About Energy Programs Consortium (EPC)

The purpose of the Energy Programs Consortium (EPC) is to foster coordination and cooperation among state and federal agencies in the areas of energy policy and program development. EPC is a joint venture of the National Association of State Community Services Programs (NASCSP), representing the state weatherization and community service programs directors; the National Association of State Energy Officials (NASEO), representing the state energy policy directors; the National Association of Regulatory Utility Commissioners (NARUC), representing the state public service commissioners; and the National Energy Assistance Directors’ Association (NEADA), representing the state directors of the Low-Income Home Energy Assistance Program.

EPC provides technical assistance to states to develop, implement and oversee energy efficiency, water conservation, resilience, low income residential energy and renewable finance programs. We also coordinate efforts with the U.S. Department of Energy, the National Renewable Energy Laboratory and Lawrence Berkeley National Laboratory to provide model documents and other Qualified Energy Conservation Bond resources.

If you would like more information, please visit our website at www.energyprograms.org.
Acknowledgments

This paper would not be possible without the significant research and drafting work of EPC Executive Director Mark Wolfe, Program Manager Cassandra Lovejoy, and Research Analyst Donna Chen, and Amy Radin, CEO of the Daily Innovator LLC. We would also like to extend a special thank you to Research Assistant Rachel Connor for her dedication in conducting customer interviews and follow-up reporting. In addition, we would like to thank Julie Sanders for final editing and Aaron Leopold for layout and design.

We would like to thank those who took the time to review our paper and provide feedback:

Jackie Berger  
David Carroll  
Bruce Schlein  
Jeff Schub  
Kerry O’Neill  
Steve Cowell  
Jeff Deason  
Sandy Fazeli  
Alys Cohen  
Charlie Harak  
Mark Schmidt  
David Gabrielson  
Cliff Staton  
Greg Frost  
Lynn Rasic  
Chani Vines  
Mike Lemyre  
Joaquin McPeek  

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Connecticut Green Bank  
E4 the Future  
Lawrence Berkeley Lab  
National Association of State Energy Offices  
National Consumer Law Center  
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Introduction

A key objective of federal and state energy policy is to help low-income families weatherize their homes, thereby increasing their energy affordability. In general, this assistance has been provided in the form of grant funds paid directly to the contractor and then overseen by local nonprofit agencies.

We believe that it is in society’s interest to help low- as well as moderate-income (LMI) families achieve the same energy savings as higher-income families and to develop programs and strategies that will help them do so. In most states, grant programs do not have sufficient funds to retrofit LMI homes and some have turned to providing supplemental financing to pay for home-efficiency improvements that grants cannot cover. However, financing programs that include LMI families need to take into consideration the unique characteristics of these families when designing their programs.

While LMI families have participated to a limited extent in state-sponsored loan programs primarily in New York and Pennsylvania, the Property Assessed Clean Energy (PACE) program in California is the first loan program to provide financing to a large number of LMI families.
Recently passed legislation in California makes broad reforms to the PACE product that seek to address recent questions raised by a broad range of groups as to the circumstances in which the PACE financing program can be appropriate for low-income families looking to retrofit their homes. This report seeks to specifically address issues associated with participation by lower-income households in the PACE program by addressing the following questions:

- Does PACE complement existing lower-income grant programs and if not, what changes need to be made?
- What is the average level of debt financed, are annual payments affordable, and how are utility-bill savings factored into the equation?
- Are lower-income families in general satisfied with the quality of work on their homes and if not, what types of improvements need to be made?
- Is PACE an appropriate product for all lower-income families, and if not, what limitations should be placed on its use?

The report contains an overview of the LMI population in California and the U.S.; an analysis of a sample of 25,327 PACE assessments; and 25 qualitative interviews with PACE homeowners. Detailed methodologies for each analysis are included in their respective sections. For the purposes of these analyses, we define low-income areas as zip codes in California with a median household income of less than 60 percent ($37,091) of state median income, and moderate-income areas as zip codes in California with a median household income between 60 and 80 percent ($37,091 to $49,454) of the state median income.

The recommendations and concerns raised in this report are targeted towards the specific financing and asset issues faced by lower income families. They are not necessarily of the same level of concern to families with higher incomes and greater levels of assets. These families are better able to invest in less cost-effective measures and make decisions more broadly relating to the upkeep and retrofitting of their homes. As such these recommendations should be viewed as part of the process for developing models for retrofitting the homes of lower income families integrating grant and loan resources.

This report was prepared by the Energy Programs Consortium as part of an on-going project, Supporting Equitable Access to Residential Energy Finance for Low and Moderate-Income Homeowners. The purpose of the project is to assess, understand the needs of and develop the market for residential energy efficiency and renewable energy loans for LMI households; ensure appropriate access to credit for LMI households; and increase the number and rate of the retrofits that credit can facilitate.
The PACE program has become a valuable option for homeowners looking to finance energy-efficiency retrofits in California. As the program continues to grow, opportunities have arisen to strengthen it and improve its value to homeowners. The following six recommendations and five key findings are based on the research conducted for this report as well as an earlier report completed by EPC on the PACE program. In some cases, our recommendations are reflected in the Senate Bill (SB) 242 and Assembly Bill (AB) 1284, recently passed in California to improve PACE’s consumer protections. Our report underscores the importance of the new laws in providing an entirely new framework for PACE with underwriting based on income and assessing ability to pay. Other recommendations include improvements that the laws did not cover. For a detailed description of SB242 and AB1284, signed into law on October 4, 2017, see Section IV of this report beginning on page 27.

**Recommendation #1: Lower-income families should be offered grant support prior to applying for PACE financing.**

Low-income families should be made aware of energy grant funding prior to applying for PACE financing. The state of California supports a number of energy-efficiency and renewable grant programs providing a core set of weatherization measures at no cost to families with income of up to about 60 percent of the median income. The low income grant programs provide weatherization measures at no cost including attic insulation, energy-efficient refrigerators, energy-efficient furnaces, weather-stripping, caulking, low-flow showerheads, water-heater blankets, and door and building envelope repairs.

While funding for grant programs is limited, they can provide a base of support for the lowest income families. The PACE program covers a broader set of energy and water savings measures that can complement the grant funding provided by the state and for moderate income families is the only program providing access to capital to improve their homes. These grant programs do not provide assistance to moderate income families with income between 60 and 80 percent of median and for these families must rely on private capital such as PACE to increase the energy efficiency of their homes.

The state should provide a form or notice to homeowners at the time of consultation with a contractor to inform them that they might be eligible to receive no-cost weatherization services, depending on their income and the availability of funds. Families would then have the option of using the PACE program to pay for supplemental energy and water measures, thereby reducing their debt and the resulting repayment burden. This approach will ensure that families minimize the need for financing and take advantage of available alternatives to make desired home improvements.

We recognize that connecting grant-funded energy programs with qualifying households is a complex problem that is not limited to PACE, and could be an issue for other financing programs as well. However, considering the state’s role in administering energy program grant funds and enabling the PACE program through local implementation, it would seem reasonable to develop a strategy that would inform low-income families of their options and help them make informed decisions regarding the use of grant funds and/or PACE financing to retrofit their homes.

*SB 242 and AB 1284 did not address this recommendation.*
**Recommendation #2:** The California Public Utilities Commission should allow lower-income families that used PACE to retroactively apply for state grant funds for any work that was financed that could have been paid for through grant funds.

Low-income families that received PACE may have been eligible for grant funds from the state’s Energy Savings Assistance (ESA) program. Those families should be allowed to retroactively apply for grant funds to pay for energy-efficiency measures that PACE funded. While this would only apply to measures that would have been eligible under the grant program—and reimbursement rates would likely only cover what ESA would have paid for the improvements—retroactively assisting low-income families would help to reduce their debt burden and increase their ability to repay the funds they have borrowed.

This retroactive application of grant funds should only be applied to existing PACE homeowners. Given the differences between PACE and grant program rules and offerings, it is better to design a system going forward where low-income families are referred to grant programs before they consider PACE.

*SB 242 and AB 1284 did not address this concern.*

**Recommendation #3:** Include an ability-to-pay requirement for PACE households.

Examine the criteria that qualify homeowners for PACE financing, particularly at low-income levels and with high loan-to-value ratios.

*AB 1284:* Requires PACE companies to develop a process of determining the homeowner’s ability to pay the PACE assessment, that takes into account monthly income, debts, financial obligations such as alimony and child support, and essential expenses such as food, household goods and transportation costs.

**Recommendation #4:** PACE marketing and communications needs to be proactive, clear and transparent.

Contractors or other PACE representatives need to provide up-front communications that give homeowners clear information about the terms of the assessment; how regular payments work once the assessment is finalized; information about access to grants and rebates; and realistic estimates of potential energy savings. Programs that do not comply with existing laws and industry best practices need to be brought into compliance as soon as possible.

*SB 242:* Provides detailed requirements for disclosures and communications including requiring the PACE administrator to orally confirm all terms and provisions of the PACE assessment with the homeowner. In addition, AB 2693 (which went into effect on January 1, 2017), requires PACE providers to give their customers a Disclosures and Financing Estimate that is modeled after the mortgage industry’s [Know Before You Owe](#) form.
**Recommendation #5: Improve oversight of contractors**

To low-income homeowners, contractors are the face of the PACE program. Qualitative interviews with low-income PACE customers revealed that while homeowners are receiving information about how the PACE program works, and about their PACE financing terms, additional attention should be paid to ensure that communications better explain to the homeowner their repayments, and any additions to escrow required.

**SB 242:** Requires PACE companies to ask homeowners whether or not they have entered into other PACE agreements or have other pending liens on the home. The law also requires that contractors be in good standing with the state’s contractor licensing board and have all required permits and licenses.

**AB 1284:** Requires PACE companies to create a real-time database of PACE assessments in order to prevent multiple assessments in excess of program requirements. It also requires PACE providers to verify any recorded PACE assessment on the property, and to ask the property owner in their application there are any other existing PACE assessments on the property, recorded or unrecorded. The law also requires PACE companies to develop processes for enrolling and removing contractors from the program, which have to take into account whether the contractor has a record of misleading homeowners or failing to respond to complaints and the Department of Business Oversight can bar contractors from using PACE or revoke a license of a PACE provider who fails to operate appropriately.

**Recommendation #6: Develop an efficient and effective process for addressing customer complaints.**

A clear process by which PACE providers receive and solve customer complaints is vital to ensuring contractor performance and consistent service across PACE companies. A clear and effective resolution process is particularly important for lower-income families who may not have the resources to resolve issues on their own.

**SB 242:** Requires PACE companies to consider past customer-service complaints when bringing contractors into the program and during the monitoring and review process, but does not require them to establish a process for resolving complaints they receive.

**AB 1284:** Requires PACE companies to develop and implement procedures for responding to customer questions and addressing their complaints.
**Key Findings**

1. **Lower-income families have limited discretionary income—energy savings can only support modest PACE assessments**

   - Lower-income families have little to no discretionary income, making them less likely to be able to absorb unexpected costs such as installed energy measures that do not provide the expected cost savings.

   - For many low-income homeowners, their house is often their only asset—and on average, their home equity exceeds their overall net worth. This could reflect underwater mortgages or other debt and suggests that the current PACE requirement—that the PACE assessment not exceed 15 percent of the value of the home—may be particularly inappropriate for lower-income homeowners who have less money than the value of their home suggests. AB 1284’s ability-to-pay requirement will likely help alleviate this concern.

   - Utility bill savings resulting from PACE-financed improvements may only be sufficient to repay a portion of the cost of the PACE assessment, particularly for lower-income homeowners. A household with an annual energy burden of about $1,700 that receives typical PACE financing of $20,000 over 15 years and decreases their energy burden by 20 percent annually may only earn energy savings covering about 15 percent of their financing costs. In some cases, solar installations may provide more substantial savings.
• Depending on the measures purchased, savings could be sufficient to pay the difference between standard and high-efficiency measures. Providing clear and reasonable information on potential energy-cost savings of measures to be installed (included in Recommendation #3, above) will allow homeowners to assess how much of their financing may be covered by those savings.

2. Lower-income families report lower PACE borrowing levels

• Low- and moderate-income households report lower borrowing levels than higher-income families report. Families with an income of less than 60 percent of median borrowed an average of $24,550, while those between 60 and 80 percent borrowed an average of $23,738. Families with incomes above 80 percent of median borrowed an average of $26,348. This discrepancy is likely due in part to low-income families owning homes of lower value, which limits their maximum PACE loan, as compared to families with more expensive homes.

3. Lower-income families have lower participation rates than higher-income families

• Lower-income families are participating at a lower overall rate than their population share. Households in low-income areas represent 7.6 percent of the total sample population but only 6.6 percent of PACE households. The proportion of households in moderate-income areas in PACE—20.8 percent of the sample population—about equals their representation in the general population of 20.5 percent.

• Lower-income neighborhoods report a lower density of PACE participation than higher-income areas. In low-income areas with more than 100 PACE households represent only 7.8 percent of the total number of assessments in that income bracket, while they represent 20.6 percent, of assessments in the moderate income bracket and 12.2 percent, in the high income bracket. These findings suggest that contractors are not systematically targeting LMI zip codes in order to reach the homeowners in these areas. Our qualitative surveys indicate there may be some instances of localized targeting by contractors.

4. Multiple assessments represent a small portion of the database but were concentrated in low-income neighborhoods

• Households with multiple assessments took out 76 percent more in total principal than the average PACE household. Multi-assessment households from multiple providers had even higher total principal amounts.

• While they represent a small portion of the total database, the 217 households that received multiple PACE assessments from multiple companies were found to be disproportionately located in lower-income areas. Overall, low- and moderate-income PACE households represent 27.3 percent of the database, while they represent 48.8 percent of the multi-provider households. The reasons behind these data require further investigation.
5. Findings from a qualitative study of lower income pace participants

Researchers conducted phone interviews with 25 verified PACE participants in lower-income areas to understand the homeowners’ perspective on the PACE program, and how PACE fits in with their broader experience of owning a home. This context is important to understand how homeowners view PACE and make decisions related to the program’s benefits and repayment. It also provides insight into their understanding of the program.

- For lower-income homeowners, a home-improvement investment is a big financial move, but also an emotional decision.

  “We were approved over the phone for $60,000... We were all excited because we had just bought the house.”

- The way homeowners process information can be affected by how the information is presented. Careful explanation, both written and verbal, is required. Explanations are better when they are in the consumer’s language, not in the language of the contractor or in financial-sector jargon. Materials should be available in foreign languages for homeowners for whom English is not their primary language. This is a requirement in SB 242.

  “I don’t read a lot of English.”

  “When you are going over a contract you are hearing the stuff and you’re trying to read it and it all doesn’t register.”

  “We just got the details of the loan. Most of it is gibberish. I don’t understand the language.”

- Homeowners need up-front communications offering clear information about how the regular payments work once the assessment is finalized and the work is completed. Be realistic about how people tend to manage their budgets (e.g., they look at the individual payments’ impact on their budget and cash flow, not the total principal amount). A lack of attention to details such as rate, without explicit disclosure, is not unique to the LMI sector. Even affluent consumers often do not understand fee structures, rates, etc. For most people, money is a means to accomplishing a goal, and they will tend to focus on the goal. SB242 includes detailed requirements for disclosures and communications designed to address this concern.

  “They said the rate would be 8.5 percent, but that is not on anything that is written out.”

  “I would like to know exactly how it operates and a little bit of how it would work with my monthly mortgage.”

  “I went to see if I could get a refinance and they said no.”

  “Give me something in writing. They are going through the Wells Fargo escrow. They combine it with your real estate taxes. You don’t know what you are paying for either one. You are paying a lump sum. It is a lot of money every month. I’d like to pay it off in one or two years.”
• Some survey participants reported that they were told they would get rebates but they never received them. Others may have been eligible for grant assistance. Contractors should make it easy for homeowners to learn about and access grants or rebates that may be available to them and be required to follow through on submitting the rebate. They should also calculate the approved financing for which the homeowner is eligible, net of grants or rebates.

✧ “They said you get an energy rebate at the end of the year. That would help on payments. But I never saw that rebate.”

• The contractor sector includes providers offering different levels of quality and customer commitment. Since the contractor is effectively the face of the program to the homeowners, the program should implement steps to ensure that his desire to make a sale and build business does not lead to aggressive practices that risk putting homeowners in harm’s way. Issues recommended by homeowners for further attention by PACE included:

a. Perception of aggressive selling to push homeowner to accept the offer.
   ✧ “The first sales rep that came out was a little more aggressive and wanted me to commit earlier than I was ready to, but I definitely took my time.”
   ✧ “I would have liked more time to think about the offer. They only gave a two- or three-day period to ‘go with us, or we are pulling the offer off the table.’”

b. Recourse in the case of incomplete projects, messy work sites, project delays.

c. Failure to follow up when called to assist on issues arising after project was done.

d. Overcharging relative to value delivered.

e. Leaving homeowners with a sense that no one had their backs once they signed the contract if a problem arose.

f. Not following through on rebate promises.

• Examine the criteria that qualify homeowners for PACE financing, particularly at low-income levels and with high loan-to-value ratios. In our interviews, we found that negative experiences seemed more prevalent at lower-income levels.
Background

What is PACE?
Property Assessed Clean Energy (PACE) is a financing option for energy efficiency, water conservation and renewable energy measures that serves as an alternative to traditional loan structures. PACE allows property owners to finance such measures by means of an assessment added to the property’s tax bill. The assessment is then treated as part of the tax bill. If the property is sold, the lien may be transferred to the new owner.

How does PACE Work?
PACE requires authorizing legislation in the state where it is to be made available, and resolutions by local governments to set up or “opt-in to” PACE districts and programs. Once the program is active, property owners interested in installing PACE-eligible measures can apply for PACE financing. Once approved, they can work with a program-approved contractor at no initial cost. The amounts borrowed to finance the improvement(s) are repaid gradually through the homeowner’s property tax bill, where the PACE assessment appears as an additional line item. If property taxes are escrowed, monthly payments to the escrow account will generally be adjusted to include the amount due for PACE financing.

PACE assessments can last up to 30 years, depending on the program administrator, but cannot exceed the useful life of the equipment installed. As a tax assessment, the standard PACE lien is senior to any mortgage lien on the property and is on equal footing with other tax liens. This means that if a homeowner does not pay a PACE installment, the local government that administers the property tax bill may initiate a foreclosure action to sell the home and use the sale proceeds to cover the unpaid amounts due; as with other property tax assessments, the remaining balance of the lien is not paid off in foreclosure. If the property owner sells the building before the end of the financing term, the remainder of the PACE assessment stays on the property tax bill and transfers to the new owner.

• Since the launch of the first R-PACE programs in 2008, residential PACE programs have financed more than 132,000 energy retrofits and lent out more than $3.3 billion, making PACE one of the fastest-growing forms of energy-efficiency and renewable-energy financing in the United States. Of this amount, $2.85 billion was originated in the last two years.
Section 1: Key Characteristics of the Low- and Moderate-Income Home Ownership Market

Analysis
In our analysis, we use area median income (AMI) and state median income (SMI) to measure and define LMI households. The AMI and SMI measures describe income as a percentage of regional median incomes, which provides a gauge of a household’s economic well-being relative to that of its community. Here, low income is defined as below 60 percent AMI and moderate income is defined as between 60 and 80 percent AMI.

The median income of California residents ($61,818) is significantly higher than the national figure ($53,889). Figure 1 demonstrates the median household income and the corresponding AMI ranges for the U.S. and California at 60, 80 and 120 percent of AMI.

Figure 1: Income Statistics in U.S. and California

<table>
<thead>
<tr>
<th>Median Income of Homeowners</th>
<th>U.S.</th>
<th>California</th>
</tr>
</thead>
<tbody>
<tr>
<td>60% AMI</td>
<td>$32,333</td>
<td>$37,091</td>
</tr>
<tr>
<td>80% AMI</td>
<td>$43,111</td>
<td>$49,454</td>
</tr>
<tr>
<td>120% AMI</td>
<td>$64,667</td>
<td>$74,182</td>
</tr>
</tbody>
</table>

The U.S. Census provides income ranges for households by state. These ranges do not match perfectly with the AMI ranges on which we focus in this report. In order to illustrate the household income distribution in the U.S., we will consider the following estimations of the income brackets: (1) low-income families (<60 percent AMI) are those making less than about $35,000 annually; (2) moderate-income families (60-80 percent AMI) are those making from $35,000 to $49,999; (3) medium-income families are those making from $50,000 to $74,999; (5) high-income families are those making over $75,000.

Figure 2 illustrates the number of owner-occupied housing units within each income bracket. About 22.9 percent of U.S. homeowners classify as low-income households. Moderate-income households make up 12.5 percent of owner-occupied households, while middle-income households account for 18.9 percent and high-income families account for 45.7 percent. Combined, low- and moderate-income homeowners represent about a third of all homeowners.

Figure 2: Household Income for Owner-Occupied Housing Distribution

<table>
<thead>
<tr>
<th>Less than $35,000</th>
<th>U.S. Homeowners</th>
<th>U.S. % of Total</th>
<th>California Homeowners</th>
<th>California % of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>$35,000 - $49,999</td>
<td>17,109,069</td>
<td>22.9%</td>
<td>1,243,652</td>
<td>18.0%</td>
</tr>
<tr>
<td>$50,000 - $74,999</td>
<td>9,339,011</td>
<td>12.5%</td>
<td>690,918</td>
<td>10.0%</td>
</tr>
<tr>
<td>More than $75,000</td>
<td>14,120,585</td>
<td>18.9%</td>
<td>1,133,105</td>
<td>16.4%</td>
</tr>
<tr>
<td></td>
<td>34,098,425</td>
<td>45.7%</td>
<td>3,841,501</td>
<td>55.6%</td>
</tr>
</tbody>
</table>
In California, 18 percent of homeowners classify as low-income; 10.0 percent are moderate-income; 16.4 percent are middle-income; and 55.6 percent are high-income.

**Value of homes:** In the U.S., the value of owner-occupied housing units varies widely. Out of 74.7 million owner-occupied homes nationally, about 24.4 percent are valued at less than $100,000; 30.8 percent are valued between $100,000 and $199,999; 34.1 percent between $200,000 and $499,999; and 10.7 percent at over $500,000. See Figure 3 below.

![Figure 3: Value of Owner-Occupied Homes in the U.S.](image)

Of the U.S.’s 74.7 million owner-occupied homes, approximately 54.3 percent, or 40.5 million units, are LMI and middle-income households (represented in green in Figure 4 below). A greater proportion of LMI homeowners in the U.S. own lower-valued homes: 24.4 percent of overall owner-occupied homes in the U.S. are valued at less than $100,000 compared to 36.6 percent of LMI owner-occupied homes in the U.S. valued at less than $100,000.

In California, home values deviate significantly from the national breakdown. Only 8.3 percent of all owner-occupied homes are valued at less than $100,000—one-third that of the national example. Even within the LMI and middle-income universe, more homeowners own high-value homes worth over $500,000 (21.4 percent) than low-values homes worth less than $100,000 (14.9 percent).

![Figure 4: Value of Owner-Occupied Homes in California](image)
These figures demonstrate that LMI and middle-income homeowners own more homes valued at less than $100,000. Similarly, a smaller proportion of LMI and middle-income homeowners own homes in the highest value bracket (more than $500,000).

**Discretionary income:** Discretionary income represents the amount of income left for spending after taxes and other essential expenditures. What counts as an essential, nondiscretionary expenditure may vary; for the purposes of this report, essential expenditures include: groceries, housing (rent or mortgage), clothing, utilities, transportation, education, personal insurance and pensions. Home-energy improvements would be considered a discretionary expenditure.

Low-income families delay all but essential improvements to their homes because they have little to no discretionary income and limited savings—and the majority use credit cards or other high-interest financing to replace HVAC systems and other energy improvements. Higher-income families have far more discretionary income; net energy savings are not as essential to them when replacing HVAC systems or implementing less cost-effective energy improvements such as windows.

Figure 6 (next page) illustrates the disparities in discretionary income between household income deciles. Again, the income brackets of the data do not correlate directly with our definitions of low, moderate, middle and high income; figure 5 (below) shows how the income deciles match up to our income brackets.

![Figure 5: Mean Before-Taxes Income Corresponding to Each Decile](image)

<table>
<thead>
<tr>
<th>Income Decile</th>
<th>Mean Pre-Tax Income</th>
<th>Approx. Income Bracket</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-9.9%</td>
<td>$6,063</td>
<td>Below 60% AMI</td>
</tr>
<tr>
<td>10-19.9%</td>
<td>$15,806</td>
<td>60-80% AMI</td>
</tr>
<tr>
<td>20-29.9%</td>
<td>$23,902</td>
<td>80-120% AMI</td>
</tr>
<tr>
<td>30-39.9%</td>
<td>$32,797</td>
<td></td>
</tr>
<tr>
<td>40-49.9%</td>
<td>$43,280</td>
<td></td>
</tr>
<tr>
<td>50-59.9%</td>
<td>$55,934</td>
<td></td>
</tr>
<tr>
<td>60-69.9%</td>
<td>$70,812</td>
<td>Over 120% AMI</td>
</tr>
<tr>
<td>70-79.9%</td>
<td>$90,810</td>
<td></td>
</tr>
<tr>
<td>80-89.9%</td>
<td>$120,634</td>
<td></td>
</tr>
<tr>
<td>90-100%</td>
<td>$235,160</td>
<td></td>
</tr>
</tbody>
</table>

In Figure 6 (next page), the bottom three deciles indicate negative discretionary income, meaning for 30 percent of the country non-essential annual household expenses exceed their annual income. The fourth decile—the top of the range that includes low-income families—had only $2,187 per year in discretionary income, leaving them very little extra money to spend on such things as energy-efficiency upgrades.

As income rises, so does discretionary income, indicated by the five upper rows of deciles, which have the most discretionary funds after their necessities are covered. The low levels
of discretionary income in the lower-income deciles suggest that LMI households will have a harder time affording energy-efficiency upgrades, and will be less able to absorb unexpected expenses such as efficiency measures that do not provide the expected energy savings.

Figure 6: Annual Discretionary Income by Income Decile


Asset ownership: Asset ownership and net worth are indicators of a household’s financial health. Figure 7 (below) describes the extent of asset ownership within each income quintile. Asset ownership is largely concentrated in the fifth and highest quintile due to heavy interest-earning investments. In contrast, asset ownership throughout the first four quintiles is minimal and involves almost no interest-earning investments. Net worth in the lowest quintile is notably lower than home equity. This suggests that even though these families own their homes, the value of the home and the equity they have in it may not be good indicators of their ability to afford a lien on that home. The ability-to-pay requirement in AB 1284, discussed in Section 4, may help mitigate this problem.

Figure 7: Mean Value of Assets for Households by Income
PACE financial impact on LMI households

PACE is the primary financing option available for energy-efficiency upgrades in California. PACE allows property owners to finance energy efficiency, renewable energy, water conservation and resiliency measures with payments made on an annual or semi-annual basis through property taxes. An assessment is added to the property’s tax bills and is secured as a tax bill by the same type of lien against the property.

According to data made public from the PACE industry’s 18 collective securitizations to date, the average PACE assessment has a principal of about $20,000. Interest rates that accompany a PACE financing typically range from 6 to 10 percent. PACE assessments can be repaid over five to 30 years. Figure 8 (below) describes annual payment amounts made over 10, 15 and 20 years on a $20,000 PACE financing at an interest rate of 8 percent.

**Figure 8: Annual PACE Payments with 8% Interest Rate**

<table>
<thead>
<tr>
<th>Principal Amount</th>
<th>Term</th>
<th>10 years</th>
<th>15 years</th>
<th>20 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>$10,000</td>
<td></td>
<td>$1,456</td>
<td>$1,147</td>
<td>$1,004</td>
</tr>
<tr>
<td>$15,000</td>
<td></td>
<td>$2,184</td>
<td>$1,720</td>
<td>$1,506</td>
</tr>
<tr>
<td>$20,000</td>
<td></td>
<td>$2,912</td>
<td>$2,294</td>
<td>$2,007</td>
</tr>
<tr>
<td>$25,000</td>
<td></td>
<td>$3,640</td>
<td>$2,867</td>
<td>$2,509</td>
</tr>
</tbody>
</table>

At an interest rate of 8 percent and a term of 15 years, a PACE assessment of $20,000 will increase a home’s property taxes by $2,294 annually. This increase in property taxes can be infeasible for LMI households without sufficient discretionary income.

The total amount of interest paid over the life of a $20,000 PACE assessment at an 8 percent rate can be as much as the assessment itself. See Figure 9 (below). At a term of 15 years, cumulative interest paid on a $20,000 assessment would amount to $14,403, which is almost three-quarters of the original principal amount.

**Figure 9: Cumulative Interest Paid Over the Life of the Loan, 8% Interest**

<table>
<thead>
<tr>
<th>Principal Amount</th>
<th>Term</th>
<th>10 years</th>
<th>15 years</th>
<th>20 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>$10,000</td>
<td></td>
<td>$4,559</td>
<td>$7,202</td>
<td>$10,075</td>
</tr>
<tr>
<td>$15,000</td>
<td></td>
<td>$6,839</td>
<td>$10,803</td>
<td>$15,112</td>
</tr>
<tr>
<td>$20,000</td>
<td></td>
<td>$9,119</td>
<td>$14,403</td>
<td>$20,149</td>
</tr>
<tr>
<td>$25,000</td>
<td></td>
<td>$11,398</td>
<td>$18,003</td>
<td>$25,186</td>
</tr>
</tbody>
</table>

PACE in the context of conventional options

An important consideration for this discussion is the ways in which PACE compares in its
financial impact on households to conventional forms of financing. Table 10 shows that PACE may be more or less affordable on a monthly or annual cash-flow basis for a family than the types of financing with which it is competing.

<table>
<thead>
<tr>
<th>$18,000 Project (≈$19,800 PACE Assessment Contract1)</th>
<th>CaliforniaFIRST (PACE)</th>
<th>Home Equity Line of Credit2,3,4</th>
<th>Home Equity Loan4</th>
<th>Personal Unsecured Loans</th>
<th>Credit Card2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repayment Term (years)</td>
<td>15 / 20</td>
<td>15</td>
<td>15</td>
<td>10</td>
<td>78</td>
</tr>
<tr>
<td>Interest Rate (Fixed or Variable)</td>
<td>7.99% / 8.29% (F)</td>
<td>3.865% (V)</td>
<td>7.99% (F)</td>
<td>12.00% (F)</td>
<td>7.99% (F)</td>
</tr>
<tr>
<td>Monthly Payment6</td>
<td>$189 / $169</td>
<td>$132</td>
<td>$172</td>
<td>$258</td>
<td>$280</td>
</tr>
<tr>
<td>Alternatives as % of PACE Pmt.</td>
<td>15 yrs.</td>
<td>100%</td>
<td>70%</td>
<td>91%</td>
<td>137%</td>
</tr>
<tr>
<td>% of PACE Pmt.</td>
<td>20 yrs.</td>
<td>100%</td>
<td>78%</td>
<td><strong>102%</strong></td>
<td><strong>153%</strong></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. PACE AC is $1,800 greater than project cost to account for capitalized fees and capitalized interest.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Payments assume that financing is fully amortized with equal payments over repayment term; payment calculation uses 12% interest rate.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. &gt;15% of property owners throughout the US and CA have a HELOC in place (9.0% and 11.6%, respectively).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Quote from Wells Fargo web site on 6/20/17 (760+ FICO; HELOC with 1st year fixed, then variable; no HEL options &gt;15 years.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Monthly payment calculations do not account for tax deductibility of interest for PACE, HELOC and HEL options.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Home Depot’s longest term option for fixed rate financing.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Energy savings provides partial ability to repay financing**

Energy savings realized by PACE upgrades can help to offset the cost of improvements but we need to be mindful of a family’s ability to pay back the debt. Determining this will depend on a variety of factors, including the following: household income, debts, non-discretionary expenses and typical day-to-day living expenses; the interest rate on the financing; the term of the financing; the principal amount; average annual energy expenses; the energy savings rate; and the energy inflation rate.

The interest rate, term and principal amount determine the size of monthly payments on a PACE financing. As described above—assuming the eight percent interest rate typical for most PACE programs, a 15-year term and a $20,000 PACE assessment—a household would be paying approximately $2,294 yearly.

Average annual energy expenses, the energy savings rate and the energy inflation rate together determine the amount of energy savings realized. These energy savings can offset monthly payments. Lower-income households have lower energy expenditures, so reductions in energy use may result in less savings than those realized in higher-income households.

Total energy expenditures generally increase as household income increases. See Figure 11 (next page). Lower-income households have lower total energy expenses: According to data taken from the 2009 Residential Energy Consumption Survey conducted by the U.S. Energy Information Administration, U.S. households with incomes less than $20,000 spent on
average $1,571 on energy annually while households with incomes greater than $120,000 spent on average $3,062 on energy annually. With higher energy expenditures, higher-income households have a higher potential for energy savings.

Figure 11: Average Per U.S. Household Energy Expenditures by Income Level


Assuming a 20 percent savings rate and a 2.5 percent energy inflation rate for an LMI household that spends $1,736 on energy annually, that LMI household would save $347 in a year through investment in energy-efficiency measures. If this same household has retrofitted its home with a typical PACE assessment of $20,000 over 15 years, that household will owe $2,294 per year on the PACE assessment, more than six times their energy savings. Over the life of the assessment it will have spent $28,177 more than it saved. At a 30 percent savings rate, it will have spent $25,065 more than it saved; and at a 40 percent savings rate, it will have spent $21,951 more.

By contrast, a household with an income level of more than $120,000 taking on the same PACE assessment at a 20 percent savings rate will only have spent $23,422 more than it saved. It will have spent $17,931 at a 30 percent savings rate, and $12,440 at a 40 percent savings rate. In cases such as these, cost savings from PACE financing are bigger in higher-income households than in low-income households.

To ensure that LMI households retain their ability to repay a PACE assessment, the following options should be considered: granting smaller assessments to LMI households; and putting in place extra protections to guarantee the highest possible energy-savings rate for LMI households. With the passage of AB 1284 (discussed in Section 4, beginning on page 30), some of these considerations may be addressed through the ability-to-pay requirement.
Section II: LMI Household Participation in PACE

Methodology

The database of PACE households was pulled from the California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA) database on PACE financing. The data includes 25,327 households that enrolled in R-PACE in California between January 1 and June 30, 2016 and covers the top three R-PACE programs in the state: the HERO program, run by Renovate America; CaliforniaFIRST, run by Renew Financial; and YGRENE Works, run by YGRENE Energy Fund.

Since the projects in the CAEATFA database originated before the forthcoming requirement to assess a homeowner’s ability to pay, many PACE providers were not collecting income data. Therefore, we used data from the U.S. Census offering median and mean income by zip code as a proxy for income. We relied primarily on median income for the analysis because it is less likely to be affected by outlier incomes in the zip code. However, this lack of data on individual household income places limitations on the analysis.

- First, zip codes represent defined geographic areas but do not necessarily fall along economic divides. Higher-income families may live in zip codes with low-area median incomes and vice versa. In fact, a comparison in the data of median and mean incomes by zip code indicates that some zip codes comprise a wide income range.
As a result our analysis of households by income may include some families outside our income parameters.

- Second, the analysis does not allow us to assess the potential for targeting that may be occurring by income but that is not reflected at zip code level. For example, if a low-income area is split between two zip codes, we cannot identify it as one contiguous area of low-income households and therefore can only assess the potential for targeting in each zip code independently instead of looking at the two zip codes as one community.

- Third, the data are a snapshot of the PACE program, which means they may not reflect longitudinal trends. Targeting that occurred over a longer period may not be evident. This particularly affects our ability to look at multi-lien households. Our analysis is limited to households that took out multiple PACE assessments within that six-month period.

Analysis

The database contains 25,327 households that took out PACE financing between January 1 and June 30, 2016. The totals by program are: CaliforniaFIRST: 4,272 households; HERO: 15,556 households; and YGRENE Works: 5,499 households. Principal amounts range from $2,200 to $349,659. The zip code with the lowest area median income was 90058 in Los Angeles, with an AMI of $17,018 and an average income of $29,280. The zip code with the highest AMI was 94957 in Ross, with a median income of $219,625 and an average income of $320,825.

PACE households by income: As shown in Figure 12 (below), we found that 6.6 percent of PACE households in the analysis were in zip codes with low incomes, and 20.8 percent of PACE households were in zip codes with moderate incomes. We also found that the average principal of the PACE assessment was smaller in moderate- and low-income zip codes when compared to the rest of the borrower pool. However, the low-income areas had a slightly higher average principal amount than the moderate-income areas.

<table>
<thead>
<tr>
<th>Income Level(% SMI)</th>
<th># of PACE Households</th>
<th>% of PACE Households</th>
<th>Average Principal Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;60%</td>
<td>1,662</td>
<td>6.6%</td>
<td>$24,550</td>
</tr>
<tr>
<td>60% to 79.9%</td>
<td>5,257</td>
<td>20.8%</td>
<td>$23,738</td>
</tr>
<tr>
<td>80% +</td>
<td>18,408</td>
<td>72.7%</td>
<td>$26,348</td>
</tr>
</tbody>
</table>

In Figure 13 (below) the graph on the right shows the overall proportions of households in the study area by income. The graph on the left shows the proportions of PACE households in the study area by income. This demonstrates that distribution of PACE assessments in the analysis approximately represents the populations in those areas. If PAC contractors were targeting LMI areas, we would expect to see a higher distribution of PACE households in zip codes with low and moderate incomes compared to the total number of households in those areas.
Principal amounts: The size of PACE assessments did not vary significantly by income. Figure 14 (below) shows the proportion of PACE assessments by size and income bracket. For low-income households, 48 percent (798) of PACE assessments were under $20,000 compared to 45.4 percent (11,801) of assessments for those in the highest income bracket. Furthermore, 12.9 percent of households making less than $37,091 had PACE assessments over $40,000.

Determining LMI targeting in PACE: We examined zip codes with a high concentration of PACE households to determine if PACE was being targeted to specific LMI areas. We looked at the zip codes with more than 100 PACE assessments, 50-99 PACE assessments and 20-49 PACE assessments to determine if highly concentrated zip codes were in predominantly LMI areas. Figure 15 (next page) shows that the zip code concentrations of PACE households in moderate- and high-income areas are similar, while PACE assessments appear to be less concentrated
by zip code in lower-income areas. In low-income areas, zip codes comprising more than 100 PACE households represent only 129, or 7.8 percent, of the total number of assessments in that income bracket; 1,085, or 20.6 percent, of assessments in moderate-income areas; and 2,239, or 12.2 percent, in high-income areas. If you combine all zip codes with more than 20 PACE assessments (the bottom three bars on the graph), those areas account for 71.9 percent of PACE households in low-income areas, 84.2 percent of PACE households in moderate-income areas, and 82.8 percent of PACE households in higher-income areas.

Figure 15: Concentration of PACE Households in California by Income

We then calculated a penetration rate for each zip code: the number of PACE households as a percentage of total households in each zip code. The penetration rates ranged from 0.004 percent to 1.65 percent and the average penetration rate for all zip codes was 0.22 percent.

Figure 16 (next page) compares penetration rates between income ranges. If all areas were served equally, we would expect to see even penetration regardless of income because the number of PACE households served would reflect the overall population in that area. Instead, we found that some areas have higher PACE penetration than others, suggesting that there could be some income targeting among PACE providers.

However, the highest penetration rates are in high-income areas, indicating that if PACE contractors are targeting, they prefer doing it in higher-income markets. In addition, we do not know if the apparent targeting is due to homeowners living in contractor-service areas; word of mouth in communities (i.e. one person gets PACE financing and tells their neighbors about it); or some other form of intentional or organic targeting.
Multiple assessments: There are 1,766 households in the database that received multiple PACE assessments within the period of January 1 to June 30, 2016. Of these households, 517 are in areas with a median income lower than 80 percent of the state median. Multiple assessment households—particularly those that are low-income—are of concern primarily because the principal assessment amounts combined could exceed PACE’s debt-to-home value and debt-to-equity requirements. Multiple assessments that originate from different PACE companies could also indicate that contractors are using the system to circumvent maximum assessment requirements.

Figure 17 (below) provides an overview of the number and size of multiple assessments by income in the database. The proportion of each income bracket that represents multi-assessment households ranges from 6.8 to 7.8 percent, with lowest-income families having the highest percentage of multi-assessment households and the highest-income families having the lowest percentage. The total principal amounts (the sum of the principal from all of the financing received by the homeowner) are significantly higher for multi-assessment households than in the overall database. The average principal amount for all low-income households was $24,120, compared to $45,669 for multi-assessment households. The total principal amounts in multi-assessment households also vary widely from $9,300 to $350,000.
Multiple assessments, multiple companies: A small proportion, 217, of multi-assessment households received financing from multiple PACE companies. Figure 18 (below) shows how they break down by income bracket. These households have even higher total principal amounts than the full group of multi-assessment households. The households in this group in low-income areas had an average total principal amount of $59,993, while the highest-income group had an average of $73,433 in total principal.

The distribution of these households is not as concentrated as one might expect. They are spread among 136 zip codes in 80 cities in 14 counties as follows in Figure 19 (below):

Four households in the database had assessments from all three PACE companies we reviewed. Three of them were in areas under 80 percent AMI, and all four had total principal amounts exceeding $100,000. They were all in Los Angeles County, but in three different cities, and each in a different zip code.
Section III: A Qualitative Study of Low- and Moderate-Income PACE Participants

Research methodology

We conducted one-on-one interviews via telephone with 25 verified PACE households in zip codes with an average median income under 80 percent of the state median income who had financed home improvements with PACE during the first six months of 2016. Participants were sourced from a public database of PACE assessments in California and included households that had received financing from Renew Financial, Renovate America or YGRENE. Phone numbers were collected through a phone-matching service and supplemented through public information. On each call, we confirmed that the participant was the homeowner (single or joint) and was directly involved in home-improvement decisions and the associated financing. The conversations took place between August 1 and September 15, 2017, and ranged in duration from ten to thirty minutes. Participants who completed the full survey were sent a $10 Visa gift card. A copy of the discussion guide is included in Appendix A.
Figure 20 (below) provides a summary of information that was collected from the survey respondents during these conversations.

### House Characteristics

<table>
<thead>
<tr>
<th>Purchase Price</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>$195,947</td>
</tr>
<tr>
<td>Range</td>
<td>$25k – 414k</td>
</tr>
<tr>
<td>No Ans.</td>
<td>6</td>
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<table>
<thead>
<tr>
<th>Purchase / Inheritance Year</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Before 1970</td>
<td>2</td>
</tr>
<tr>
<td>1970 – 1989</td>
<td>2</td>
</tr>
<tr>
<td>1990-2009</td>
<td>7</td>
</tr>
<tr>
<td>After 2009</td>
<td>13</td>
</tr>
<tr>
<td>“Recently”</td>
<td>1</td>
</tr>
</tbody>
</table>

### Participant Demographics

<table>
<thead>
<tr>
<th>Gender</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>10</td>
</tr>
<tr>
<td>Women</td>
<td>15</td>
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<table>
<thead>
<tr>
<th>Age</th>
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<tr>
<td>&lt; 50</td>
<td>6</td>
</tr>
<tr>
<td>50-65</td>
<td>7</td>
</tr>
<tr>
<td>65-75</td>
<td>6</td>
</tr>
<tr>
<td>75+</td>
<td>5</td>
</tr>
<tr>
<td>No Ans.</td>
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<table>
<thead>
<tr>
<th>Household Income</th>
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</tr>
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<tr>
<td>&lt; $40,000</td>
<td>7</td>
</tr>
<tr>
<td>$40-70,000</td>
<td>10</td>
</tr>
<tr>
<td>$70-110,000</td>
<td>5</td>
</tr>
<tr>
<td>$110,000 +</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Household Size</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Occupant</td>
<td>4</td>
</tr>
<tr>
<td>2 Occupants</td>
<td>7</td>
</tr>
<tr>
<td>3 Occupants</td>
<td>6</td>
</tr>
<tr>
<td>4 Occupants</td>
<td>3</td>
</tr>
<tr>
<td>5+ Occupants</td>
<td>5</td>
</tr>
</tbody>
</table>

### PACE Financing Characteristics

<table>
<thead>
<tr>
<th>Number of Assessments</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Assessment</td>
<td>22</td>
</tr>
<tr>
<td>2 Assessments</td>
<td>2</td>
</tr>
<tr>
<td>3 Assessments</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Principal Amount</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>$24,303</td>
</tr>
<tr>
<td>Range</td>
<td>$6,219 – $57,597</td>
</tr>
<tr>
<td>Average Total (multi-assessments only)</td>
<td>$47,608</td>
</tr>
<tr>
<td>Range of Total (multi-assessments only)</td>
<td>$21,272 – $65,067</td>
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<table>
<thead>
<tr>
<th>Measures Installed</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Most Common Measures</td>
<td>Air conditioning, Roof, Windows</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Origination Date</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>1/27 – 6/30/16</td>
</tr>
</tbody>
</table>
Each interview included:

- **Introduction:** Explanation of purpose of study, confidentiality, value of input. It informed the participant that the call was being recorded.

- **Decision-making process:** What led to the decision to make the improvements, hire the contractor and finance through PACE. Role of energy savings in sales process and homeowner’s decisions to invest in improvements.

- **Financing information:** Other financing sources, explanation of how the PACE program works including repayment terms, interest rate, relationship to mortgage and real estate taxes and any other expectations.

- **Satisfaction:** How they feel about the improvements and the financing, overall and relative to what was represented during the sales process.

- **Homeowner recommendations:** Ways they would improve the PACE program in the future.

- **Profile:** Size of household, annual household income, year of purchase and purchase price of home.

**Research limitations:** Findings are qualitative. Given sample size, they should be viewed as directional and should not be projected to larger populations. This survey provides baseline insights and actionable findings. Combined with the market analysis also included in this report, these findings can be used to support a statistically valid quantitative survey of PACE assessments across provider companies supporting and prioritizing additional follow-up actions.

**Survey Results**

Learning about the program, deciding upon improvement(s): Homeowners learned about the PACE program and were motivated to pursue home-improvement projects as a result of marketing efforts, mainly by contractors. Door-to-door selling was the primary stimulus; telemarketing, flyers and TV advertising were also mentioned.

- “They came and left fliers—that is how they got here...the house really needed to be done. That was my goal before I retired—to fix the house.”

Another channel identified was the workplace: One project resulted from a presentation by a contractor where the homeowner works.

**Types of work completed:**

- Energy-related projects—primarily solar panels, windows and doors, roofing, heating and air conditioning, insulation, hardscaping or artificial turf for water conservation, water heater.

- Non energy-related projects, including painting, bathroom and kitchen renovations.¹

¹. We were unable to determine if these projects consist of eligible measures from PACE such as exterior paint, and low-flow faucets, showerheads and toilets.
Contractors presented the PACE program (under its local names) as a way to accomplish a desired home-improvement project with no money down, deferred payment, tax deductibility and potential for rebates. They offered Energy Star equipment, and the opportunity for energy savings.

- “They said windows would help my house stay cooler, get warmer. You will cut your energy in half.”
- “It’s a form of home improvement that can be tied to your property taxes in order to pay it off in payments, instead of a lump sum if you don’t have the lump sum to pay it off.”

Explanation of the program: How comprehensible the program was to homeowners depended heavily on the conversation with the contractor, who was the initial information source. There was little to no recall of being referred to a program website, and some homeowners indicated they did not have Internet access in their homes. Several homeowners acknowledged they looked at program materials to identify participating contractors. While many acknowledged receiving written materials aside from the contract, these do not appear to have been useful to most homeowners (and appear to have been largely product related—i.e. a brochure on windows). Essentially, the main program material appears to have been the contract itself.

- “They gave us some kind of pamphlet, I have it somewhere in my file cabinet. But a lot of that stuff they had on paper, to me it was like all talk.”

Post project experiences—the project itself and repayment: The homeowners with whom we spoke had both positive and negative experiences with PACE financing and the projects financed through the program.

Positive experiences:

- PACE offered the ability to complete a project the homeowner otherwise could not have afforded to do.
  - “(The program) helps you get what you need instead of having to wait.”
  - “The contractor did a really good job.”
  - “I needed to make the improvements. I knew I needed them.”
  - “I would recommend the program to people who don’t have the money up front, if they really need to do repairs in their home.”
  - “The program is a great resource.”

- Projects provided benefits including energy savings, greater comfort and aesthetic enjoyment.
  - “We are saving on electricity. Our bill was astronomical. That is a savings.”
“We’ve noticed the windows have created a quiet atmosphere. The outside noise is blocked.”
“*I am saving a little bit on my monthly utility bill.*”
“The windows are great. The project worked out well.”
“There was substantial savings and we noticed it the first year.”

- Even when perceived high costs were noted (for the project, the financing or both), when the projects provided the benefits listed above and work was done with quality, homeowners acknowledged they were satisfied.

“I had a problem and they came out and fixed it.”

*Negative experiences:*

- Contractor shortcomings included shoddy work, not restoring work site to original condition, underestimating time to complete, non-responsive to follow-ups on incomplete work, sub-par quality and the perception of having been overcharged.

  “Everything was fine, but in the end, they still haven’t connected the (solar) panels.”
  “If you are going to overcharge at least make it look the way it should look. The windows are off-track…it’s nothing like the way it was supposed to be.
  “They painted three quarters of the garage but didn’t paint the side facing the next-door neighbor.”
  “They made a huge mess in the attic above the garage to open up the roof and then didn’t use that opening in the end anyway.”
  “They had to keep coming back to fix mistakes. That was a little bit frustrating.”

- Failure to deliver promised benefits, including minimal or no energy savings, frustration with poor-quality work, and lack of recourse when contractors were unresponsive to requests to return to job site to fix problems.

  “(Solar) really isn’t working to our benefit like we thought.”
  “I am trying to get them to come back and do some repairs, they promise and promise and don’t come back. They don’t stand on their word.”
  “I was informed about rebates but have not gotten any additional information.”

- Surprises relating to how repayment actually works versus expectations the homeowner developed during sales process—e.g. promised rebates not fulfilled; promise of energy savings; tax benefits; and delayed repayment. Additional surprises included having to put additional money into escrow/impound; unanticipated large increases in payment along with real estate taxes owed; and needing to repay the assessment in full in order to refinance.
“They said it (rebate) but it never happened.”

“...they would be first in line if I wanted to do anything with the house, so if we wanted to refinance we can’t do that...the refi company tried to deal with them, and they gave them the runaround. The refi company was willing to pay it off and they were making it difficult for the finance company to convert the loan.”

“I wasn’t aware there would be a lump-sum payment at all.”

“I wasn’t aware that interest would be charged. It was explained that the cost of the improvement could be added onto our property tax, but no mention was made of the interest on the balance. I was upset when I found out.”

“I never even considered the interest rates when they told me (I was approved)...I know it’s my fault, but I never knew what the interest rate was on my loan. It was presented as being put on property taxes, having a write-off, having 15 years to pay. It wasn’t presented as ‘you are going to have to pay 11 percent interest and $1,200/month.’ I paid my taxes for the year, and then paid the taxes in arrears to increase escrow, and I paid $600/month—and do you realize I still owe (the entire) $58,000?”

- Two homeowners shared that they are presently at risk of foreclosure as a result of the PACE financing.

- “I cannot afford it because they did not tell me about the payments...how can I get help with paying off the loan?”

Additional observations

- We identified a few cases where PACE financing is being used to make improvements unrelated to energy savings. Contractors may be up-selling additional work to homeowners approved for financing, or homeowners simply would like to make additional repairs and see the PACE program as a financing source. We are unable to tell if these non-energy-related improvements fall within the guidelines of the program. For example, one homeowner reported they financed their “kitchen and bathroom.” Upgrades to lighting, ventilation and ductwork, and installing high-efficiency faucets, showers and toilets would likely be covered, while countertops and kitchen appliances would not.

- There are homeowners with more than one assessment—either two PACE assessments, or a bank loan and a PACE assessment.

- We encountered one respondent (answers excluded from this report) who used PACE financing to renovate and flip a house he had purchased as an investment while it was in default.
Section IV: Protections and Resources for LMI PACE Families

Consumer protections

Significant efforts have been made to provide sufficient consumer protections for PACE households. The U.S. Department of Energy released “Best Practices Guidelines for Residential Pace Financing Program” in November 2016, which includes recommendations for consumer protections. In January 2017, California Assembly Bill (AB) 2693, the “PACE Preservation and Consumer Protection Act,” went into effect. The law expanded existing disclosure requirements for PACE contractors and included a right-to-cancel provision for the homeowner.

Additionally, PACENation, a membership organization of PACE providers and others in the field, has issued model consumer protection language. For a full discussion of these efforts and others related to PACE consumer protections, see EPC’s report: R-PACE: A Primer for State and Local Energy Officials (http://www.energyprograms.org/programs/pace/).

Negotiations between stakeholders including clean-energy and environmental groups, consumer advocates, financial-industry representatives, PACE providers, and state officials and legislators, led to the passage of two additional laws (AB 1284 and SB 242) that create a comprehensive consumer-protection and regulatory framework for PACE financing. These bills were signed into law on October 4, 2017.

AB 1284

Requirements for PACE companies

- Beginning in April 2018, PACE companies are required to establish a “reasonable good faith determination” of the homeowner’s ability to pay for the assessment prior to funding the project. The ability-to-pay requirement includes the following.
  - Confirmation of the homeowner’s monthly income and housing expenses using “reasonably reliable” third-party records of income and assets. Such records include pay stubs, tax returns, financial institution statements, and government records showing income from benefits or entitlements.
  - An assessment of debt to include secured and unsecured debt, child support, alimony and monthly housing expenses such as mortgage payments, insurance, property taxes and other fees and assessments on the property.
  - Income and debt calculations that include the mortgagor and may include any other individuals on the title.
  - A review of assets (not required if the verified income is sufficient to pay the assessment).
  - The homeowner’s income must be sufficient to cover the PACE payment, mortgage payments, all debt identified during the process and basic household living expenses such as food and goods, transportation costs and utilities.
  - Income verification can be waived in the following cases: if there is an emergency or immediate necessity; if the total assessment is no more than $15,000; and if the
monthly obligation is no more than $125, among other requirements.

- Establishes California’s Department of Business Oversight (DBO) as the regulator for PACE with oversight and enforcement authority for all PACE law.

- Beginning January 2019, all program administrators must obtain a finance lender or broker license as appropriate, comply with related requirements, and be subject to the same disciplinary actions if necessary.

- Requires PACE providers to verify any recorded PACE assessment on the property, and to ask the property owner in their application there are any other existing PACE assessments on the property, recorded or unrecorded.

- Program administrators must pay for the development of a real-time registry for tracking PACE assessments to be used by all administrators.

- Program administrators must develop processes for signing up PACE contractors, evaluating their performance and removing those who do not meet qualifications. The process must include a background check of each contractor and verification that the contractor has the proper licenses. In addition, the administrator must determine that the contractor:
  - Does not have a pattern of complaints regarding dishonesty, misrepresentations or omissions.
  - Does not have a high likelihood of breaking the law when advertising PACE.
  - Does not have a pattern of failing to respond to customer complaints.

  The monitoring process must include:
  - A procedure to test compliance of contractors with applicable requirements.
  - A procedure to monitor the registration/licensing of contractors.
  - A bi-annual review of contractor solicitation activities.

- Program administrators must establish a training program for contractors, including introductory training that addresses, among other topics, PACE disclosures, ethics, fraud prevention, consumer protection, nondiscrimination and senior financial abuse.

- Holds program administrators accountable for violations of PACE law committed by contractors; this provides a powerful and important incentive for program administrators to oversee, monitor, and take self-enforcement action against contractors that abuse the trust of homeowners.

**Expanded rights/protections for homeowners**

- Prevents homeowners from entering into PACE contracts unless they are in good standing with their current tax bill and any other assessments on the property, and that they have not entered bankruptcy within the past seven years.

**SB 242**

**Requirements for contractors**

- Contractors must offer the same price for a project regardless of whether or not the homeowner uses PACE to finance it.
• Contractors may not advertise or sell PACE unless they have the following: all of the appropriate licenses and permits, including from the Contractors’ State Licensing Board; and a signed, written agreement with the program administrator agreeing to abide by applicable marketing and advertising laws.

• Contractors or anyone selling PACE may not suggest that the assessment may be tax deductible unless it is consistent with local, state, and federal law.

Requirements for PACE companies

• Program administrators (PACE companies) must call prospective PACE homeowners before they have committed to the assessment to confirm that the homeowner has copies of all contract documents, and to confirm the terms and conditions of the contract. The confirmation call must be offered in the language of the homeowner’s choice. In addition to confirmation of the general terms and requirements, the call must include:
  o Notification that the homeowner may have to pay off the PACE lien before they can refinance or sell the home.
  o Confirmation from the homeowner that they have not taken out other liens or assessments, including other PACE assessments, on the property.
  o Notification that energy savings on the installed measures are not guaranteed; the homeowner is responsible for the full PACE assessment regardless of the energy savings achieved.
  o Notification of a 10-percent penalty if the homeowner becomes delinquent in the first year, as well as increased penalties if the bill continues to be delinquent.
  o Notification that delinquency in payments makes the property subject to foreclosure.

• The program administrator must provide the contract documents in the same language in which the call was completed.

• The program administrator may not defer the first payment on the assessment, and must require that initial payment “due no later than the fiscal year following the fiscal year in which the installation of the efficiency improvement is completed.”

• Program administrators may not offer incentives or bonuses to contractors for selling PACE to homeowners, or to the homeowners themselves as incentive to enroll in PACE. Promotional rates or reduced fees are exempted as long as they are included in the PACE contract and not presented as a cash incentive.

• Program administrators may not provide contractors who are soliciting PACE with information about the amount of equity in a home or the amount of financing the homeowner may be eligible for.

2 AB 1284 requires the PACE provider to ask the property owner at the outset of call if that property owner would prefer to communicate during the confirm terms call in a language other than English that is specified in the California Civil Code (currently, Spanish, Chinese, Tagalog, Vietnamese, and Korean). PACE providers are not required to support all five languages in the civil code, but if the homeowner prefers to communicate in a language that is not supported by the PACE provider, the transaction cannot proceed. If the language is supported by the PACE provider then the confirm terms call shall be given by the PACE provider in that language, except where the property owner chooses to communicate through his or her own interpreter. In that case, as is also consistent with the California Civil Code. SB 242 places requirements on the qualifications for the interpreter.
Program requirements include additional annual reporting on PACE activity in the previous year, including information on defaults, energy and water savings, renewable energy produced, greenhouse gas emissions reductions and jobs created.

Expanded rights/protections for homeowners

- Current law gives the homeowner three days after the PACE contract is signed to cancel the agreement. SB242 prevents the contractor from starting work on the home until this three-day period has passed. SB 242 establishes an expanded right to cancel their separate home improvement contract if they cancel their PACE financing within the three-day period – protecting them from being obligated to pay for a project without a viable means of financing. However, the bill also allows the homeowner to waive his/her right to cancel the agreement and proceed immediately with the work in the case of emergency or immediately necessary repairs.

Grant assistance

There are energy-efficiency and weatherization programs available at both and state levels in California. Perhaps the two best known are the U.S. Department of Energy’s Weatherization Assistance Program (WAP) and the U.S. Department of Health and Human Services’ Low Income Home Energy Assistance Program (LIHEAP). At the state level, the Low-Income Weatherization Program (LIWP), funded through proceeds from cap-and-trade auctions, and the Energy Savings Assistance (ESA) program, funded through a fee on residents’ utility bills, also offer weatherization and energy-efficiency investment grants. Figure 21 (below) provides a side-by-side comparison of the four programs.

Figure 21: Side-by-Side Comparison of LMI Energy Efficiency and Weatherization Grant Programs Available in California (FY16 Data unless noted)

<table>
<thead>
<tr>
<th>Program</th>
<th>Funding Source</th>
<th>Annual Budget</th>
<th>Annual HH Served</th>
<th>Income Eligibility Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIHEAP*</td>
<td>Federal (HHS)</td>
<td>$26.5 million</td>
<td>15,331</td>
<td>60% SMI</td>
</tr>
<tr>
<td>WAP*</td>
<td>Federal (DOE)</td>
<td>$5.9 million</td>
<td>1,866</td>
<td>200% of Federal Poverty Level (FPL)</td>
</tr>
<tr>
<td>LIWP#</td>
<td>California Climate Investments Program</td>
<td>$75 million (FY 14/15)</td>
<td>17,700</td>
<td>60% SMI or 80% AMI, whichever is greater</td>
</tr>
<tr>
<td>ESA^</td>
<td>Ratepayer Funds</td>
<td>$370 million</td>
<td>300,000</td>
<td>60% SMI</td>
</tr>
</tbody>
</table>

* Source: California LIHEAP State Plan and Household Report for FFY 2016
* Source: National Association of State Community Providers, Weatherization Assistance Program PY 2015 Funding Survey
# Source: LWIP Fact Sheet, March 2016
^ Source: CA PUC ESA Application (Decision 16-11-022, November 10, 2016)
All four of the programs provide grants to low-income families, and cover core measures including insulation, lighting and other low-cost/high-savings measures. Also, ESA and WAP can both pay to replace furnaces and some appliances. LIWP can combine its weatherization services with solar. The four programs outlined above have a combined annual budget of over $475 million and serve more than 340,000 families/year; although they all serve low-income families, there are some differences in the way each program operates. For example, LIHEAP, WAP and LIWP are available statewide, while ESA does not include households served by municipal energy providers. LIWP and WAP include installation of solar panels. ESA will only repair or replace existing appliances—it does not cover new installations.

In addition, the Single-Family Affordable Solar Homes (SASH) program has been providing low- or no-cost solar to low-income families since 2006, with Grid Alternatives as its program manager. The program is authorized through 2021 with a total budget of $162.34 million, of which 85 percent goes towards solar incentives. Since its inception, SASH has installed 7,104 units. It is only available to customers of PG&E, SCE, or SDG&E with incomes under 80 percent AMI. Under guidelines approved for 2016 and beyond, SASH solar installations may be owned by the homeowner or by a third party.

Considering the services these programs provide free of charge to low-income homeowners, there is no reason for a low-income family in California to turn to PACE as a first option when considering energy-efficiency upgrades. Only if they choose to install measures not covered by any of the four grant programs should low-income homeowners find themselves taking out a PACE assessment. While the programs are not a replacement for the comprehensive approach made available by PACE, for they may be adequate to meet the basic needs of the poorest homeowners. The state should consider the types of improvements made by low-income homeowners outside their grant programs to determine whether grant assistance should be expanded to include a broader range of measures to meet the needs of those families.

During the course of this study, we interviewed state and local officials involved in these grant programs. Their impressions of PACE were consistent: it was designed for middle and upper middle-income households and there was not much risk of overlap between PACE and grant programs. As such, state officials did not anticipate that low-income families might take out loans through PACE to cover measures that could be funded by grants.
Appendix A
PACE Consumer Survey Discussion Guide

The following questions were used to guide the discussion with each homeowner. Instructions for the interviewer are in italics.

**Section 1: Introduction**

Hi, I am <NAME> and I am calling from Energy Programs Consortium, a not-for-profit that researches energy conservation issues throughout the US. I am not calling to sell you anything or to ask for money. We’re conducting a survey of homeowners like you who financed a home improvement with <NAME OF PACE PROGRAM>. The survey will take about 15 minutes of your time to complete. All of your answers will be strictly confidential. This call will be recorded for quality-control purposes. In addition, as a thank you upon completion of this survey we will send you a $10 gift card from Visa.

*PACE Company Names: Ygrene Works, HERO program, California First*

**Q1:** Would you please confirm the address of your home? According to our records, it’s (ADDRESS OF HOMEOWNER).
   *If not a match, thank and terminate.*

**Q2:** What is your name?
   **2a:** *(If not a match)* Are you the homeowner or someone involved in making improvements to the home? If no, who is?
   *If person provides the name of the right member of the household, you can inquire as to whether they can be reached at a later time, confirm name, telephone #, indicate you will call back, and end call. If not a match, terminate.*

**Q3:** Were you personally involved in the decision to use this form of borrowing or assessment? And did you take out multiple assessments?
   *Must have been involved in the decision to take out the loan, or terminate.*

**Section II: Pre-Project Experience**

This survey is about making home improvements, especially those that can result in energy savings.

*Note for what to listen for in this section: Understanding overall attitude towards homeownership can be useful context to put home-improvement attitude in perspective.*

**Q4:** What improvements did you make?
   *Listen for what triggered the homeowner to get this work done—emergency, recommendation, friend, etc.*

**Q5:** What steps did you take to figure out what work was necessary and who should do the work for you?
Listen/probe for elements such as selection of contractor, extent of improvement, getting bids, checking references, selecting hardware/materials.

Q6: Were there any improvements that you hadn’t planned to make that were added to the project once you started looking into it?

Q7: Are you familiar with the (fill in correct local name for PACE) program?

Q8: How did you first learn about (fill in correct local name for PACE) program?

Q9: Did you investigate or hear about grants, rebates or assistance program from the government or your utility company to help pay for this home improvement?

Note which ones if mentioned
9a: How did you learn about these?
Listen for whether or not contractor provided info.
9b: Did you take advantage of any of these? If you recall the approximate amounts of rebates, grants or other assistance, can you share those amounts?

Q10: In addition to (Program), were there any other sources you tapped into to pay for this improvement?
Listen for sources such as: cash, savings. (e.g. other sources of funds, other financing tools).

Q11: Did you consider other ways to pay for the improvements? Why did you ultimately choose the (fill in name of local PACE) program to finance your project?

Q12: If you were to describe (Program) to a friend or neighbor, what would you tell them about the program?

Listen for: property tax bill, that it stays attached to the property if it is sold, if they think it’s a government program.

Q13: How would you describe the experience of doing the project and then managing the payments to a friend or neighbor?

Q14: What was the amount of your (fill in local PACE name) loan?

Q15: Do you recall the interest rate of the loan? Any fees or other charges?

Q16: When you were deciding how to pay for the improvements, do you recall receiving any pamphlets, brochures or other written materials from your contractor about the (Program)?
16a: (If yes) What materials did you receive? At what point? Were they helpful?

Q17: Was the possibility of energy savings as a result of this home improvement discussed?
Listen for: they were told the energy improvements would pay for the loan.

Q18: Were you directed to a website about the program? Did you visit the site?
18a: (If yes) Ask whether that was helpful.
Section III: Post-Project Experience

The goal of this section is to understand the homeowner’s experience feelings since making the home improvement, versus what they were told, what they believed or perceived going in. Also to get a sense of how they feel about PACE and the impact it has had on their experience of homeownership, how it has affected them financially, if they now have an accurate understanding of repayment.

Q19: Was/were (Improvements from Q4) completed according to your expectations—for example, taking into account time, quality, any unexpected costs, follow up maintenance, or any issues that may have arisen after completion of the work?

Q20: Using a 1 to 4 scale where 4 = extremely satisfied, 3 = satisfied, 2 = dissatisfied and 1 = extremely dissatisfied, please rate your satisfaction with your home improvement.

20a: Can you give me the major reason for this satisfaction rating?

Q21: How satisfied are you with (Program)? Please choose an answer on a scale of 1 to 4, where 4 = extremely satisfied, 3 = satisfied, 2 = not satisfied and 1 = extremely dissatisfied.

21a: Can you give me the major reason for this satisfaction rating?

Q22: Would you recommend the (fill in local name of PACE) program to other homeowners?

22a: Why or why not?

Q23: Were there any surprises as you look back on your (home-improvement project) and/or (name of PACE loan)?

If they say they’re not getting calls back, let’s be clear about who they’re calling.

Q24: Have you noticed any change in your monthly utility bill as a result of the (name of improvement)?

Probe for approximate savings.

Q25: What recommendations or suggestions do you have to improve any aspect of your home improvement experience?

Listen for: Are there things s/he wishes s/he had understood better up front, anything specific relative to scope/scale of project, materials selections, contractor, PACE program and how it works.

Follow-up/clarification: “If you had to do this over again, or if you had the opportunity to meet with the contractors, are there 1 or 2 recommendations you would make?” I understand you would do A, B, C, differently—could you be more specific about that.

If homeowner has a particular issue that they want addressed by someone, give them the customer service number of the PACE program in which they participated.
Part IV: Profile

A few final questions for statistical purposes:

Q26: When did you purchase your home?

Q27: How much did you pay for your home?

Q28: How many people are in your household?

Q29: Which of the following income ranges did your household fall under last year? 0-40,000; 40-70,000; 70-110,000; 110-150,000; 150,000+.

Q30: We may be doing some follow up research. You’ve been very helpful, would you be willing to possibly share some of your answers on video?

Thank you, reminder about incentive and when they should receive it, CAPTURE EMAIL ADDRESS TO SEND THE GIFT CARD, reminder of confidentiality, sign off.