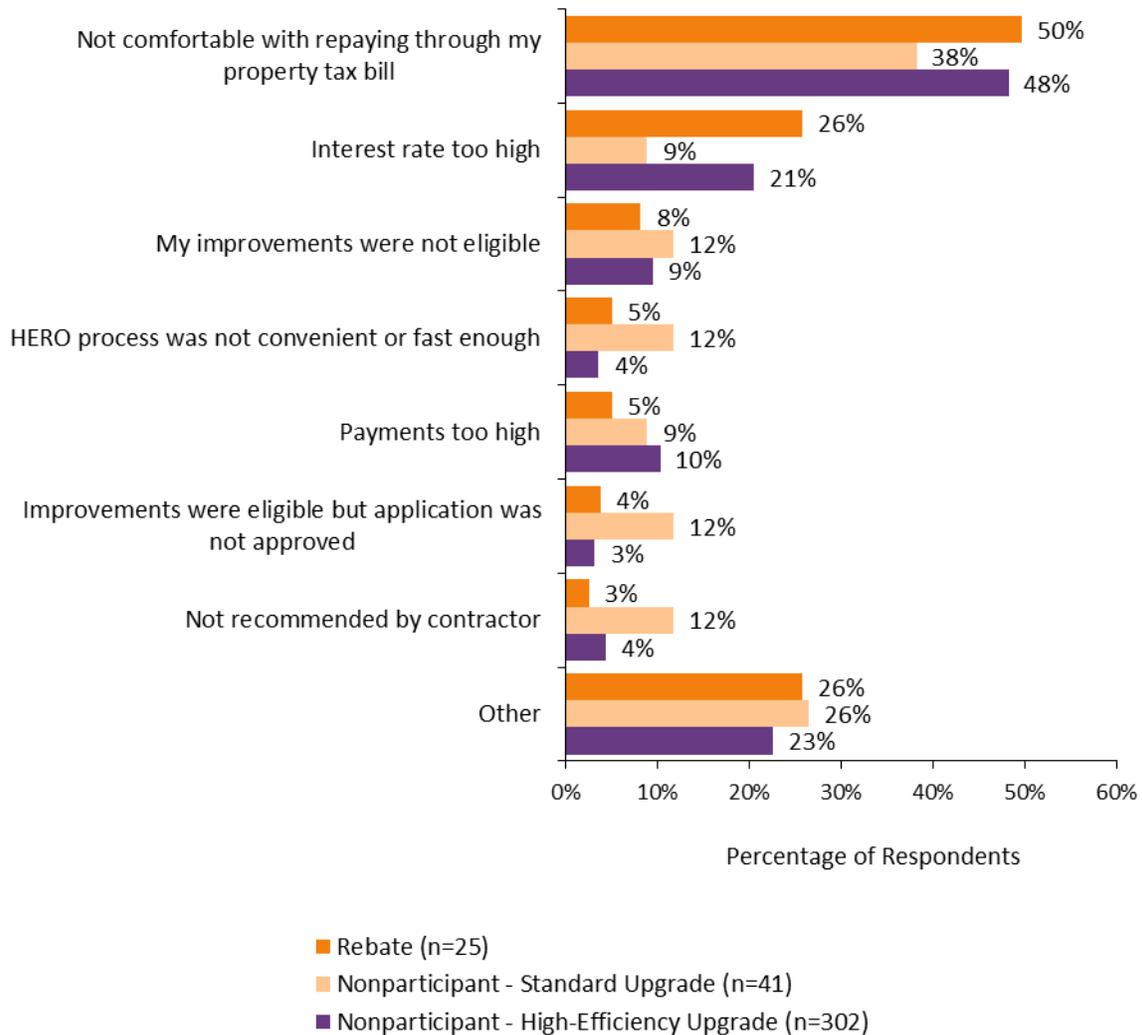
Several contractors reported that retirees or self-employed homeowners who do not have a large income tax burden are not good candidates for HERO financing, and therefore they do not promote HERO to this market. This relates to the idea that the tax deduction is a key selling point, and that HERO is more expensive for homeowners that cannot use the tax deduction. Other stakeholders pointed out that the reliance on home equity is beneficial for retirees, many of whom have substantial equity in their homes. In addition, the long tenor options can result in low annual assessment payments, which can be helpful for those on a fixed income. Where it can result in a lower monthly payment or in cases where other financing options are limited, HERO still may be a good choice for retirees, though it may be necessary to work with the contractor community to convince them to promote HERO to this market.

Why do people not use HERO?

Cadmus asked customers who did not participate in the HERO program (but knew of it) why they chose not to participate. Multiple responses were allowed. Response patterns for rebate participants and nonparticipants completing high-efficiency upgrades were similar. As shown in Figure 15, the most common reason among rebate participants (50%) and nonparticipants doing a high-efficiency upgrade (48%) was that the respondent was not comfortable repaying through a property tax bill. The second-most common reason for both groups was that the interest rate was too high.

Respondents who completed a standard-efficiency upgrade showed a different response pattern from the rebate participants and nonparticipants who completed a high-efficiency upgrade. Nonparticipants completing a standard-efficiency upgrade were less likely to be uncomfortable repaying an assessment via their property taxes. They also were less likely to believe the interest rate was too high. However, they were more likely than the other two groups to report that the process was not convenient enough, they were not approved, or their contractor did not recommend HERO.

Figure 15. Reasons for Not Using HERO Financing



Market for Energy Financing

Growing Market for PACE

Local governments expected PACE to continue to grow in popularity in most areas, and contractors also reported that the percentage of their customers using PACE was growing. WRCOG reported that, in western Riverside County where HERO originally launched, HERO participation had plateaued but not diminished. Because HERO has reached only 2.5% of the pre-2000 housing in WRCOG’s territory, WRCOG expected HERO to maintain its current level of participation.

PACE programs that participate in the California LLR, which includes the great majority of PACE activity in the state, must enroll each assessment. The California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA) publishes the number of enrolled assessments in the loss reserve online.



As shown in Table 9, the HERO Program has grown rapidly beyond WRCOG’s territory, expanding first to the San Bernardino Associated Governments (SANBAG) and then to other areas across California. (Although HERO is reported as three different programs, all three are operated as one program by Renovate America.) CAEATFA enrollment records show that HERO accounts for almost 90% of PACE activity in the state. These data are imperfect, because Renovate America reports considerable time can lapse between recording an assessment and enrolling it in the state loss reserve.¹³ Nevertheless, it provides an indication of the level of PACE penetration in California and the dominance of HERO.

Table 9. Enrollments in California’s Residential PACE Loan Loss Reserve Program

Program Name	Outstanding Portfolio Enrolled as of March 2016	
	Enrolled Assessments	Principal Value of Enrolled Financing
mPOWER Placer	1,239	\$54,960,031
mPOWER Folsom	29	\$1,087,937
Berkeley Financing Initiative for Renewable and Solar Technology (FIRST)	12	\$272,232
SCEIP	1,521	\$42,446,161
CaliforniaFIRST	3,426	\$83,070,589
WRCOG HERO Program	15,156	\$306,161,499
San Bernardino Associated Governments (SANBAG) HERO Program	10,152	\$198,582,987
California HERO Program	18,358	\$431,739,846
AllianceNRG	1	\$25,475
LA HERO	5,050	\$126,779,291
CaliforniaFIRST (LA County)	282	\$8,663,916
Ygrene Works	911	\$22,277,537
Total	56,137	\$1,276,067,499

Source: California State Treasurer. “Property Assessed Clean Energy (PACE) Loss Reserve Program.” Accessed July 2016: <http://www.treasurer.ca.gov/caeatfa/pace/activity.asp>. July 2016.

PACE Marketplace

Though WRCOG authorized only the HERO Program, other jurisdictions have launched multiple programs at once, with an expectation that the market will be big enough to share. Fresno, San Francisco, Sonoma County, and San Diego have adopted the “open marketplace” approach, anticipating

¹³ Although Cadmus could not verify the exact number, it learned anecdotally that CaliforniaFIRST filed over 60,000 assessments as of May 2016, most of which had not been enrolled in the loss reserve. This corresponds with local government and contractor reports of CaliforniaFIRST as very active in several areas. If true, this significantly offsets the percentage of PACE activity controlled by HERO.

that competition among multiple PACE programs will spur innovation and performance among the programs. Table 10 presents residential PACE programs operating in interviewed communities.

Table 10. Residential PACE Programs in the Communities Interviewed

Community	HERO	SCEIP	CaliforniaFIRST	YGRENE	Alliance NRG
Western Riverside County, including Murietta	✓				
Fresno	✓		✓		
San Diego	✓		✓	✓	
San Francisco	✓		✓		✓
Sonoma County	✓	✓	✓	✓	

The programs offer different service levels, processes, rates, and fee structures, as shown in the snapshot of the Sonoma County PACE Marketplace (Figure 16). Interviewees experienced with multiple PACE programs credited HERO with applying a better approach to contractor management, a better application process, and more active marketing and recruitment.

For example, the Sonoma County representative reported several differences between HERO and SCEIP. HERO uses a much faster and easier application process, which can be completed immediately while the contractor is in a home presenting a project proposal. SCEIP requires a site visit to confirm the property’s description in the application and a title search for the property before approving an application. SCEIP projects over \$60,000 require additional reviews and approval. On the other hand, SCEIP offers lower fees than HERO and a flat 7% interest rate.

SCEIP also has fewer resources for labor and for marketing and administration. The Sonoma County representative stated marketing has been difficult for the program, adding “HERO coming on the scene is really opening up possibilities” in terms of generating awareness for PACE in general. Sonoma County currently also authorizes the CaliforniaFIRST program and expects to offer a residential program from Figtree soon (according to its website).

Although PACE financing programs offer different terms, fees, and other features, competition in the PACE marketplace will depend as much on recruiting contractors as on the financing terms. Because this study targeted HERO contractors, all but one cited HERO as their only, or their preferred, PACE product. However, many contractors reported participating in other PACE programs as well as HERO. Four contractors reported that they also participate in CaliforniaFIRST, four also participated in Ygrene, and three participated in both. One contractor had previously participated in the City of Yucaipa Energy Independence PACE program. According to the contractors’ senior management staff (targeted for our interviews), although the managers typically preferred HERO, sales representatives usually had discretion to decide which financing product to offer a customer. Several contractors reported their representatives usually offered only a non-HERO PACE program in areas where HERO was not available.



Figure 16. The Sonoma County PACE “Marketplace”

			
<p>Authorized by the Sonoma County Board of Supervisors, SCEIP Financing was established in March 2009 as a key strategy to reach community climate action plans. SCEIP is available to all geographic areas of Sonoma County, allowing residential and commercial property owners the ability to finance energy efficiency, water conservation, and solar improvements.</p>	<p>CaliforniaFIRST launched in summer 2014 and operates under the auspices of the California Statewide Communities Development Authority (CSCDA). Through CaliforniaFIRST, property owners can make improvements that save energy or water such as solar panels, new windows, drip irrigation, artificial turf or an energy efficient roof. www.californiafirst.org</p>	<p>HERO Program began operations in December 2011 with a partnership between the Western Riverside Council of Governments and Renovate America, Inc. With over 1 million eligible products available for financing, property owners can save energy and water now. www.heroprogram.com</p>	<p>Figtree Financing is a San Diego-based clean energy financing company providing innovative programs to enable capital for environmentally friendly products and services.</p>
<p>Interest rate: 10-yr: 7.0% 20-yr: 7.0%</p>	<p>Interest rate: 5-yr: 6.75% 10-yr: 7.59% 15-yr: 7.99% 20-yr: 8.29% 25-yr: 8.39%</p>	<p>Interest rate: 5-yr: 6.75% 10-yr: 7.69% 15-yr: 8.13% 20-yr: 8.35%</p>	<p>Interest rate: coming soon</p>
<p>Fees: \$44 annual fee; \$12 valuation fee, \$125 title search fee, \$66 recording fee</p>	<p>Fees: \$30 annual fee; one-time fee not to exceed 6.5% of project</p>	<p>Fees: \$25 annual fee; one-time fee of 4.99% of project, \$95 recording fee</p>	<p>Fees: coming soon</p>

Source: Sonoma County Energy Independence Program. “Financing Marketplace.”

Accessed May 8, 2016: <http://sonomacountyenergy.org/resources/financing-marketplace/>

Two contractors reported that representatives often chose CaliforniaFIRST because that program offered representative a per-project incentive of \$250 for each assessment. As one contractor explained, CaliforniaFIRST’s process to fund a loan was slower and requires more extensive paperwork than HERO, but its rates and fees are comparable, and it offers quick approvals. In addition, many large contractors have office staff who will manage the application process once it is started. As a result, sales representatives can direct customers to the CaliforniaFIRST product instead of HERO with little risk to the sale or inconvenience to themselves, and they can benefit from the \$250 incentive.

This competitive pressure pushes programs to test the limits of the PACE concept. For example, as noted in the Limitations of HERO section, different PACE programs make different claims, and they provide contractors with different information, regarding the ability of participants to deduct some or all of the assessment from their taxable income.

Measure eligibility is another area where programs have some flexibility. Although all PACE programs active in California are designed to promote conservation to one degree or another, each program defines a conservation measure independently. For example, SCEIP recently rolled back its cool roof eligibility because of Sonoma’s County’s own standards for greenhouse gas abatement. On the other hand, cool roofs are an eligible measure in HERO, CaliforniaFIRST, and Ygrene’s programs.

Renovate America and WRCOG reported that HERO relies on third-party standards, including ENERGY STAR, WaterSense, and California's Title 24, wherever possible, however Cadmus noted in this study that HERO has relaxed requirements for several products so that they are now below ENERGY STAR minimum standards (see the Eligible Products section). CaliforniaFIRST and Ygrene appear to list similar eligible measures to HERO, but there are differences across programs. One contractor used CaliforniaFIRST with any customer interested in a specific type of insulated fiber cement siding because it was not an eligible measure under HERO. Though a small difference in the two programs, this was important to the contractor, who specialized in this particular product. (According to their websites, both programs require that insulated siding have an R-value of 2 or better to be eligible, but, unlike CaliforniaFIRST, HERO also requires the product be certified by an industry standards board, such as the Vinyl Siding Institute.)

Other Financing

Although PACE is growing in popularity, a wide variety of other financing products are available in the market. Common financing products used for home improvements include secured and unsecured options, ranging from credit cards to HELOCs.

Almost all contractors interviewed reported offering some other type of unsecured financing in addition to HERO through companies such as Synchrony Financial, EnerBank, GreenSky, ViewTech, and Wells Fargo (one respondent offered only HERO, and four did not specify what they offered). Such contractor financing is designed to be very convenient for customers, though not necessarily the best deal. The financing usually works like a one-time credit card, with some flexibility to add additional measures within a short time after the initial purchase. In addition, these financing products often offer a specific time before interest begins accruing, typically called a "same as cash" period. Offers vary by product, but can run from six to 36 months. The APR for this financing can vary, usually from around 9% to 30% or more, and maximum loan amounts and terms may be limited. (At the time of writing this report, Synchrony Financial offers rates from 3% to 14%, with terms up to 36 months, according to its website.) Typically, these companies charge the contractor a fee per transaction, which contractors said can range from 5% to 10% of the project cost.

Customers can access their own unsecured financing as well, most commonly using credit cards for home upgrades (see Common Methods of Payment). They can also access personal loans from banks or credit unions. Anecdotally, the market for energy efficiency financing appears sufficiently large that these products have not experienced a decline, even as HERO grows in popularity. The Fresno representative reported that the Educational Employees Credit Union (EECU) in the Central Valley offered an unsecured loan for energy improvements, independent of government program support and prior to HERO's launch in the area. The credit union averaged \$2.5 million in loans monthly at the time HERO became available. After its launch, HERO quickly achieved millions of dollars in financing per month, but the credit union has not seen its loan volume decline. In another example, a contractor reported that his San Diego customers use a similar program offered by San Diego Metropolitan Credit Union (SDMCU). EECU advertises loan amounts up to \$40,000 and rates starting at 6.5% APR, with tenor



options from seven to 15 years.¹⁴ The SDMCU product allows loans up to \$30,000 at 5.99% APR, with no maximum tenor specified.¹⁵

Contractors also said customers used secured options, such as home equity lines of credit or second mortgages, but these contractors did not report the percentage of customers using these options.

Common Methods of Payment

The majority of customer respondents who completed an energy efficiency improvement but did not participate in the HERO program opted to pay for the improvement immediately, using either cash or credit card (and intending to immediately pay off the balance), as shown in Figure 17.

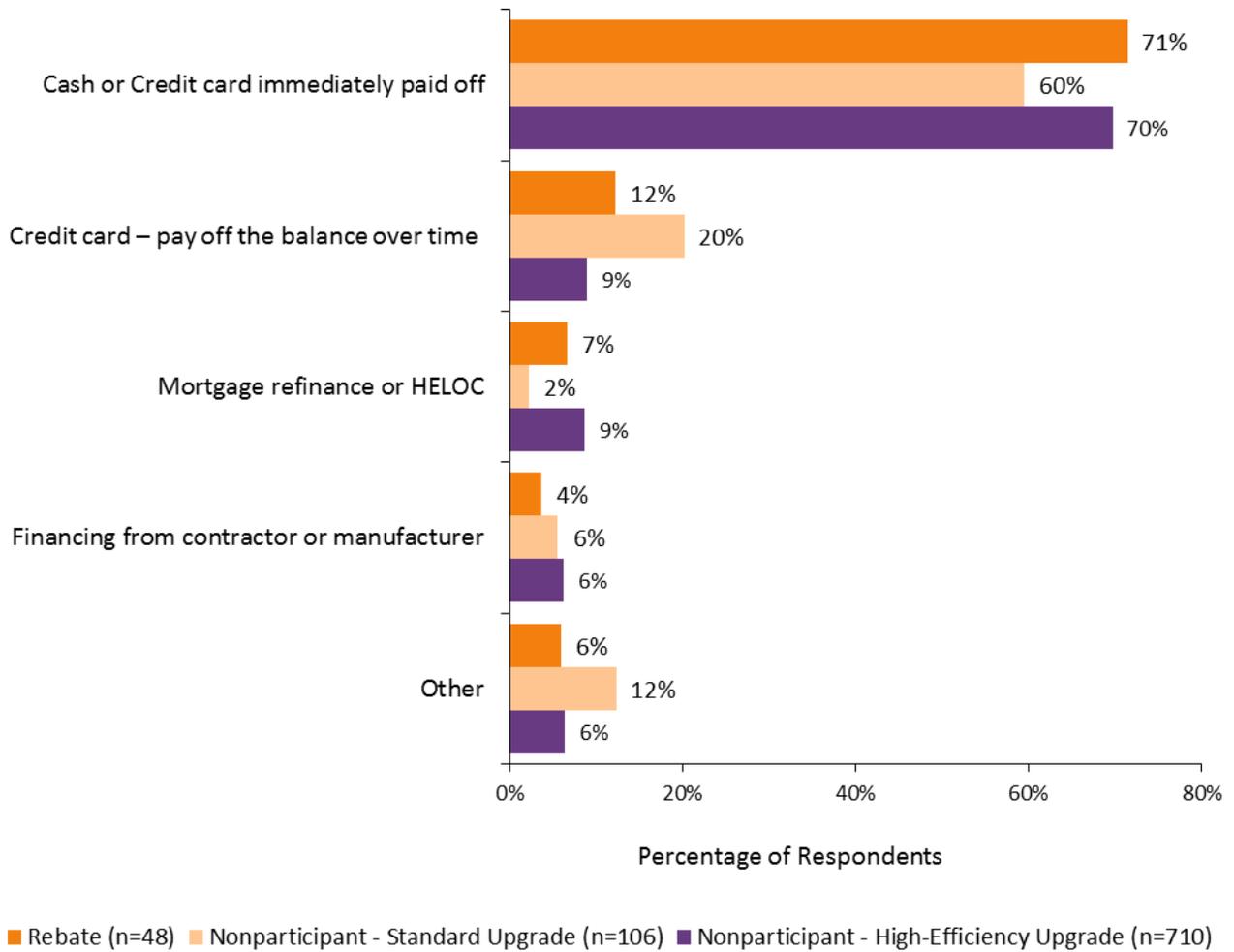
Payment options were very similar among those using a rebate and nonparticipants completing a high-efficiency upgrade. About 70% paid cash or planned to pay off a credit card immediately; 12% (rebate participants) and 9% (nonparticipants) used a credit card and planned to pay it off over time; and no more than 6% indicated any other payment option. Customers in the standard-efficiency upgrade group proved less likely to use cash or credit cards for immediate repayment and more likely to use a credit card and pay the balance over time, despite much lower average project costs than the other two groups (see Figure 17). This may indicate a greater need for financing options among this group.

Mortgage loans and HELOCs are typically considered the lowest cost options available to homeowners for large amounts, such as may be needed for a home energy upgrade. However, survey results showed that homeowners who did not pay cash or use a credit card with the intent to immediately pay it off were more likely to use other types of financing that usually have higher interest rates, more limited loan amounts, and shorter terms.

¹⁴ Educational Employees Credit Union. "Products." Accessed online on July 11, 2016: <http://www.myeecu.org/home/products/rates/personal-loans>.

¹⁵ San Diego Metropolitan Credit Union. "Loans: Energy Efficiency and Solar Loans." Accessed online on July 11, 2016: <http://www.sdmcu.org/home/loans/solar>.

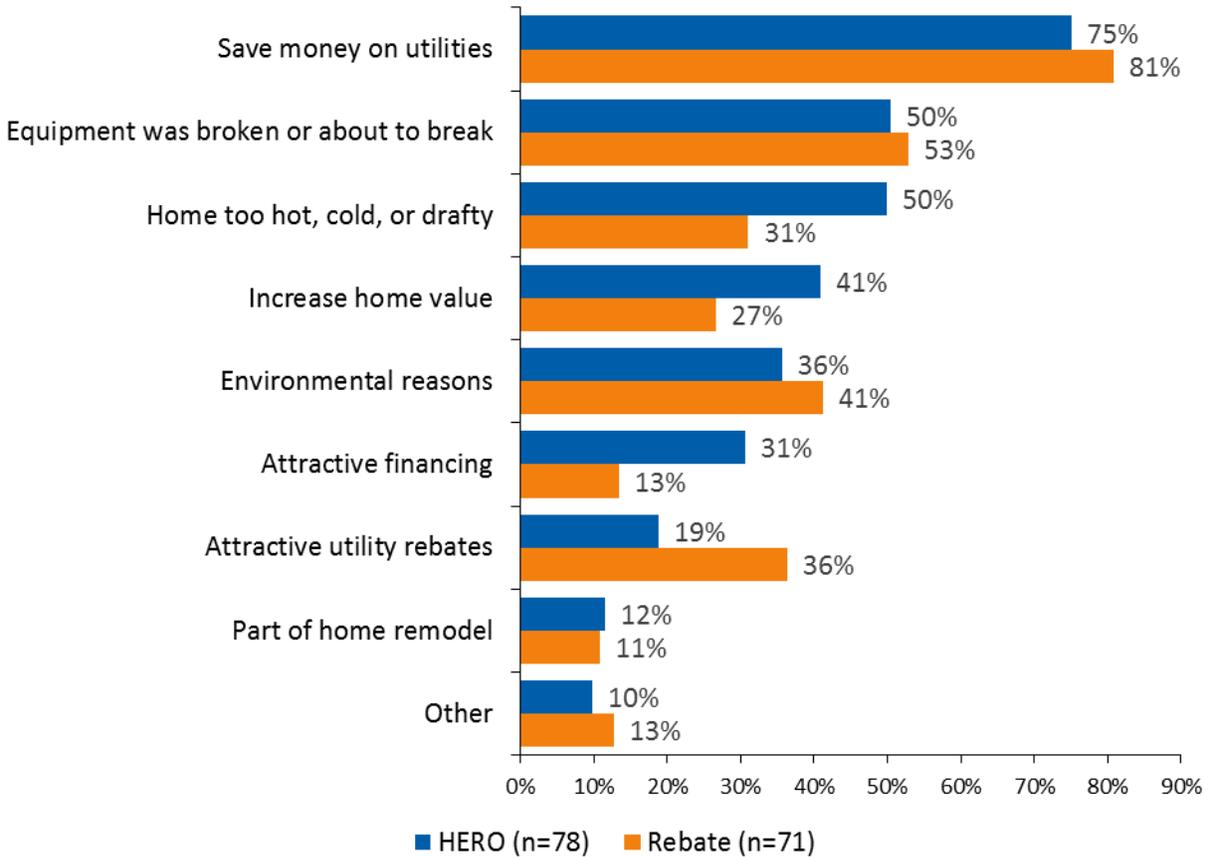
Figure 17. Payment Methods Among Non-HERO Users



Cadmus assessed the factors that influenced respondents to make a home energy improvement upgrade. Responses from HERO and rebate population groups are shown in Figure 18. Both groups were similarly likely to mention the two most common factors, saving money on utility bills and reacting to broken or failing equipment. Both groups were also roughly equally likely to mention environmental reasons as factors in their decision. However, HERO respondents were more likely to mention proactive factors such as improving home comfort or increasing home value.



Figure 18. Factors Influencing Decisions to Make Improvements*



*Respondents using both HERO and a rebate are included in both groups.

Rebates and Financing

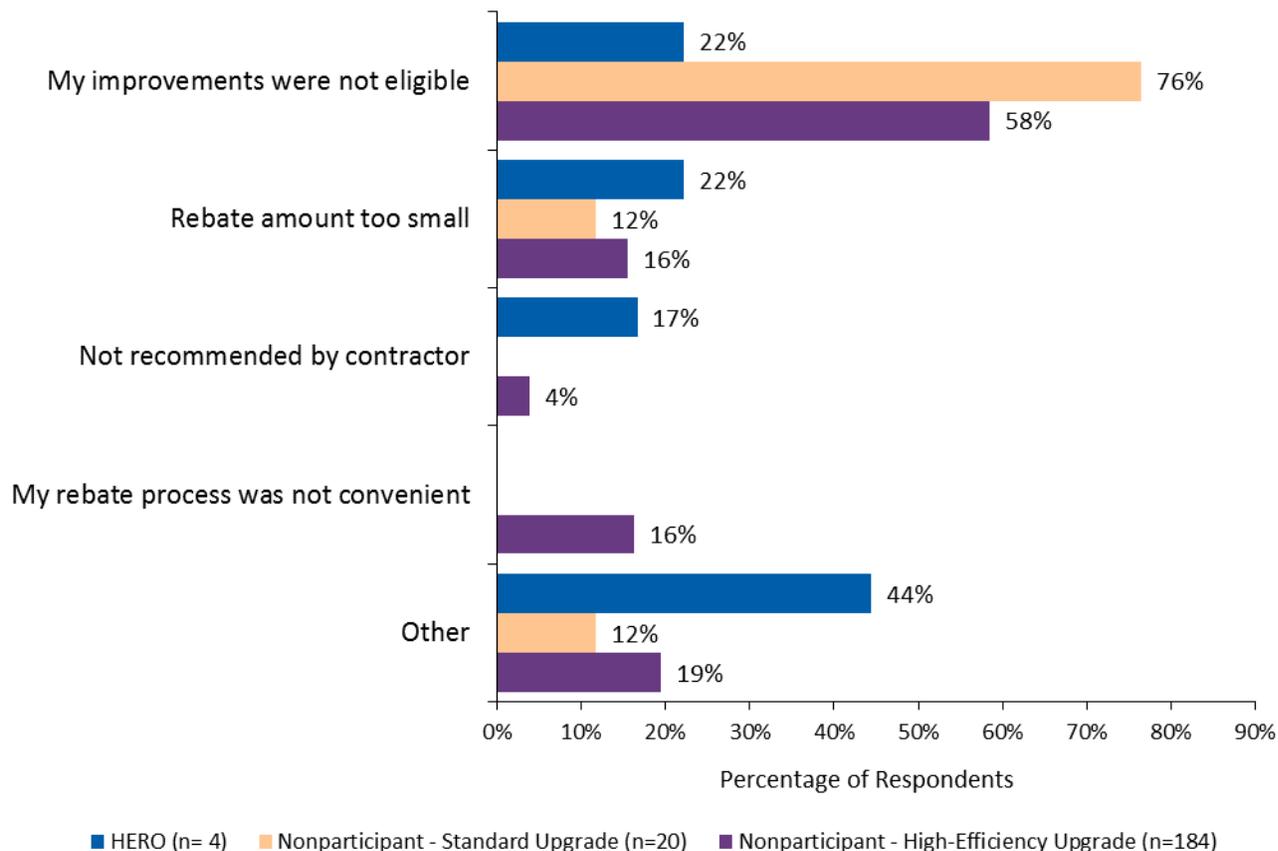
Local government representatives reported that utility rebates are not being widely used in conjunction with PACE and other financing because limited interest by their constituents. WRCOG noted that residents considered rebates hard to use and often had their applications denied. Among HVAC contractors, 11 said they promoted rebates to customers, and several of these indicated they considered rebates an important part of their sales process, promoting them to all eligible customers and completing the paperwork on the customers’ behalf.

A few, however, said they only mentioned the program and left it to customers to pursue the rebate. Among the six not promoting utility rebates, three said they previously used rebates but quit because the program changed too often or the paperwork became too cumbersome. A fourth contractor said he is considering joining the Energy Upgrade California program.

Survey results show that those participants who completed a high-efficiency project or a standard-efficiency project were most likely to say that they did not use an IOU rebate because the measure they installed was not eligible (Figure 19). Among those who completed a high-efficiency project and were therefore more likely to be installing eligible measures, 16% said the rebate amount was not convenient,

and 16% said the process was not convenient. (There were insufficient responses from the HERO group to determine conclusive results.)

Figure 19. Reasons for Not Using Rebates



Barriers to Replication or Expansion

California has 482 cities and 58 counties, which presents a major challenge for any PACE program attempting to expand statewide. WRCOG reports, however, that Renovate America fields a team of people dedicated to supporting local governments considering authorizing PACE. As of 2015, it had signed up over 340 cities and their corresponding counties, and that number continues to grow. Not all local governments have been willing to sign up for HERO. WRCOG reported that some local governments rejected the program for reasons ranging from objections by real estate agents that PACE assessments could interfere with home sales to “our residents are high-income and don’t need PACE” or “it’s not government’s job.” On the whole, this has not presented a major barrier to HERO’s expansion.

From 2010 to late in 2015, the potential for further action by the Federal Housing Finance Agency (FHFA—see Appendix A. Policy Considerations) to limit or prohibit PACE activity has been a concern to PACE advocates. However, FHFA’s opposition to PACE ultimately has not been a major barrier to HERO expansion. In 2010, FHFA, due to unease that PACE assessments take priority in a foreclosure over a



home mortgage, instructed Fannie Mae and Freddie Mac to not accept mortgages on homes with PACE assessments. It also mentioned the possibility of directing Fannie and Freddie to not accept any mortgages at all in jurisdictions with PACE programs.

Statements in 2015 in support of PACE by the Federal Housing Administration (FHA) and the U.S. Department of Energy (DOE) have reduced concerns regarding FHFA's opposition. On July 19, 2016, FHA issued guidance that allows homes with PACE assessments to be purchased or refinanced with mortgage products provided by FHA. While the FHA guidance has been characterized in some quarters as requiring that PACE be subordinate to the mortgage, in reality it simply requires that the full PACE obligation cannot be accelerated upon foreclosure. In other words, while any delinquent PACE payments are treated as superior to the mortgage, the remaining PACE obligation continues with the property. HERO and the other California PACE programs have always taken this non-acceleration approach. Also in July, DOE updated its *Best Practices Guidelines for Residential PACE Financing Programs* to help states and counties align PACE with their consumer protection goals.

WRCOG reported that, early in HERO's development, the State's PACE loss reserve fund, which will reimburse mortgage lenders for losses in foreclosures resulting from PACE assessments, helped local governments become comfortable with the risk of further action by FHFA. WRCOG also noted that the risk to communities was low; if Fannie Mae or Freddie Mac stopped buying mortgages in jurisdictions with PACE programs, sponsoring local governments could solve the problem immediately by terminating their PACE programs. In addition, the HERO Program adopted a policy of allowing homeowners to request subordination of the PACE assessment to the mortgage to help facilitate the sale or refinance of a property with an existing PACE assessment. Subordination addressed FHFA's concern and allowed the transaction to proceed.

HERO benefits from two key features that in theory could be difficult for publicly funded programs to replicate. First, WRCOG has been an entrepreneurial and collaborative local government sponsor that was motivated by a severe economic recession to get the program started and overcome any early kinks in implementation. Second, the program has few policy requirements compared to other programs designed to encourage energy and water savings. WRCOG and the rest of the HERO team have set relatively simple program guidelines to ensure products meet a defined standard of energy or water usage; all products installed must meet ENERGY STAR, WaterSense, and Title 24 requirements.

WRCOG's focus on economic development rather than energy savings has meant HERO could forego requirements such as audits before projects, test-outs afterwards, and rigorous impact evaluations to determine energy savings. The program is also free from cost-effectiveness constraints, and it is not obligated to monitor freeridership. Because no public funds are used to operate the program (program fees cover the expenses for local government staff, and the loan loss reserve has not yet been used), there is no obligation to demonstrate the benefit of the expenditure.

Conclusions

The following conclusions present lessons learned from the implementation of HERO that inform best practices for energy efficiency financing programs and illustrate HERO's impact on the market for energy efficiency financing and what role remains for CAEATFA financing pilots to help drive energy efficiency improvements.

Driving Energy Efficiency Upgrades

Financing is an important factor for achieving larger energy efficiency improvement projects with multiple measures.

Customer surveys indicated that homeowners who used HERO spent more than twice as much as homeowners who only used a rebate or homeowners who did not participate in any program. Projects that were financed, whether through HERO or other means, were larger than projects paid for in cash, and HERO projects were larger than projects financed through other methods. This indicates that financing is an important factor in large investments in home energy efficiency, and HERO is a popular choice among homeowners completing the largest energy efficiency upgrades.

Larger investment does not include all measures equally.

Although financing is important for larger investments, it does not necessarily drive all efficiency measures equally. HERO participants spent more money, but they were less likely to include a water heater or pool pump or motor than rebate participants. On the other hand, HERO projects are more likely to include windows, which may account for much of the extra investment.

HERO enables high-efficiency improvements in market segments that rebates do not penetrate.

Survey results indicate that the average HERO respondent was likely to be younger, less educated, and have a lower income than the general population. Rebate participants were likely to be older, more educated, and have higher incomes than the general population. These results indicate that financing may enable high-efficiency upgrades for groups that rebates are less likely to impact.

Despite the popularity of HERO and PACE, there are still gaps in the market for residential energy efficiency financing.

Although the HERO Program is making inroads, the residential market remains largely untapped. Seventy-three percent of survey respondents have not made any energy efficiency improvements in the last three years (46% have not even considered improvements, while 27% have considered them but not acted). Only 2% of respondents have used the HERO Program. New financing programs—and the new marketing that would accompany them—could help accelerate the adoption of residential energy efficiency improvements.



Although PACE works well for many people, it does not work for all market segments. PACE may not be a suitable option for the following:

- Projects less than \$5,000
- Renters
- Homeowners with little or no equity
- Homeowners with recent bankruptcies

PACE may be more expensive for some groups that cannot benefit from the tax deduction. For example, retirees or self-employed homeowners may not have a tax burden or may already have a substantial number of write-offs. Long tenors that allow low payments may still make PACE a useful alternative for these groups, but the product is not as affordable for them over the long term as it is for others.

Even among market segments that qualify for HERO, some homeowners expressed discomfort with some aspects of the financing. Almost 50% of homeowners who completed an energy-related upgrade but who did not use HERO said they did not wish to use their house as security for financing. There is opportunity for a financing alternative to HERO that offers lower rates and fees and that addresses the information and confidence barriers that customers may face when considering an upgrade. Two contractors said they were very interested in utility-sponsored financing options because they believed the utility brand would lend additional credibility to their proposals.

Explicit competition among energy efficiency financing programs spurs innovation and may increase participation, but it does not necessarily increase achieved energy savings.

Most jurisdictions launching PACE during the last two or three years have adopted a “marketplace” approach, where multiple PACE programs are available for homeowners. The explicit goal of the marketplace approach is more related to consumer protection than to increased savings: a marketplace will foster competition among programs to lead to better processes, lower fees and interest rates, and more options for homeowners. Cadmus found that this marketplace mechanism is already driving changes that might increase overall participation, such as diversifying eligible measures lists and rapidly improving services for contractors. But the mechanism is not effective for achieving policy goals like conservation at a per-project level, and in fact it might drive programs in the opposite direction (for example, when programs make less-efficient measure eligible). Therefore, this mechanism is unlikely to drive participation in financing programs offered through IOUs, which are more focused on per-project savings.

Lessons Learned for Program Design

Meeting contractor needs is the key to delivering energy efficiency financing.

As demonstrated by the three PACE programs administered by third parties and most active in California (HERO, California FIRST, and Ygrene), the key to driving participation in a financing program is to meet the needs of contractors. All three programs have dedicated significant resources to providing an easy and reliable tool that can help contractors grow their businesses. As a result, all three programs have

seen rapid expansion and growth in participation. There is good reason for this focus on contractors; they are in the advantageous position of working face-to-face with homeowners at the point of sale and are therefore well-positioned to influence the customer's decision. Contractors recognize that financing can be a crucial tool to overcoming cost objections and closing sales, and they typically choose to have multiple financing products available to offer customers. However, contractors will only promote the financing product that is both most likely to close the sale and requires the least amount of work on their part.

To succeed, a financing product must be easy for contractors to integrate into their sales process and business operations, achieving the following:

- Port seamlessly into their proposals
- Offer customers a compelling proposition
- Accept a broad array of eligible measures
- Approve the majority of customers
- Confirm approval quickly while the contractor is “at the kitchen table”
- Support fast and easy closings
- Pay the contractor promptly

Effective product and sales training is also important, as is readily available support when needed. HERO has now set a high standard for meeting each of these criteria from a contractor perspective.

Program flexibility is crucial for contractor and customer appeal.

PACE financing offers a broad tool that can help achieve a variety of goals. Though the program's energy and water conservation elements offer two important benefits, WRCOG sponsored HERO primarily to achieve economic goals. Such goals appear to carry fewer policy requirements than conservation goals, and the absence of ratepayer or significant taxpayer subsidies avoids the need for extensive regulatory oversight on spending or program outcomes. As a result, HERO has been able to offer a simple application process and minimal restrictions on eligible measures, which have been key factors in its growth. (In contrast, when the SCEIP PACE program sought to enforce a policy-driven project loading order, requiring efficiency measures before renewables, participation dropped sharply.)

Convenience is an important factor for homeowners as well as contractors.

Contractors reported that the convenience of the HERO process for customer approvals and funding a project was an important factor for them. Renovate America and WRCOG reported that the convenience of the HERO financing process was also an important factor for homeowners. Survey results confirm this – 65% of HERO participants cited convenience as an important factor in their decision about how to pay for their improvement, more than cited any other decision factor.



PACE financing has some key advantages that CAEATFA financing pilots may not be able to offer.

HERO is a unique financing product in that it combines the high loan amounts and long payment terms available through typical mortgage and HELOC products with the broad eligibility and convenient processes offered by credit cards and contractor financing. PACE further combines this appealing financing product with the credibility of a government-sanctioned program. Compared to other government programs and IOU rebate programs, PACE programs have few limitations in selecting eligible measures, and few data collection requirements. In addition, PACE programs do not have to dedicate resources to evaluation. In contrast, the CAEATFA financing pilots are resource acquisition programs driven by ratepayer funds that impose certain bounds on what the program administrators must, or cannot, do. Although the pilots may be able to offer similarly large loan amounts, long terms, and attractive interest rates, they will have less flexibility with respect to eligible measures and stricter data collection requirements, and the program administrators will need to facilitate and respond to an evaluation process. CAEATFA and the IOUs also will not have complete control over the loan origination process is, since third-party lenders will be responsible for that aspect of the program.

Clear communication is critical for participant satisfaction.

Although stakeholders—local governments, contractors, and Renovate America—believed satisfaction among participants was very high, the homeowner survey showed mixed results. About a third of participants were very satisfied, but nearly an equal number were very dissatisfied. Participant suggestions for improving the program indicated 19% (n=36) of participants had not clearly understood the costs of the HERO financing at the time of signing. Homeowner comments indicated that several respondents were confused by the rules for deducting the assessment on their taxes. Other respondents noted they had not understood the program fees. An explanation of the largest of these, the 4.99% administrative fee, is hard to find on the program website and in other marketing materials. The absence of any reference to the 4.99% administrative fee in most written descriptions of the program is striking given the sophistication of HERO’s website and marketing collateral.

Credibility is an important feature for a financing program.

PACE programs must be approved by local government, and, according to contractors, this implied endorsement offers a useful selling point with customers. Contractors also reported that a utility-branded financing program would be desirable because it could provide the same credibility benefit.

The HERO website plays a substantial role in the program’s success.

The website presents clear, compelling content, spread over more than 20 pages and helps educate homeowners, contractors, local governments, and real estate professionals about the program. More importantly, the site plays an active role in the sales process. The home page features a prominent call to action for homeowners (Check for Instant Eligibility, See How Much You Qualify For), and a similar call to action (Apply Now) appears in the header at the top of every page. These calls to action engage the user, making it easy to take the first critical steps in the process. In addition, contractors use the website to access tools to help them estimate energy savings, create proposals, and track their projects’ status.

Contractors also report using the site during sales calls to show homeowners the HERO Program’s “How It Works” video.

Statewide operation offers economies of scale for financing programs.

Because WRCOG dedicates significant resources to operating the HERO Program, the effort required by other government entities is negligible. Interviews did not reveal estimates of cost savings resulting from sharing the HERO Program versus creating separate PACE programs in each jurisdiction, but the resulting economies of scale would seem significant. Notably, local government did not have to compromise policy objectives to achieve this economy. The local government representatives whom Cadmus interviewed said the JPA-based programs were able to accommodate localized policy and program details.

HERO and PACE are replicable across California.

HERO demonstrates its replicability as it expands quickly across the state, already now available to roughly 70% of California’s population. Competing PACE programs (e.g., CaliforniaFIRST) also are expanding across California, following HERO’s growth curve.



Recommendations for the Residential Energy Efficiency Loan Assistance Program

According to the CPUC order from 2013, CAEATFA's California Hub for Energy Efficiency Financing (CHEEF) is responsible for design and oversight of the pilot financing programs for residential, commercial, and multifamily customers in IOU territory. CAEATFA and the IOUs launched the first such program, the Residential Energy Efficiency Loan Assistance Program (REEL), in 2016. Findings from this study illustrate general best practices for energy efficiency financing programs that can benefit REEL. In addition, the study findings indicate ways in which the REEL program may need to adapt in order to have the maximum impact on energy efficiency, given the proliferation of HERO and other PACE programs in the IOU territories. The following recommendations address both of these perspectives.

Target Market

Promote REEL's ability to serve market segments that HERO does not serve.

Not all homeowners are able to—or want to—use the HERO Program. CAEATFA and the IOUs should take steps to make sure that these customers are aware of REEL, thereby encouraging them to make high-efficiency choices that might not be made otherwise. REEL can create this awareness through contractors at the point of sale and through IOUs' existing communications with customers. Segments that the HERO Program does not serve include:

- **Projects under \$5,000.** These smaller purchases still represent a major expenditure for many homeowners, especially those facing the unexpected expense of replacing failed equipment. Customer surveys showed that the average price for standard-efficiency projects was below \$5,000, and good financing could help customers who might otherwise buy the cheapest available option. This market segment, and the contractors who work in this segment, may be worth special attention.
- **Homeowners who want to—or need to—finance non-eligible measures** along with eligible measures. With REEL, up to 30% of the loan can be for non-eligible measures, whereas HERO requires that all measures are eligible. Non-eligible measures are sometimes a necessary part of an energy improvement project, especially in older homes. For instance, a home with aluminum wiring should replace it with copper wiring before installing new electrical measures.
- **Homeowners who want a lower interest rate or lower fees**, to the extent that REEL lenders offer lower rates and fees.
- **Homeowners with less than 10% equity in their home.** REEL loans are not secured by an interest in the property, so equity is not a requirement.
- **Homeowners with a late property tax payment in the last three years.** Depending on the circumstances, these homeowners may still be creditworthy borrowers.
- **Homeowners in communities not served by HERO.** The HERO Program is available in most of California (more than 340 cities), but more than 130 cities are not yet served. Although not all of

these 130 or more cities are in REEL territory, and many of them are expected to authorize the HERO Program, REEL should track which cities in its territory remain unserved.

- **Homeowners who may prefer more traditional financing** that does not involve repayment via property taxes, does not place a lien on their home, and does not raise questions upon resale or refinance.

This is not to say that REEL should steer clear of the market segments that HERO does serve. As discussed in the Conclusions, HERO has some key advantages that REEL may not be able to offer, but REEL may still serve a useful purpose in encouraging homeowners to choose more efficient improvements than they might otherwise with HERO.

Program Design

REEL needs to offer speed and convenience that is comparable to HERO, unless REEL can offer other significant benefits to contractors relative to what HERO offers.

Contractors and customers reported that the convenience of HERO was a key feature in their decision to use the program. Contractors said that they now expect comparable levels of service in other financing programs. To the extent possible, REEL's partner lenders should offer features such as rapid approvals, online application and closing processes, and payment within seven days. IOU program staff should ensure IOU call centers have a good understanding of the program requirements, or provide other resources for contractor and customer support 7 days a week.

If REEL can offer features that HERO does not, this may compensate for some lack of speed or convenience in terms of processing but only if it is a feature that is useful to the contractor. Allowing 30% of funds to cover non-eligible measures is one such benefit. Other features of interest to contractors include progress payments or payment by completed measure, "same as cash" offers, and lower rates and fees than HERO (without sacrificing too much convenience). REEL could also consider offering incentives to contractors for projects that achieve a certain level of savings.

REEL should encourage partner lenders to develop well-functioning, user-friendly online applications and loan closing systems.

HERO's sophisticated computer systems for fast, consistent application and funding processes are one of the primary features that made contractors prefer HERO to other PACE programs. Investing in this kind of system early on will help REEL overcome contractor perceptions that IOU programs are difficult to use. It should also allow for easier administration, data collection, and evaluation for IOUs. REEL may also want to prioritize recruiting partner lenders that already have these capabilities.

REEL should ensure participant satisfaction by clearly citing program rates and fees, and by creating active channels for customer feedback.

Although HERO stakeholders reported that participants were very satisfied with the program, survey results found that a number of participants were dissatisfied. One of the primary reasons appeared to be lack of transparency related to program costs. While avoiding mention of program costs may drive



participation, it is an inappropriate tactic for a regulated utility program, and ultimately leads to dissatisfied participants. REEL can avoid this problem by clearly stating all program costs in print materials and on the website. Cadmus recommends participating in energy efficiency marketplaces wherever they are available and considers the Sonoma County’s presentation of different financing options to be a best practice for financing program marketing.

Recruiting and Marketing

Contractor recruiting should directly address contractor concerns about IOU programs.

Some contractors reported negative experiences using IOU rebate programs, which may bias them against REEL. For example, several contractors said they have used IOU rebate programs in the past but found them too restrictive. When recruiting contractors, emphasize any aspects of the program that may make it easier to use than rebate programs. For example, highlight the fact that REEL allows 30% of the funds to apply to non-eligible measures, making it more flexible than a typical rebate program. Given that contractors reported they now consider the HERO process to be the standard they look for, it will be especially important to reassure them that REEL will not involve delays or restrictions that will hamper their business.

REEL should target qualifying contractors with messaging that illustrates how REEL is useful in markets where HERO may not be.

Whether they participate in HERO or not, a majority of contractors are likely to be open to considering a new financing program. Contractors who already use HERO are generally happy with the program. In order to accelerate the adoption of energy efficiency across the residential market, REEL should:

- Target HERO contractors with the message that REEL can help in those cases when HERO does not work, such as smaller projects, some non-eligible measures (e.g., clothes washers), and customers who are not comfortable with having a lien on their property tax obligation.
- Target contractors who are not currently taking advantage of an energy efficiency financing program as a way to increase sales.
- Offer benefits similar to HERO’s channel partner program to all contractors, not just those who are the most committed.

REEL marketing should adopt the simple, clean, professional image of the HERO program.

Contractors reported that the professional image of the HERO Program website, video and other marketing collateral was reassuring to customers and reflected well on the contractor. REEL should adopt many of the marketing best practices evident in the HERO print materials and website, including the following:

- Use clear and consistent messaging focused on the benefit of the items to be purchased (rather than the benefit of the financing), the easy and simple financing process, and program credibility

- Present information in short, easy to understand statements incorporating simple, attractive graphics and frequent transitions
- Develop materials in several media, including a high-quality video that explains the program benefits and requirements

In addition, as noted above, REEL marketing materials should clearly state the program costs.

REEL can offer contractors added credibility by building on the IOU brand.

Contractors reported that they benefited from the sophisticated presentation of HERO materials, because it made their own business seem more professional. REEL marketing can accomplish a similar result by helping contractors take advantage of the credibility of the utility brand. REEL should train contractors to emphasize that although measures eligible for HERO are better than market standard, measures eligible for REEL are designated high-efficiency by the IOUs, a more restrictive metric.



Appendix A. Policy Considerations for Residential PACE

HERO began as a residential PACE program targeting western Riverside County, sponsored by the Western Riverside Council of Governments (WRCOG). Its progression from a small local offering to an active statewide program is due in part to some unique political and economic circumstances.

The economic downturn that began in 2008 severely impacted Riverside County, especially the home construction and remodeling industries. The county went from having one of the fastest-growing economies in the country to having construction grind to a halt and seeing some of the highest foreclosure rates in the nation. WRCOG became interested in PACE primarily as a way to stimulate economic activity within the County, with energy and water conservation as an important but secondary goal.

WRCOG decided to offer a PACE program in mid-2009. Several promising PACE programs had been launched in California, including a program in Berkeley (the first in the country). WRCOG issued an RFP for assistance in developing and administering a PACE program. PFM, together with Renovate America and other partners, submitted the winning proposal.

In 2010, however, the Federal Housing Finance Agency (FHFA) acted on their concern that PACE liens take priority over mortgage liens in the event of a home foreclosure. FHFA directed Fannie Mae and Freddie Mac to not buy mortgages on properties with PACE liens and to not allow mortgages they have already bought to be refinanced if a PACE lien had been placed on the property in the interim. FHFA also mentioned the possibility of further action to direct Fannie and Freddie to not buy any mortgages at all in jurisdictions with a PACE program. This threat of further action had such a chilling effect that nearly all residential PACE programs across the country shut down. By then, though, WRCOG was already committed to the HERO Program. WRCOG's analysis indicated that FHFA was unlikely to take further action, and WRCOG proceeded with the program.

FHFA's impact on HERO has been minimal. During a home sale, an owner may need to pay off the PACE assessment if they want to sell to a buyer who is financing the purchase with a Fannie or Freddie mortgage. WRCOG pointed out, though, that there has never been any guarantee that PACE assessments would transfer, since buyers have always had the right to negotiate for the assessment to be paid off during the sale. An owner may also need to pay off the PACE assessment if they want to refinance a Fannie or Freddie mortgage. However, not all mortgages are for Fannie and Freddie. WRCOG reports that approximately 50% to 60% of their PACE liens are transferring at resale and 80% upon refinance. WRCOG noted that these transfer rates still offer an advantage of PACE over other kinds of financing, which hardly ever transfer.

Recognizing the potential benefits of PACE, the State of California acted to address the FHFA concerns in order to protect the program. The State funded a PACE LLR in 2014 that will make first-mortgage lenders whole for losses in a foreclosure or a forced sale that are attributable to a PACE lien enrolled in the LLR. CAEATFA administers the LLR, and the state funded it with \$10 million. Participating PACE programs

initially were asked to pay an administrative fee to participate in the LLR, although that fee has now been dropped. CAEATFA reports that no claims have been filed yet against the LLR.

Although FHFA said that the state's LLR did not adequately address their concerns, WRCOG believed that the LLR helped local governments get more comfortable that the risk is minimal of FHFA taking further action. When asked how important the state's LLR was in their decisions to join HERO, local government response was mixed. WRCOG, San Diego, and San Francisco considered it important. The Fresno representative, however, indicated the LLR did not play a significant factor in its decision to adopt HERO. He also said that while some communities might feel more comfortable having the LLR available, the primary driver for offering a PACE program was that the model worked: uptake is high, home sales have seen little negative impact from the program, and default rates are very low (making an LLR unnecessary).

In response to FHFA's position, the HERO Program has adopted a policy of allowing homeowners to request subordination of the PACE assessment to the mortgage to help facilitate the sale or refinance of a property with an existing PACE assessment. Subordination addresses FHFA's concern and can allow the transaction to proceed.

Recent actions in support of PACE by the Federal Housing Administration (FHA) and the U.S. Department of Energy (DOE) have also reduced concerns regarding FHFA's opposition. On July 19, 2016, FHA issued guidance that allows homes with PACE assessments to be purchased or refinanced with mortgage products provided by FHA. While the FHA guidance has been characterized in some quarters as requiring that PACE be subordinate to the mortgage, in reality it simply requires that the full PACE obligation cannot be accelerated upon foreclosure. In other words, while any delinquent PACE payments are treated as superior to the mortgage, the remaining PACE obligation continues with the property. HERO and the other California PACE programs have always taken this non-acceleration approach. Also in July, DOE updated its *Best Practices Guidelines for Residential PACE Financing Programs* to help states and counties align PACE with their consumer protection goals.



Appendix B. Survey Instrument

HERO Program Study Online Survey

[Highlighted sections vary by survey audience]

Introduction

On behalf of Southern California Edison and Southern California Gas, thank you for participating in this survey about home energy improvement. Your input is important in our ongoing efforts to help make it easy for homeowners to save on energy. Please know that your answers will be kept completely confidential.

Depending on the path your answers take, the survey should only take about 5 to 10 minutes. You can leave the survey at any time and come back later to pick up where you left off. Be sure to enter your name and email address at the end of this survey in order to receive your \$20 e-gift card as our thank you for your help.

1. To begin, please note the 5-digit zip code where you live (below): _____

2. Do you own or rent your home?

- Own (1)
- Rent (2)
- Not sure (3)

3. Do you get your electricity from Southern California Edison?

- Yes, I get my electricity from Southern California Edison. (1)
- No, I do not get my electricity from Southern California Edison. (2)
- Not sure. (3)

4. Do you get your gas from Southern California Gas?

- Yes, I get my gas from Southern California Gas. (1)
- No, I do not get my gas from Southern California Gas. (2)
- Not sure. (3)

5. Are you one of the key decision-makers about energy improvements to your home?

- Yes, I am one of the key decision-makers. (1)
- No, I am not one of the key decision-makers. (2)
- Not sure. (3)

Next [Programming Note: If the entered zip code is on our list of 107 targeted zip codes, and if the other questions are all answered 1, skip to Question 6. Otherwise, for Gen Pop sample frame, skip to Question 31 (Screened out thank you). For HERO and Rebate sample frames, skip to Question 29 (Choose gift card).]



6. In the last three years, have you researched the idea of upgrading or replacing any of the following features of your home, or talked with a contractor about them? Please select all that apply. If you've thought about improvements in general but have not researched or talked with a contractor about any of these specific improvements, please select "None of these specific improvements".

- Heating, ventilation, or air conditioning (1)
- Windows (2)
- Insulation (3)
- Air sealing or duct sealing (4)
- Water heater (5)
- Pool pump and motor (6)
- None of these specific improvements (7)
- Not sure (8)

Next [Programming Note: If 7 or 8, continue to 6a. Otherwise, skip to Question 7.]

a. Why have you not considered any of these improvements? Please select all that apply.

- Not really necessary – my home's energy efficiency is good enough (1)
- Energy cost savings not big enough (2)
- Not convenient (3)
- Not affordable (4)
- Not a good deal financially (5)
- Financing would be difficult to get (6)
- Would not want to finance (7)
- Rebates are not big enough (8)
- Not urgent (9)
- Concerns about contractors (10)
- Other, please describe: _____ (11)

b. Are you aware that the HERO Program is available to help homeowners finance energy efficiency improvements like these?

- Yes, I am aware that the HERO Program can finance such improvements. (1)
- No, I am not aware of the HERO Program. (2)

c. Are you aware that utility rebates are available to help offset the cost of making improvements like these?

- Yes, I am aware that utility rebates can help offset the cost of such improvements. (1)
- No, I am not aware of utility rebates. (2)

Next [Programming note: Skip to Question 20, the first demographic question.]

7. Did you decide to make any of the improvements you considered? Please select any that are underway or completed. If you made more than one round of improvements, for example a new furnace two years ago and air sealing and new insulation last year, please select **ONLY** the improvements in the most recent round (in this example, you would select air sealing and insulation). If you have not decided to make any of the improvements, please select the last answer.

- Heating, ventilation, or air conditioning (1)
- Windows (2)
- Insulation (3)
- Air sealing or duct sealing (4)
- Water heater (5)
- Pool pump and motor (6)
- I have not decided to make any of the improvements (7)

Next [Programming Note: If 7, continue to 7a. Otherwise, skip to Question 8.]

a. Why have you decided not to make the improvement(s)? Please select all that apply.

- Not really necessary – my home’s energy efficiency is good enough (1)
- Energy cost savings not big enough (2)
- Not convenient (3)
- Not affordable (4)
- Not a good deal financially (5)
- Financing would have been difficult to get (6)
- Did not want to finance (7)
- Rebate was not big enough (8)
- Not urgent (9)
- Concerns about contractors (10)
- Other, please describe: _____ (11)

b. What was the total cost of the improvements you considered? If you don’t remember the exact amount, just fill in the approximate amount to the best of your memory.

- Total cost: \$_____ (1)

c. When you were considering the improvement(s), were you aware of the HERO Program that is available to help homeowners finance energy efficiency improvements like these?

- Yes, I applied for HERO and was approved, but chose not to use it. (1)
- Yes, I applied for HERO financing but was not approved. (2)
- Yes, I was aware of HERO financing but none of the items I considered were eligible. (3)
- Yes, I was aware of HERO but chose not to apply. (4)
- No, I was not aware of HERO financing. (5)

d. When you were considering the improvement(s), were you aware of utility rebates that are available to help offset the cost of making improvements like these?



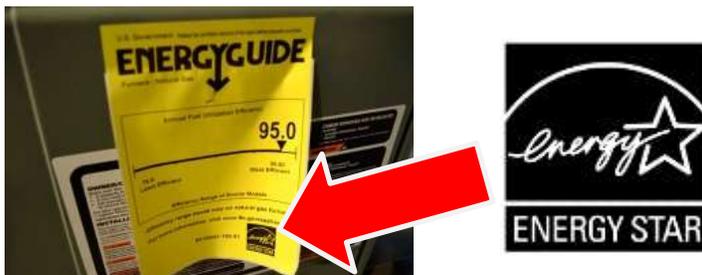
- Yes, I was aware of utility rebates, but the item(s) I considered were not eligible. (1)
- Yes, I was aware of utility rebates, but did not choose to apply. (2)
- No, I was not aware of utility rebates. (3)

Next [Programming note: Skip to Question 20, the first demographic question.]

For the rest of the questions, please respond only about the improvement(s) you just selected on the list, NOT about any other energy improvements you may have made such as solar panels or kitchen/laundry appliances.

For the improvement(s) you selected, you probably had a choice between standard efficiency and high-efficiency alternatives. Which did you choose? An improvement was probably a high-efficiency improvement if it was:

- Eligible for utility rebates, or
- Eligible for the HERO financing program, or
- More efficient than other alternatives that were available, or
- ENERGY STAR-labeled. Not sure? Check for an ENERGY STAR logo on the yellow Energy Guide sticker.



Do you think any of the improvements you chose were high efficiency?

- Yes, I think I chose at least one high-efficiency improvement. (1)
- No, I think I chose standard efficiency. (2)
- Not sure. (3)

8. Which of the following factors were important in your decision to make the improvement(s)? Please select all that apply.

- Equipment was broken or about to break (1)
- Home too hot, cold, or drafty (2)
- Save money on utilities (3)
- Conserve natural resources for future generations (4)
- Climate change (5)
- Part of home remodel (6)
- Increase home value (7)
- Attractive financing (8)
- Attractive utility rebates (9)
- Friend recommended making improvements (10)
- Contractor recommended making improvements (11)
- Other: _____ (12)

9. What was the total cost of the improvements you completed or have under contract? If you don't remember the exact amount, just fill in the approximate amount to the best of your memory.

- Total cost: \$ _____ (1)



10. How did you pay for the improvement(s)? Please select the primary method that applies.

- Cash (1)
- Credit card – with the intent to pay off the balance immediately (2)
- Credit card – with the intent to pay off the balance over time (3)
- HERO financing (4)
- Home equity loan (5)
- Unsecured loan (6)
- Financing from contractor or manufacturer (7)
- Mortgage refinance (8)
- Other: _____ (9)

11. How satisfied were you with that payment method?

Strongly Satisfied				Neutral				Strongly Dissatisfied
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Next [Programming note: If 4 is not selected in Question 11, skip to Question 12b.]

a. Would you have made the same improvement(s) anyway even if HERO financing had not been available?

- Yes, I would have made the same improvements and paid another way – cash, credit card, etc. (1)
- No, I would have made fewer or less efficient improvements without HERO. (2)
- No, I would not have made any improvements without HERO. (3)
- Not sure. (4)

Next [Programming note: Skip to Question 13.]

b. When you were considering the improvement(s), were you aware of the HERO Program that is available to help homeowners finance energy efficiency improvements like these?

- Yes, I applied for HERO financing and was approved, but chose not to use it. (1)
- Yes, I applied for HERO financing, but was not approved. (2)
- Yes, I was aware of HERO, but the improvements I made were not eligible. (3)
- Yes, I was aware of HERO, but chose not to apply. (4)
- No, I was not aware of HERO. (5)

Next [Programming note: If 5, skip to Question 13.]

c. Was your awareness of HERO financing one of the reasons you started thinking about making improvement(s)?

- Yes, HERO financing was one of the reasons I started thinking about improvements. (1)
 No, HERO financing was not one of the reasons I started thinking about improvements. (2)

d. Why did you decide not to use HERO financing? Please select all that apply.

- My improvements were not eligible (1)
 My improvements were eligible but my application was not approved (2)
 HERO process was not convenient or fast enough (3)
 Interest rate too high (4)
 Payments too high (5)
 Not comfortable with repaying through my property tax bill (6)
 Not recommended by contractor (7)
 Other: _____ (8)

[Next](#)

13. Which of the following factors were important in choosing how you paid for the improvement(s)?

Please select all that apply.

- Convenient financing process (1)
 Paying cash would have been difficult (2)
 Financing I chose did not require a high credit score (3)
 Did not want another mortgage lien or a tax lien on property (4)
 Financing interest rate was reasonable (5)
 Manageable financing payments (6)
 Utility bill cost savings offset the financing payments (7)
 HERO assessment can transfer to buyer when home is sold (8)
 Friend recommendation (9)
 Contractor recommendation (10)
 Other: _____ (11)

14. Did you use a utility rebate to help offset the cost of the improvement(s)?

- Yes, I used a utility rebate. (1)
 No, I did not use a utility rebate. (2)
 Not sure. (3)

[Next](#) [Programming Note: If 2 or 3, skip to Question 14d.]



a. How satisfied were you with the utility rebate?

Strongly Satisfied				Neutral				Strongly Dissatisfied
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

b. What was the total rebate amount for the improvement(s) you installed? If you don't remember the exact amount, just fill in the approximate amount to the best of your memory.

➤ Total amount: \$_____ (1)

c. Would you have made the same improvement(s) anyway even if utility rebates had not been available?

- Yes, I would have made the same improvement(s) even without a utility rebate. (1)
- No, I would not have made any improvements without utility rebates. (2)
- No, I would have made fewer or less efficient improvement(s) without utility rebates. (3)
- Not sure. ()

Next [Programming Note: Skip to Question 15.]

d. When you were considering the improvement(s), were you aware of utility rebates that are available to help offset the cost of improvements like these?

- Yes, I was aware of utility rebates, but chose not to use one. (1)
- Yes, I was aware of utility rebates, but none of the improvements I installed were eligible (2)
- No, I was not aware of utility rebates. (3)

Next [Programming Note: *If 3, skip to Question 15.*]

e. Was your awareness of utility rebates one of the reasons you started thinking about making improvements?

- Yes, utility rebates were one of the reasons I started thinking about improvements. (1)
- No, utility rebates were not one of the reasons I started thinking about improvements. (2)

f. What was the total rebate amount available for the improvement(s) you installed? If you don't remember the exact amount, just fill in the approximate amount to the best of your memory.

➤ Total amount: \$_____ (1)

g. Why did you decide not to use a utility rebate? Please select all that apply.

- My improvements were not eligible (1)
- Rebate process was not convenient (2)
- Rebate amount too small (3)
- Not recommended by contractor. (4)
- Other: _____ (5)

[Next](#)

15. The next questions ask you to compare the importance of four factors in your decision to make the improvement(s). The four factors are:

- **Financing** – How important were the available financing options (HERO, credit card, etc.) in your decision?
- **Rebates** – How important were the available utility rebates?
- **Convenience** – How important was the overall convenience of the improvement process?
- **Speed** – How important was the overall speed of the improvement process?

a. Financing versus Rebates – Which was more important in your decision to make the improvement(s)?

- Financing was more important (1)
- Utility rebates were more important (2)
- They were equally important (3)
- Neither was at all important (4)

[Next](#) [Programming Note: If 3 or 4, skip to Question 14b.]

How much more important?

Equally Important		Strongly More					Extremely More	
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

[Next](#)



b. Financing versus Convenience – Which was more important in your decision to make the improvement(s)?

- Financing was more important (1)
- Convenience of the overall process was more important (2)
- They were equally important (3)
- Neither was at all important (4)

Next [Programming Note: If 3 or 4, skip to Question 14c.]

How much more important?

Equally Important		Strongly More					Extremely More	
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Next

c. Financing versus Speed – Which was more important in your decision?

- Financing was more important (1)
- Speed of the overall process was more important (2)
- They were equally important (3)
- Neither was at all important (4)

Next [Programming Note: If 3 or 4, skip to Question 14d.]

How much more important?

Equally Important		Strongly More					Extremely More	
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Next

d. **Rebates versus Convenience – Which was more important in your decision?**

- Utility rebates were more important (1)
- Convenience of the overall process was more important (2)
- They were equally important (3)
- Neither was at all important (4)

[Next](#) [Programming Note: If 3 or 4, skip to Question 14e.]

How much more important?

Equally Important				Strongly More				Extremely More
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>
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[Next](#)

e. **Rebates versus Speed – Which was more important in your decision?**

- Utility rebates were more important (1)
- Speed of the overall process was more important (2)
- They were equally important (3)
- Neither was at all important (4)

[Next](#) [Programming Note: If 3 or 4, skip to Question 14f.]

How much more important?

Equally Important				Strongly More				Extremely More
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>
<input type="radio"/>								

[Next](#)



f. Convenience versus Speed – Which was more important in your decision?

- Convenience of the overall process was more important (1)
- Speed of the overall process was more important (2)
- They were equally important (3)
- Neither was at all important (4)

Next [Programming Note: If 3 or 4, skip to Question 15.]

How much more important?

Equally Important				Strongly More				Extremely More
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Next

16. Did the improvement(s) you made lead you to change how you use energy in your home? For instance, now that your home is more efficient, you may feel you can use energy a little more freely (such as turning the air conditioning a bit lower on a hot day). On the other hand, you may want to be even more conscious about how you use energy.

- I feel like I can use energy a little more freely. (1)
- I try to be even more energy conscious. (2)
- No change in how I use energy. (3)
- Not sure. (4)

17. Did your experience with making the improvement(s) influence any of your friends to make improvements?

- Yes, my improvement(s) influenced a friend to make improvements. (1)
- No, my improvement(s) did not influence any friends to make improvements. (2)
- Not sure. (3)

18. Do you have any suggestions for how the HERO Program could be improved?

- No suggestions. (1)
- Suggestions: _____ (2)

19. Do you have any suggestions for how the utility rebate program could be improved?

- No suggestions. (1)
- Suggestions: _____ (2)

Next

Almost done – the remaining questions are easy.

20. Approximately how old is your home?

- 1 – 6 years (built 2010 or later) (1)
- 7 – 16 years (built 2000 – 2009) (2)
- 17 – 37 years (built 1979 – 1999) (3)
- 38 – 56 years (built 1960 – 1978) (4)
- 57 – 76 years (1940 – 1959) (5)
- Over 76 years (built before 1940) (6)

21. Approximately how big is your home?

- Under 500 square feet (1)
- 500 – 999 square feet (2)
- 1,000 – 1,499 square feet (3)
- 1,500 – 1,999 square feet (4)
- 2,000 – 2,999 square feet (5)
- 3,000 – 3,999 square feet (6)
- 4,000 – 4,999 square feet (7)
- Over 4,999 square feet (8)

22. What is the approximate value of your home?

- Under \$50,000 (1)
- \$ 50,000 – \$ 99,999 (2)
- \$ 100,000 – \$ 199,999 (3)
- \$ 200,000 – \$ 299,999 (4)
- \$ 300,000 – \$ 499,999 (5)
- \$ 500,000 – \$ 699,999 (6)
- \$ 700,000 – \$ 999,999 (7)
- \$ 1,000,000 – \$ 1,499,999 (8)
- \$ 1,500,000 – \$ 1,999,999 (9)
- \$ 2,000,000 – \$ 2,999,999 (10)
- Over \$ 2,999,999 (11)

23. How long have you lived in your home?

- Under 2 years (1)
- 3 – 5 years (2)
- 6 – 9 years (3)
- 10 – 19 years (4)
- 20 – 29 years (5)
- Over 29 years (6)



24. How many people live in your home year-round?

- Only occupied part-time (1)
- 1 (2)
- 2 (3)
- 3 (4)
- 4 (5)
- 5 (6)
- 6 - 7 (7)
- 8 - 9 (8)
- 10 or more (9)

[Next](#)

25. Using a scale from 1 to 9, where 1 means “strongly disagree” and 9 means “strongly agree”, to what extent do you agree or disagree with the following statements:

a. “It is important to conserve energy as much as possible.”

Strongly Disagree				Neutral				Strongly Agree
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

b. “I am committed to actions that help the environment.”

Strongly Disagree				Neutral				Strongly Agree
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

c. “I actively look for ways to reduce my carbon footprint.”

Strongly Disagree				Neutral				Strongly Agree
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

26. What is your age?

- Under 30 years (1)
- 30-39 years (2)
- 40-49 years (3)
- 50-59 years (4)
- 60-69 years (5)

- Over 69 years (6)

27. What is the highest educational level you completed?

- Elementary School (1)
- Some High School (2)
- High School Degree (3)
- Associate’s Degree (4)
- Bachelor’s Degree (5)
- Master’s Degree (6)
- Doctorate (7)

28. What was your household’s approximate income last year?

- Under \$20,000 (1)
- \$ 20,000 – \$ 39,999 (2)
- \$ 40,000 – \$ 59,999 (3)
- \$ 60,000 – \$ 79,999 (4)
- \$ 80,000 – \$ 99,999 (5)
- \$ 100,000 – \$ 149,999 (6)
- \$ 150,000 – \$ 199,999 (7)
- \$ 200,000 – \$ 299,999 (8)
- Over \$299,999 (9)

Next [Programming Note: For Gen Pop sample frame, Skip to Question 30.]

29. Please select which e-gift card you would like to receive. Your gift card will be delivered via email within two weeks.

- \$20 Amazon gift card – easy to redeem for online shopping. (1)
- \$20 Target gift card – easy to redeem in stores or online. (2)

Please enter your name and the email address where you would like to receive your card.

First Name: _____ (1)

Last Name: _____ (2)

Email Address: _____ (3)

Next [Programming Note: For people screened out in the first five questions, skip to Question 31.]



30. Thank you very much for your time and your willingness to help. Your input is appreciated in our ongoing efforts to make it easy for homeowners like you to save on energy.

Before you exit, here are two good links with information on reducing your home’s energy costs. We hope you’ll find them helpful. Click either of these links to open a new window.

- Visit Southern California Edison’s [Home Energy Guide](#).
- Visit the Southern California Gas [Save Energy at Home](#) website.

Exit the survey by simply closing this window.

[Programming Note: This is the Thank You screen for people screened out in the first five questions.]

31. The rest of this survey focuses on people who live in other zip codes or face different energy decisions.

Thank you very much for your time and your willingness to help. Your input is appreciated in our ongoing efforts to make it easy for homeowners like you to save on energy.

Before you exit, here are two good links with information on reducing your home’s energy costs. We hope you’ll find them helpful. Click either of these links to open a new window.

- Visit Southern California Edison’s [Home Energy Guide](#).
- Visit the Southern California Gas [Save Energy at Home](#) website.

Exit the survey by simply closing this window.

Appendix C. Marketing Collateral

Program Overview, General Audience



Less Energy,
MORE SAVINGS

HERO is helping communities across California realize the promise of an energy efficient future by making the energy efficient choice the safe and affordable choice for property owners.

Simple Process
Check your property's eligibility online or over the phone. Applications can be processed quickly, so you can get started right away.

Affordable Payments
Payments are made along with your property taxes, offer tax-deductible benefits, low interest rates, and are fixed for the term of the financing you select (5-20 years).

Consumer Protections
Contractors must be trained and in good standing with the Program to offer HERO Products. Products are verified to meet the U.S. Department of Energy's Energy Star requirements before installation. Payment is only made to the contractor after the property owner signs a certificate assuring the project was completed to their satisfaction. In the case of a dispute, HERO provides resolution assistance.

Eligible Products
Some of the most common products are listed below. For a full list of our eligible products, please visit heroprogram.com.

- Windows, Skylights, & Doors
- Solar Panels
- Heating, Ventilation, & Air Conditioning (HVAC)
- Roofing & Insulation
- Water Heating
- Artificial Turf

Start Saving Today

hero | heroprogram.com | 855-HERO-411 | info@heroprogram.com

Contractor Promotional Card



A Registered Contractor
with the HERO Program.

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www.yourcompanywebsite.com
License # 999999

HERO is helping communities across California realize the promise of an energy efficient future by making the energy efficient choice the safe and affordable choice for property owners.

Finance Your Energy Saving Project with HERO

Simple Process
Check your property's eligibility online or over the phone. Applications can be processed quickly, so you can get started right away.

Affordable Payments
Payments are made along with your property taxes, offer tax-deductible benefits, low interest rates, and are fixed for the term of the financing you select (5-20 years).

Consumer Protections
Contractors must be trained and in good standing with the Program to offer HERO Products. Products are verified to meet the U.S. Department of Energy's Energy Star requirements before installation. Payment is only made to the contractor after the property owner signs a certificate assuring the project was completed to their satisfaction. In the case of a dispute, HERO provides resolution assistance.

Start Saving Today!

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Mail Insert



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with the HERO Program.

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www.yourcompanywebsite.com

License # 99999

HERO is helping communities across California realize the promise of an energy efficient future by making the energy efficient choice the safe and affordable choice for property owners.

Finance Your Energy Saving Project with HERO

Simple Process
Check your property's eligibility online or over the phone. Applications can be processed quickly so you can get started right away.

Affordable Payments
Payments are made along with your property taxes, offer tax-deductible benefits, low interest rates, and are fixed for the term of the financing you select (30-20 years).

Consumer Protections
Contractors must be licensed and in good standing with the Program to offer HERO. Products are subject to meet the U.S. Department of Energy's Energy Star requirements before installation. Payment is only made to the contractor after the property owner signs a certificate assuring the project was completed to their satisfaction. In the case of a dispute, HERO provides mediator assistance.

Start Saving Today!

 heroenergy.com | 855-4HERO-4U | info@heroenergy.com

Contractor Recruitment Card



Become a
HERO REGISTERED CONTRACTOR

Become a HERO Registered Contractor!

The HERO Program helps you make the energy efficient choice the safe and affordable choice for property owners.

- No registration fee
- Live support 7 days a week
- Comprehensive training and registration
- Co-marketing program
- Payment issued in 2 business days

Get Started Today!

 Register Online or  Call Us

heroenergy.com | 855-4HERO-4U | 855-437-6412

 Your energy efficient future, today.  info@heroenergy.com



HERO Pro

HERO has developed an integrated, secure platform designed to make the estimating, approval, documentation and funding process as easy as possible for homeowners and contractors alike.

Features:

- Homeowner Self-Service
- Contractor Self-Service
- Integrated Document Management
- Integrated Approval & Disbursement
- Mobile App (iOS/Android)



Comprehensive Training

HERO provides a comprehensive training and onboarding program designed to familiarize you with the financing terms and the Property Owner approval process.

Training Covers:

- HERO
- HERO Terms
- HERO Website
- HERO App
- HERO Dashboard
- HERO Reporting
- HERO Support



Co-Marketing Program

HERO offers a personalized Landing Page for your company, designed to generate leads and provide a strong HERO affiliate web presence. HERO Registered Contractors also have access to affordable, customized marketing materials through the Marketing Resource Center.

Marketing Resources:

- Personalized landing page
- Customized promotional materials
- Email newsletters
- Social media content
- Direct mail pieces
- Video content
- Banner ads
- More to come!



Contractor Support

HERO provides support to ensure the application process goes smoothly and the Property Owner understands the benefits of the improvement and the terms of the financing.

Contractor Training

HERO provides comprehensive training and onboarding for all contractors.

Dedicated Account Representatives

HERO provides dedicated account representatives for all contractors.

Dispute Resolution

HERO provides a dispute resolution process for all contractors.

HERO Hotline (855-HERO-411)

HERO provides a 24/7 hotline for contractors.

HERO App

HERO provides a mobile app for contractors.

HERO Website

HERO provides a website for contractors.





Three-Day Rights Cancellation

You have the right to cancel the financing of your project for up to three business days after signing the HERO Financing Documents.

Consumer Identity Confirmation

Your identity is verified when you submit your HERO Financing Documents online over the phone, at a meeting.

Pricing

Our pricing policy ensures that your information will not be sold to any unaffiliated third party. In addition, we do not share any of your confidential information with other Contractors adding to our improvement services.

Dispute Resolution

If you have a dispute with your Contractor about representations that were made concerning the HERO Financing Documents, we will conduct a full investigation and share the results with you. Every dispute is assigned a mediator and an investigator to ensure a comprehensive response to your complaint.

WARRANTY PROTECTION

The HERO Program is responsible for all representations made about the financing terms and only the participants of your project. Once you have signed the Consumer Certificate and agreed that the program was completed by you, but before the HERO Program has begun work to collect payment or transfer requests.

The HERO Program cannot assume or guarantee the ability or performance of any product or service provided by a Contractor. In such instances, we recommend directly with the Contractor or Product Manufacturer.

hero Your energy efficient future today.
Heroprogram.com | 800-HERO-411 (888-427-8442) | info@heroprogram.com



We are committed to ensuring that every project is reasonably priced, that products are certified as energy efficient, and that you're working with Contractors who meet all HERO Program requirements.

Contractor Registration Requirements and ID Verification

To become a HERO Registered Contractor, the following requirements must be met. The Contractor must maintain an active Contractor State License Board number that requires the company to be bonded, insured, and carry workers' compensation insurance.

To receive a Certificate of Registration, all Registered Contractor in-home sales personnel have their identities verified, pass a background check, and complete registration, training, and training requirements, meet HERO Registered Contractor and representative will be issued a HERO Registered Contractor Certificate, which should be presented to the consumer at the initial in-person meeting. In addition, consumers may search www.heroprogram.com to ensure the Contractor is in fact HERO registered and approved.

To remain registered with the Program, Contractors and their representatives are required to comply with all Program rules and may be suspended or removed from the Program if they violate such rules.

HERO Training Program

For HERO Registered Contractor Representatives to receive the Certificate of Registration, they must successfully complete a comprehensive training program. The Program training curriculum is dependent on the representative's job function and consists of in-person sessions, computer-based learning in the field, production, and interactive testing. Contractors must pass a final exam to receive a Certificate of Registration.

Payment Protection

Contractors are NOT paid for any products or services until you submit a signed Completion Certificate to the HERO Program to verify that the Contractor has met all commitments. We may call you upon receipt of your signed Completion Certificate to confirm that the project is completed to your satisfaction. While we cannot warrant the performance of any Contractor or product you select, we can and will provide you with all relevant information available to us throughout the process.

Product Eligibility

Whether it's new doors and windows, an HVAC replacement, or the addition of a solar PV system, you will have access to all available information to confirm that you are receiving qualified energy/energy saving products, the below four guiding principles when approving eligible products:

1. Each product category/type must contribute to direct energy/energy savings.
2. Energy/water saving products must be widely available and present in the marketplace.
3. Product energy/energy savings performance must have been measured and verified by a credible third-party certification source, generally the US Department of Energy.
4. The product's energy efficiency must be valid in the geographic region of installation and use.

While we cannot warrant performance, only products that satisfy at least of these principles are considered for the HERO Financing Resilience Eligible Products List. This list is publicly available and updated regularly to ensure that Property Owners have a trusted source for verifying products that are installed in their homes.

Pricing Controls

HERO conducts a Reasonable Cost Test on all major product types and projects by comparing your quote with national prices for similar projects and products. Those with prices beyond HERO-defined correct limits are flagged so you will know we are following up with and messaging the Contractor.

Permit Verification

Depending on the industry location and the product's installation, compliance with certain city and/or county building permits might be required along with some applicable federal, state, and/or local laws and regulations. Although compliance with permitting and other requirements are your responsibility, the Program does require verification that you have pulled the necessary permits for qualifying products.

Terms Confirmation

Readability with and awareness of the terms for financing a large purchase such as a car, a house, and now energy efficiency improvements can be complex. Therefore, we require that you confirm you have read and are aware of the terms of your financing documents prior to approval. In addition, we may place a follow-up phone call to you after sending the Financing Documents to confirm that you have read and are aware of all terms and to answer any questions you might have regarding the HERO Program.



With HERO, you can expect the highest quality customer care in the industry.



Appendix D. Public Comments and Responses on Draft Report

Commenter	Comment	Response
Jonathan Kevles, Renew Financial	<p>The link in the Draft document to the "HERO Survey Instrument FINAL 2016" does not work. Please post or send to me directly a copy of this document. If available, I would also like to see as much detail of the responses as possible - such as the actual responses and the comments/suggestions that were provided. Thank you.</p>	<p>The final survey instrument was inserted into the PDF and the revised documents were uploaded to PDA on 9/9/2016. Due to confidentiality requirements, detailed survey responses are not available for distribution.</p>
Alex Hill, Dunsky	<p>Second, did you include questions to the HERO customers pertaining to the level of energy efficiency of specific measure installed? For instance, if you have data on the number that reported installing Energy Star rated equipment would be helpful. Alternatively, did you consider performing site-visits to HERO customers to assess the degree to which installed features exceed current code requirements? If not, can you explain why you chose not to include that in the study – again this may help provide context to other financing evaluations in the State.</p>	<p>We described Energy Star in the survey, and used a picture of the Energy Star logo to help guide people to determine if their project was high-efficiency. However, the Energy Star logo was only one qualification we provided to define a high-efficiency project – other criteria included being eligible for rebate or HERO financing, or being generally more efficient than other available models/options. The criteria we identified needed to encompass measures ranging from insulation to pool pumps, and be meaningful to both HERO and rebate participants and non-participants – one of the challenges of this study. As noted above and through the Allocation report, the lack of precision in the definition of "high-efficiency" may have introduced measurement error in the findings.</p> <p>This was exploratory research, not an actual impact evaluation. As such, we did not budget for site visits. In addition we were trying throughout most of the project to encourage Renovate America’s cooperation. They were hesitant to even allow surveys of their participants (and ultimately did not want to be a part of a survey of their customers) and would likely have strongly resisted site visits.</p>
Alex Hill, Dunsky	<p>Finally, are you planning to release the raw survey results for each question (again, perhaps as an appendix)? Sometimes this can provide deeper insight for the reader, and may be</p>	<p>Due to confidentiality requirements, detailed survey responses are not available for distribution.</p>

	helpful for the REEL impact evaluation effort in the future.	
Renovate America	<p>(p5) Cadmus states “Twenty percent (n=36) of HERO participants who answered the question suggested that the program needed to be more transparent about applicable fees and the tax deductibility of the assessment.”</p> <ul style="list-style-type: none"> • RA response: Current policy noted above [referencing recent updates to the HERO application process in a Renovate America letter to Cadmus dated Sept. 23, 2016] would inform this information on survey data, and alert readers of this section about important resolutions to these concerns. As a side note, comment below on pages 49 and 54 says “19 percent.” On page 5, it says “20 percent.” 	Cadmus will reference the process changes described by Renovate America in the text. Cadmus will ensure all references to the percent mentioned in the comment are consistent.
Renovate America	<p>Cadmus states “A FAQ on the HERO website notes: “Certain items on your property tax bill may be deductible. You are urged to consult a tax advisor regarding the deductibility of such payments.”</p> <ul style="list-style-type: none"> • RA response: The language referenced above is throughout HERO financing documents, contractor training materials, and the Confirm Terms script used as of September 2016 for all homeowners. The survey may reflect contractor interactions which are outside the scope of HERO or any financing program to fully manage. 	Cadmus does not disagree with comment. The report discusses the range of information available to homeowners from three different PACE programs, including HERO, as well as from contractors. No edits have been made in response to the comment.
Renovate America	<p>Cadmus states “19 percent (n=36) of HERO participants suggested more transparency about program rates and fees. Their comments indicated that many believed contractors and program representatives had not accurately explained the true cost of the financing and whether or not those costs were tax deductible.”</p> <ul style="list-style-type: none"> • RA response: The true cost of the financing is spelled out in financing documents homeowners must sign, and will be even more clear in the new form modeled after the federal Know-Before-You-Owe form required by AB 2693. On deductibility, the IRS only clarified its position on PACE deductibility in July 2016 [https://www.irs.gov/taxtopics/tc503.html], 	Cadmus does not disagree with this statement. No edits have been made in response to the comment.



	<p>and before and after that guidance, HERO program representatives and written materials told homeowners to consult a tax advisor, and instructed contractors to do the same. Because every homeowner’s tax circumstance is different, it is important for PACE Programs not to render tax advice.</p>	
Renovate America	<p>Cadmus states “Although, stakeholders also noted there is confusion in the real estate market about the implication of PACE financing for securing a refinance or mortgage upon sale, and about the mechanics of how to transfer an existing PACE assessment; that confusion is currently a limitation of HERO.”</p> <ul style="list-style-type: none"> • RA response: This seems worthy of update to reflect both the FHA/VA guidance and the existence of HERO Property Advisors. 	<p>The report does discuss the FHA guidance (p 65). Cadmus updated the report to mention the HERO Property Advisors.</p>
Renovate America	<p>Cadmus states “Some limitations result from confusion among homeowners, contractors and other parties about tax rules, implications for securing a future mortgage, and implications for resale.”</p> <ul style="list-style-type: none"> • RA response: See above. 	<p>Cadmus does not see a need to revise this statement. We added additional information as noted above.</p>
Renovate America	<p>Cadmus states “... there is lingering confusion among homeowners, real estate agents and other stakeholders...”</p> <ul style="list-style-type: none"> • RA response: See above. 	<p>Cadmus does not see a need to revise this statement. We added additional information as noted above.</p>
Renovate America	<p>The Completion Certificate, but not its significance in terms of value to the customer, is mentioned.</p>	<p>Cadmus added this to the list of consumer protections in the report, on page 48.</p>
Renovate America	<p>Permits are mentioned, both as a requirement and as a factor in permit fee increases in localities, but not their significance as a consumer protection.</p>	<p>Cadmus added this to the list of consumer protections in the report, on page 48.</p>
Renovate America	<p>The reference to a single contractor complaining that Renovate America “will recommend the biggest vendors first and won’t recommend anyone else,” referring derogatorily to channel partners, who earn and retain their status through volume, but also</p>	<p>Cadmus deleted this statement.</p>

	high customer ratings, seems insufficient to merit inclusion.	
Renovate America	The reference to a single contractor stating that Renovate America encouraged him to “raise his prices to market rates,” seems insufficient evidence to include something so counter to HERO policies and practice. The purpose of our Pricing Review is to create a maximum financing amount to prevent price gouging.	Cadmus agrees this statement from the contractor was unclear, and deleted it from the report.
Renovate America	<p>Cadmus states “... product requirements have become less restrictive in many cases over the period of this study. For example, as of June, 2014, HERO required that central air-conditioners be ENERGY STAR certified, and only financed units that replaced an existing unit. In 2016, central air-conditioners no longer need to replace an existing unit, and the minimum efficiency criteria are below ENERGY STAR specifications.”</p> <p>RA response: This incorrectly implies that the program specifications have been lowered. Rather, HERO’s eligibility specifications for central air conditioner, air source heat pumps, and mini-split heat pumps have remained the constant, while the ENERGY STAR eligibility criteria has increased. In order to provide HERO participating contractors with sufficient time to adjust their business practices, sales practices, price books, and stock inventory, Renovate America provided a grace period following the ENERGY STAR criteria update prior to updating the HERO eligibility specifications to align. Renovate America issued a standing notice to all HERO participating contractors in Q2 2016 that the Air Conditioner, Air Source Heat Pump, and Mini-Split Heat Pump specifications will be updated on November 1, 2016 to align with current ENERGY STAR eligibility criteria</p>	Cadmus incorporated this information.
Renovate America	Suggested language to replace Cadmus language: “Know Before You Go,” where contractors can look up a specific address to learn if the property is likely to be eligible for HERO (low, medium, or high probability) based on publicly available data. Final financing	Cadmus incorporated this information.



	approval goes through project pricing and underwriting criteria.	
Renovate America	Cadmus states “Renovate America staff did not provide additional details regarding the structure of the channel partner relationship.” RA response: This seems in variance with the prior statement on pg. 35 “According to Renovate America, channel partners are selected because they have a high customer service record with HERO customers, very low contractor compliance issues, and a commitment to energy efficiency, renewable energy, or water conservation projects.” We prefer page 35 version.	Cadmus wanted to acknowledge that Renovate America did provide some detail about channel partners. However, we felt more detail would have been helpful to clarify conflicting statements from contractors. We noted that this additional detail was not available. We do not consider the statements to be inconsistent.