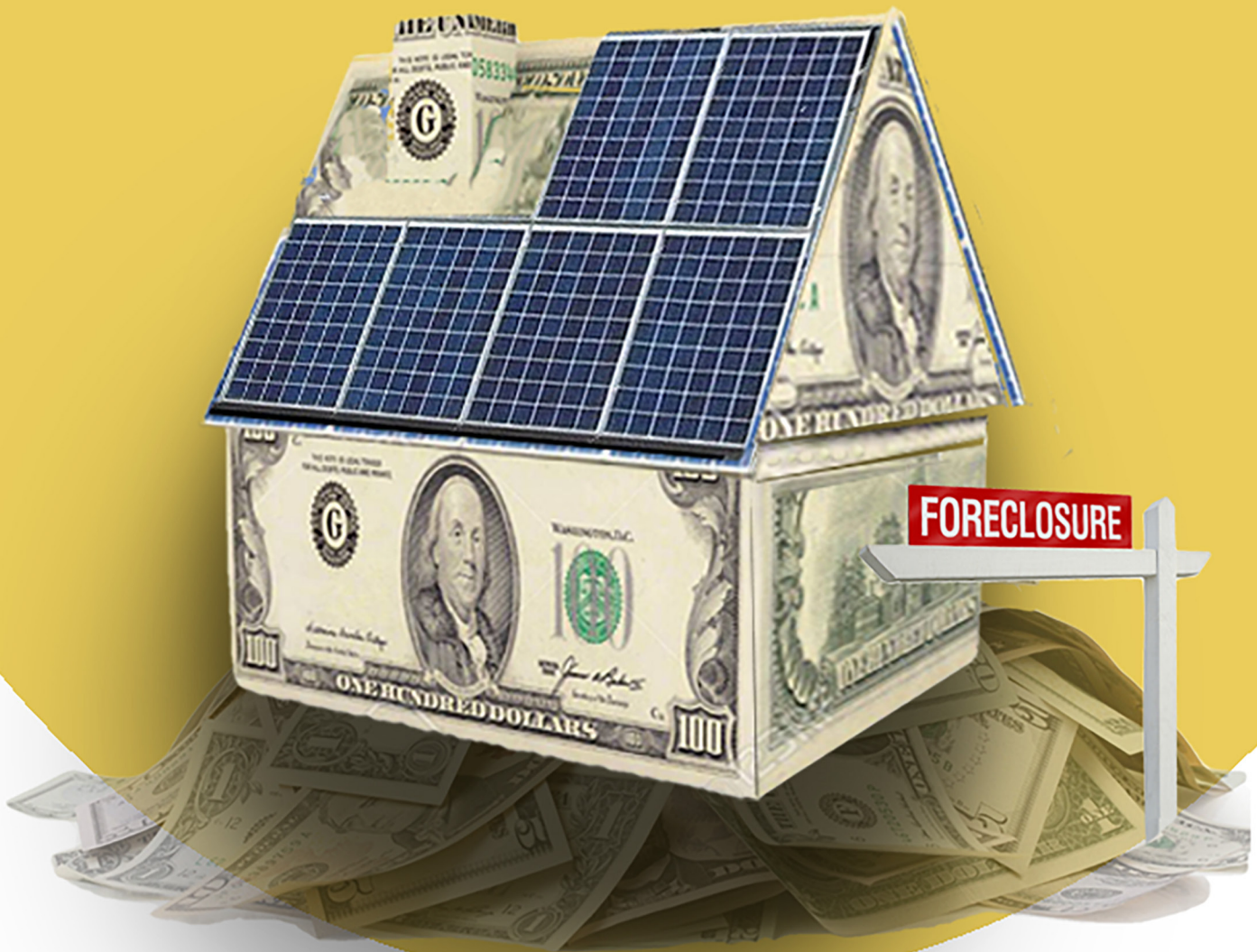


The Dark Side of the Sun

How PACE Financing Has Under-Delivered Green Benefits and Harmed Low-Income Homeowners



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EXECUTIVE SUMMARY

Property Assessed Clean Energy (PACE) is a creatively conceived program to finance solar energy and energy efficiency that has gone wrong in implementation in the residential sector. Hundreds of low-income California homeowners now face steep property tax debt and potential home foreclosure as a result of liens placed on their homes through PACE programs. These homeowners often accepted PACE liens on the false promise of cost-effective energy upgrades. Residential PACE is failing because it lacks environmental performance checks and adequate consumer protections. These intertwined deficiencies raise environmental justice concerns that must be addressed to achieve state climate goals without harming the most economically vulnerable.

This report identifies two serious flaws in PACE residential program design that reduce the program's environmental benefit; create economic risk for low-income participants; and facilitate outright contractor fraud.

The first program design flaw is the lack of any requirement for either a pre-project energy audit or a post-project construction inspection in PACE-financed transactions. Without these unbiased evaluations, homeowners have no assurance that contractors are suggesting the most energy-efficient or cost-effective (as opposed to merely the most profitable) energy upgrades, and that improvements are properly installed and operating.

The second program design flaw is the use of a debt-based and home-secured financing mechanism to serve a population for whom any debt can be catastrophic, and for whom home debt may precipitate home loss. Simply put: even if the PACE residential program was reformed to enhance its environmental performance and cost-effectiveness, PACE financing would remain inappropriate for low-income Californians. As other solar and energy efficiency programs for low-income residents demonstrate by example, low-income homeowners should instead be offered reduced-price or no-cost energy improvements.

The UC Berkeley Environmental Law Clinic prepared this report in close consultation with nonprofit legal services providers that serve California's residential PACE program victims. These victims are low-income homeowners—most of whom are also BIPOC, monolingual Spanish-speaking, elderly, and/or disabled—whose PACE tax assessments have induced financial precarity. Importantly, unlike the PACE infirmities that the Legislature has partially mitigated through past program reforms, the flaws identified in this report have not to date been addressed by corrective legislation. To ensure environmental benefit and consumer protection for participants in residential PACE, we recommend that all residential PACE transactions require a pre-contract home energy audit and a post-construction inspection before payment flows to PACE contractors. We further recommend that the Legislature prohibit door-to-door solicitation of low-income homeowners for PACE, and indeed, that it prohibit PACE solicitation of this population altogether. California should instead financially support non-debt-financed solar and efficiency programs to advance energy justice for the state's low-income homeowners.

Together, these reforms would further the environmental aims of PACE, without treating the economic security of vulnerable Californians as acceptable collateral damage in the urgent project of mitigating human-induced climate change.

INTRODUCTION

Residential PACE is a financing mechanism that allows homeowners to obtain energy-related improvements, such as rooftop solar panels or attic insulation, with no money down and no conventional bank loan.¹ Instead, these capital costs are financed via bonds. Costs and interest are repaid to bondholders over time through a special assessment on the property owner's tax bill.² The homeowner's debt is secured via a super-priority lien against the property. As a property tax assessment, PACE liens have a legally ambiguous status vis-à-vis lending regulations that apply to other property-secured debt. Homeowners who finance improvements through PACE thus lack the consumer protections that attend conventional home improvement loans or mortgages.³

PACE was conceived and piloted in the City of Berkeley, which in 2007 created a program to allow residential and commercial property owners to make energy efficiency improvements and finance them through increases in property taxes.⁴ The program had the laudable, focused aim of accelerating deployment of solar energy and energy efficiency upgrades to achieve climate and other environmental goals.⁵ Although several charter cities soon followed Berkeley's lead, PACE programs required state authorization to reach scale.⁶

Implicit in PACE program design was the critical assumption that a homeowner's energy bill savings from PACE-financed improvements would cancel out or meaningfully offset the cost of the property assessment, such that program participants would not be financially harmed by energy upgrades. Further, because energy upgrades would be affixed to real property, the PACE assessment would add value to the property and run with the land. At least in theory, that would mean that an owner could sell their home before paying off the assessment, passing on the physical assets (such as rooftop solar panels) and the remaining financial obligation to the next buyer. These features were critical for all homeowners, but especially for low-income homeowners,⁷ whose primary source of wealth is home equity.

On its face, PACE financing of home energy improvements was not merely novel, but elegant. It was envisioned as a win-win for the environment and homeowners, capable of greatly increasing market penetration of energy efficiency and clean energy. And it appeared to do so affordably, allowing homeowners of modest means to go green.

This vision has not been realized.

Instead, as residential PACE has expanded within California and to Florida and Missouri,⁸ and financing has been extended to more than 280,000 homes,⁹ serious environmental and social equity problems have emerged in early-adopter California that warrant program reappraisal. Specifically, the state's near-exclusive reliance on for-profit PACE program administrators and their agents to market and sell PACE-financed improvements has proven highly conducive to predatory practices, fraud, and incomplete or shoddy work.¹⁰ As case synopses in this report will illustrate, self-interested home-improvement sales people and contractors have sold homeowners energy upgrades such as costly high-efficiency windows that are inappropriate for their home, or a rooftop solar system that has not been properly installed or connected to the electric grid.

Additionally, the concept of property-assessment-backed financing has undergone substantial mission drift in California. A program once conceptualized as climate-relevant and indeed climate-urgent has thus now expanded and distended to encompass many climate-irrelevant home improvements, such as hardening structures against wildfire.¹¹ While these investments provide a social benefit, they do not create operational cost savings to offset or reduce capital costs that must be repaid—typically, with above-market interest. Low-income homeowners, in particular, may therefore experience net increases in household expenses (*i.e.*, property tax assessments plus utility bills) that are financially unsupportable.

Still more problematic, home contractors who serve as “PACE solicitor agents”¹² in the high-pressure context of door-to-door sales are the primary point of homeowner engagement. These agents frequently solicit low-income, fixed-income, and elderly Californians, and do a high volume of business in communities of color. Such homeowners may have substantial home equity to tap for financing, and may have difficulty accessing other sources of credit because of low income or existing debt. By extending PACE financing to those who would not qualify for conventional credit, or extending credit on unfairly expensive terms, PACE agents can induce financial hardship and put homeowners at risk of foreclosure. Such credit over-extension, which scholars describe as “predatory inclusion,” is characterized by “a process wherein lenders and financial actors offer needed services . . . but on exploitative terms that limit or eliminate their long-term benefits.”¹³

Financial predation amplifies wealth inequality, and increases the racial wealth gap.¹⁴ Concerns about predatory PACE loans rise to community scale in locales abounding in abusive PACE practices, such as Los Angeles County, which recently terminated its residential PACE program because of consumer protection concerns.¹⁵ The Western Riverside Council of Governments likewise recently voted to suspend residential PACE after a hearing that included testimonials about the program’s financial abuse of low-income homeowners.¹⁶

Some academic articles and reports have documented the role of PACE in advancing its initial, singular aim of increasing installation of residential solar energy systems.¹⁷ Alternatively, commentators have identified PACE as one among several financing mechanisms that have helped to expand the use of rooftop solar power.¹⁸ We do not dispute these facts, or the importance of scaling up residential clean energy. Rather, we here present the coexisting and necessary narrative of the unsunny side of residential PACE: the program’s failure to require pre-project energy audits and post-project inspections to ensure that PACE home improvements are environmentally beneficial and cost-effective, and the program’s use of a financing mechanism that jeopardizes the economic well-being of low-income Californians. In casting this shade, we hope to help better align advocates for environmental protection and advocates for low-income consumers, to advance energy policies that are both green and just.

I. PACE'S FAILURE TO MANDATE ENERGY AUDITS AND INSPECTIONS REDUCES ENVIRONMENTAL PERFORMANCE, RAISES COSTS, AND INVITES FRAUD

The first critical flaw in the residential PACE program is its lack of controls to ensure that PACE financing is used for high-environmental-leverage home interventions, *i.e.*, those conferring considerable energy savings and cost-effectiveness. Although PACE programs have claimed substantial environmental benefits in the aggregate, these benefits are not data-verified at the individual household level and, importantly, do not accrue to all participating households. Indeed, there is currently no requirement in residential PACE programs that homeowners obtain an objective assessment of their home's energy options before expensive energy upgrades are installed, or an inspection after installation to confirm that promised savings will be realized. Two essential policy interventions are to mandate pre-installation energy audits and post-installation inspections in the PACE program, consistent with the operation of other environmental programs that promote clean energy and energy conservation.

We here describe the essentiality and nature of energy audits and inspections, and their inclusion in other programs that advance the same environmental goals as the PACE program. We then demonstrate the serious and regressive consequences of the omission of audits and inspections from residential PACE, using testimony and case studies from legal services providers and their low-income clients.

A. Energy audits and inspections are crucial to ensure energy savings

Pre-construction energy audits by a financially disinterested party are critical to determine which improvements are appropriate for each home, ensuring that homeowners are investing in meaningful upgrades. After the selected energy improvements are installed by a contractor, a post-installation inspection by a disinterested party is equally essential, to confirm that improvements were installed correctly and are fully operational.

In residential PACE programs, however, there is presently no requirement for a third party to perform either of these checks. Thus, although PACE contracts are often marketed to homeowners as "free" or low-cost, there is no assurance that homeowners are purchasing improvements that will not burden them financially, or that are beneficial to the degree that PACE program agents advertise. Addressing this concern is fundamental to maintaining program legitimacy and preventing harm to low-income homeowners, who typically rely on energy bill savings to offset the cost of home improvements.

1. The nature and importance of home energy audits

An energy audit is a home evaluation used to identify and prioritize the most impactful or cost-efficient energy-saving improvements.¹⁹ This audit is a crucial first step in any responsible home energy improvement plan.²⁰ Although homeowners can perform a basic, high-level inventory of their energy use and upgrade potential using a do-it-yourself guide²¹ or a web-based tool provided by their utility,²² the type of audit necessary to impart financial and environmental integrity to residential PACE must be done on site by a trained professional. The auditor must also be financially independent of the PACE contractor.

A standard energy audit takes several hours, during which a licensed professional uses specialized equipment to gain a detailed understanding of home energy use and customized opportunities for improvement.²³ Energy auditors can also consult past energy bills to anticipate how energy saving measures are likely to impact the home. In the context of a PACE project, a legal requirement for a pre-contract audit to be performed by a certified professional who has no financial stake in the project would help ensure that homeowners are spending their money on improvements that will actually reap energy benefits and will be financially supportable. By identifying features that increase energy consumption, such as old appliances, furnaces, and leaky windows, an auditor can recommend the best ways to save energy and, conversely, can determine which replacements are unlikely to yield significant savings. They can then recommend a suite of energy improvements that prioritize cost-efficiency, such as weatherization measures, which should be implemented before larger, more costly installations or renewable energy generation.

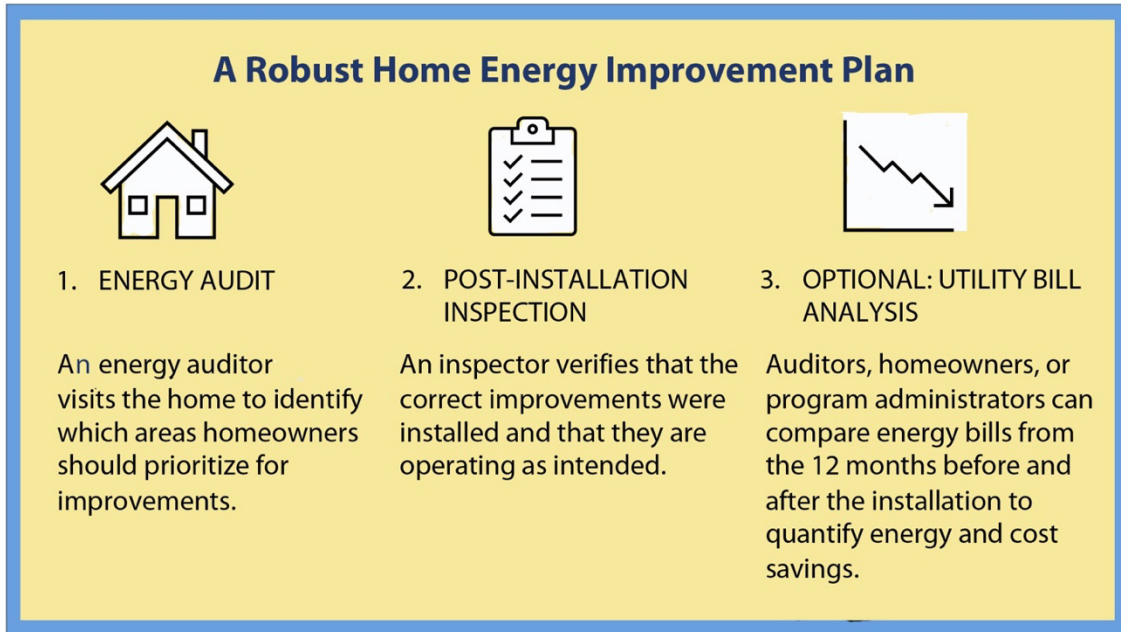
A qualified, independent home energy auditor would also provide homeowners with an unbiased ally whose priority is producing accurate energy profiles of homes, not selling specific products.²⁴ In the context of PACE, auditors are far more likely than PACE solicitor agents to recommend low-cost but high-value improvements, such as sealing air leaks before replacing windows, because they are not financially incentivized to upsell. They are also knowledgeable professionals, often working as home inspectors or other residential energy professionals, and are qualified to vet information that door-to-door PACE contractors may have provided to potential clients. They can thus debunk any inflated claims of energy savings used to sell unnecessary services.

Both consumer advocates and energy regulators agree on the importance of energy audits in residential PACE. The National Consumer Law Center (NCLC) recommends that, except in the case of emergency repairs, free or low-cost “independent energy efficiency reviews should be done three business days prior to contract signing,” and should be “performed by a properly accredited Energy Professional or Building Analyst.”²⁵ The Department of Energy (DOE), in its comprehensive report, *Best Practice Guidelines for Residential PACE Financing Programs*, likewise emphasizes the desirability of energy audits in PACE projects.²⁶ The DOE report also specifies that only a qualified energy assessor or rater should perform these audits.²⁷

Parties who are not financially interested in PACE transactions agree: energy audits provide homeowners essential evidence of the legitimacy of any offered energy improvement plan, and assurance that the improvements they are being sold are appropriate for their home.

2. The nature and importance of post-installation inspections

An energy audit should be paired with a post-installation inspection. A post-installation inspection consists of a third party’s visual inspection and safety testing to ensure that contractors have installed the correct improvements, and that they are performing as intended.²⁸ A qualified inspector understands how to look for defects, and may find critical issues that an untrained homeowner would miss. An inspection thus provides essential assurance that a PACE-financed job is complete and adequate.²⁹



Because energy audits and post-installation inspections ensure that the right projects are being pursued from an energy and cost perspective, they are routine in many non-PACE programs for residential energy efficiency and rooftop solar energy, as described below.

B. Energy audits and inspections are an industry standard

In marked contrast to residential PACE, whose rules have largely been crafted by for-profit PACE administrators, government-run energy efficiency programs typically require an energy audit (or at minimum, a building walk-through) before contracting, and a post-installation inspection.³⁰ These features protect homeowners from installing over-priced, cost-inefficient, or unnecessary improvements, and ensure environmental benefits from the installations.

Importantly—and tellingly—audits and inspections are also integral to *commercial* PACE. This may reflect PACE administrators' expectation that commercial customers are reasonably sophisticated market actors who will comparison shop for financing, scrutinize proposed improvements and their performance, or both. In *residential* PACE transactions, by contrast, there are generally no audits or third-party inspections. Contractors and PACE Administrators can thus generally only be held accountable through civil litigation, after the harm has occurred.³¹

Audits and inspections feature in many non-PACE programs for energy efficiency and rooftop solar in California, and also, in the commercial PACE program. These programs are discussed below.

1. The SASH solar homes and ESAP energy savings programs require audits and inspections

California's Single Family Affordable Solar Homes (SASH) program and Energy Savings Assistance Program (ESAP) require pre-construction audits and post-construction inspections to ensure that homeowners realize energy benefits from their investments. SASH, authorized by the CPUC and administered by nonprofit GRID Alternatives, provides rebates to low-income homeowners for the upfront cost of rooftop solar installations. Before a contract can be signed, SASH requires income-eligible applicants to enroll in ESAP, which provides free home efficiency upgrades to low-income households.³² ESAP requires a home assessment by an energy specialist to identify the most appropriate energy-saving improvements.³³

Customers will not receive SASH incentives to install solar energy until it is confirmed that they have installed more cost-effective energy-related measures (such as caulking, weather-stripping, and attic insulation) through ESAP, or have received energy efficiency training.³⁴ This requirement ensures that customers are fully informed about their energy use, and can take the most financially advantageous path to reducing their energy footprint prior to installing an expensive rooftop solar-power system.

Once customers complete a SASH application and fulfill other program requirements, GRID Alternatives schedules a construction site visit to determine the home's viability for solar, and to estimate system performance and savings.³⁵ This pre-installation evaluation determines the size of a homeowner's rebate. After a solar installation, a third party conducts an on-site inspection to verify that the installed system meets CPUC standards.³⁶ Critically, SASH—unlike residential PACE—has increased low-income households' access to solar energy without putting them at financial risk and without creating inducements for contractor fraud.

2. Placer County's "mPower" program recommends audits and requires inspections

The PACE program for Placer County ("mPower") has to date required an energy audit as part of the initial application for commercial customers; has highly recommended an audit for residential customers; and, consistent with Department of Energy recommendations, allows audit costs to be included in PACE financing costs.³⁷ Additionally, all mPower applications for solar-power systems, whether residential or commercial, must include an energy analysis showing the energy savings and payback period over the life of the system.³⁸ After installation, mPower staff verifies the completion of any installations that are not required by code. Code-required installations are instead verified by local building inspectors.³⁹ These third-party inspections ensure that the installations are complete and meet industry standards.

3. CPUC custom projects require audits and inspections

"Custom projects" through the California Public Utilities Commission are site-specific commercial energy efficiency projects that do not qualify for the CPUC's standard incentive programs. These projects require a pre-installation energy audit to ensure that improvements

result in verifiable energy savings, and to estimate energy and financial benefits.⁴⁰ Incentives and savings are calculated by analyzing the specific customer's energy savings potential.⁴¹ According to the CPUC:

All custom projects, except New Construction, must be available for a pre-installation site inspection prior to the implementation of the measures to verify existing equipment and loads on the equipment and to confirm that the proposed measures are not already implemented. The inspection details must be documented in the project report or technical review.⁴²

The CPUC also requires a post-installation review to verify the estimated energy savings of the improvement.⁴³

4. The commercial PACE program requires energy audits

Even a close relative of residential PACE—the commercial PACE program—typically mandates energy audits as a precondition for financing. The Department of Energy identifies the goals of the energy audit requirement in commercial PACE as (1) making the property owner aware of all energy- and cost-saving opportunities, and the measures providing the highest return on investment, and (2) providing independent analysis to the PACE program of the measures for which the property owner seeks mortgage lender consent.⁴⁴ The audit allows both the owner and program administrator to verify that upgrades are appropriate and cost-effective.

It is paradoxical that the logic of the market has endowed *commercial* PACE programs with far more protection against environmental under-performance, financial miscalculation, and contractor fraud than exist in *residential* PACE programs, which frequently market to low-income homeowners. This mismatch may have arisen because commercial property owners have more financing options than do low-income homeowners, so PACE administrators must compete for commercial owners' trust and business.⁴⁵ Ironically, then, sophisticated business customers are more likely than economically vulnerable residential customers to have safeguards to ensure that PACE-funded improvements realize promised energy savings and are affordable.

C. The absence of audits and inspections reduces program benefits and invites fraud

The absence of legally mandated energy audits or post-project inspections in residential PACE, and for-profit PACE programs' own failure to require them, has both squandered environmental opportunity and facilitated the financial abuse of low income homeowners. Audits and inspections are not only essential to ensuring smart energy investments; they are a critical first line of defense in protecting consumers from unscrupulous home improvement contractors and salespeople in the residential PACE market.⁴⁶

1. Inaccurate energy savings estimates and uninformed investments

Without a home energy audit, homeowners cannot make informed decisions about which improvements to purchase, because they cannot identify which will benefit them, to what extent costs might be offset by energy savings, or how their energy use behavior impacts their

utility bill. They may thus spend money on items that do little to reduce their overall energy consumption, and are of limited environmental benefit. This is both a missed opportunity to realize greater environmental benefits and cost savings, and a particular devastation for low-income homeowners, who typically depend on promises of bill savings to offset the increase to their property taxes resulting from PACE financing.

Further, PACE solicitors may provide unrealistic estimates about how much money homeowners will save in energy costs.⁴⁷ Without an energy audit tailored to their home, homeowners have no way to assess future energy savings accurately.⁴⁸ Energy audits include a cost savings estimate for each improvement that is calculated for a specific home, based on features of the house and the current energy use profile of its owners. This is especially critical for low-income homeowners, who are often unable to absorb net increases in household expenses where savings have been overestimated. The case of “Larry” (see box) and his water heater demonstrates the tragic financial circumstances that can result when a low income homeowner lacks access to energy-upgrade advice from an independent, qualified auditor who puts the consumer’s needs first.

Stories from PACE Victims: Needlessly Replacing a Newly Installed Solar Water Heater⁴⁹

Larry, a 60-year old Latino homeowner, was visited by a contractor who pitched him a “government program” for “free” home improvement upgrades for seniors and low-income families. The contractor told him that he qualified for a free air conditioner and tankless water heater. The contractor falsely stated that Larry’s existing solar-powered water heater needed to be replaced, although it was only a few months old. Larry agreed to the project, thinking it was free. Instead, it resulted in a PACE assessment of over \$47,000. Further, the contractor never completed the installation, leaving Larry with a disconnected, abandoned water heater on his roof and an increase of \$4,700 per year in property taxes. Due to lack of oversight of price gouging in PACE, the water heater was financed for *three times* the amount recommended by L.A. County’s PACE Pricing Guide—an impossible sum to recoup through energy savings even if the new tankless water heater had worked properly.

If there had been an energy audit before Larry agreed to the contract, he would still have his energy- saving solar-powered water heater, with no additional tax assessment on his property. An energy auditor would not have suggested replacing a recently installed solar water heater (as this would not reap significant savings or environmental benefits), and Larry’s money could have been effectively invested elsewhere.

Larry’s case is far from unique. An attorney with Elder Law & Advocacy, which provides legal services to low-income seniors, observed about the many PACE cases he has encountered:

The facts almost always involve a contractor selling upgrades to a client that do not make sense for our senior clients. In almost every case, our clients do not understand what they are being sold and what their obligations will be. Usually our clients have been told falsehoods, such as that the solar panels will not cost anything. And in almost every case they learn of

their liability [only] when their property tax bill arrives.

Often they cannot afford to pay their tax bill because it has gone up by thousands of dollars. PACE lending has been weaponized. It has become a predatory lending instrument that is used to victimize seniors and others. Addressing the fraud [after the fact] is difficult, complicated, and expensive.⁵⁰

2. Lack of quality control on work performed

Absent a post-installation inspection, there is no confirmation that contractors have finished a job correctly, and that homeowners will realize energy savings. Residential PACE has a history of consumer complaints regarding unfinished or unacceptable work, and improvements that contractors have charged for but never installed. This can happen easily, because PACE administrators do not require post-installation inspections before paying home improvement contractors.⁵¹ The National Consumer Law Center (NCLC) has collected homeowner stories that detail a disturbing pattern of unfinished and unprofessional work, with minimal recourse for homeowners.⁵² Mandating a post-installation inspection prior to contractor payment would ensure that improvements are completed as promised and operating safely and efficiently, holding contractors accountable for their work.⁵³

Stories from PACE Victims: Nonfunctioning solar panels⁵⁴

Benny is a 62-year old Latino resident of San Bernardino County. A contractor visited Benny's home claiming to offer a County program for solar panels that included a \$12,000 tax refund incentive, no payments for the first year, and \$150 monthly payments thereafter. Benny believed this would be a good opportunity to lower his utility bill.

Well after the solar panels had been installed, Benny through investigation obtained copies of an alleged financing agreement that he had never seen, much less signed. It encumbered his property with a tax lien assessment to pay off the financing of the project, and also charged more than had been represented.

Although the contractor did install solar panels on the roof, Benny has not seen any decrease in his energy bill, because the panels were never connected properly. Instead, he now owes an additional \$2748 annually in property taxes. His electrical utility, Southern California Edison, has disavowed any partnership with the contractor. Had an energy audit been required to confirm that the solar installation was appropriate for and right-sized for Benny's home, and had a post-installation inspection been required to verify that the panels were operational prior to disbursing funds to the contractor, Benny—and the climate—could be benefiting from his investment. Instead, Benny is paying for broken promises.

3. Encouragement of contractor fraud

Without pre-contract energy audits and post-installation inspections, homeowners lack critical protection from the rampant and well documented abuses in the home improvement contracting marketplace.⁵⁵ Contractor abuse of the PACE program takes multiple forms, most of which have both environmental and equity implications.

One widespread form of PACE program abuse is the construction of Accessory Dwelling Units (ADUs), which are not legally eligible for PACE financing.⁵⁶ In the absence of post-installation inspections, however, PACE administrators cannot confirm that PACE assessments were levied only for eligible projects, and that the program therefore furthers environmental goals. Even with the consumer protections mandated by recent PACE reform legislation (Assembly Bill 2063 of 2018), contractors have continued to promise homeowners that non-PACE-eligible improvements such as ADUs can be PACE-financed. Legal services provider Public Counsel, for example, reports numerous recent cases of home contractors promising homeowners PACE financing for ADUs. Indeed, Public Counsel has assisted over 80 clients with PACE loans that were financed since the effective date of AB 2063, 57% of whom received PACE financing for work that involved the construction of ADUs, additions, or non-energy-efficient home remodels.⁵⁷

Additionally, where homeowners lack unbiased data about home energy use and options for improvements, contractors can easily manipulate them into purchasing the most expensive improvements regardless of their energy conservation value, saddling homeowners with a large bill and minimal cost savings. Residential PACE has a history of consumer complaints regarding such unethical behavior and sales tactics.⁵⁸

In some cases, PACE solicitors instead or additionally inflate energy saving projections,⁵⁹ presumably to convince homeowners to sign home improvement contracts. Without a home energy audit, there is no impartial source with which owners can verify contractor claims prior to entering an agreement. As a result, homeowners are often shocked by unexpectedly long payback periods in cases where energy savings (and therefore bill savings) were far lower than they were told to expect.⁶⁰ Solicitors may also erroneously suggest that there are major structural or equipment defects in a home in order to sell expensive and unnecessary upgrades. Were a qualified home energy auditor part of the PACE pre-contract process, there would be a strong deterrent to such contractor conduct.

On the back end of PACE-financed projects, mandating an inspection before PACE administrators could legally disburse funds to contractors would ensure that contracted-for work was actually completed, operational, and safe. The cautionary tale of PACE plaintiff Eva Petersen (*see box*) demonstrates how fraud in the inducement, combined with shoddy and incomplete contractor work, can create both hazardous conditions and economic peril for low-income program participants who lack the protection of a post-installation inspection.

Stories from PACE Victims: PACE-Financed Water Heater Emits Carbon Monoxide⁶¹

Eva Petersen is a 74-year-old widow whose only income is her late husband's Veteran Benefit and Social Security. In December 2017, a salesperson for a home improvement contractor came to Eva's home, unsolicited, offering her a tankless water heater and a water filtration system. The salesperson falsely represented that Eva was eligible for a "free government program" for seniors. Having received windows at no cost through a government program in the past, Eva agreed. She was told to sign her name on a blank screen of an electronic tablet.

Unknowingly, Eva had been enrolled in Ygrene's PACE program, resulting in a lien on her property that will cost almost \$80,000 over the next 20 years. This increased her tax obligations by 300%. Her property taxes now represent almost 20% of her annual income.

Although the improvements were installed, a few months later, the gas company came to Eva's home after she reported smelling gas. It found that the water heater had been installed too close to a window, violating code and posing a dangerous carbon monoxide hazard. After Eva filed a complaint with the Contractors State License Board, the Board sent a licensed contractor to evaluate the work done by the contractor. The inspector found that the work was incomplete and did not meet industry standards.

Further, no final inspection of workmanship was performed before Ygrene paid the contractor for work that was not only sub-standard, but hazardous. Eva now faces the risk of foreclosure, since she is tied to unaffordable debt for the next 20 years for overpriced products with negligible environmental or energy benefits.⁶² Had Ygrene required a post-installation inspection before paying the contractor, Eva could have avoided this dire outcome.

Other PACE program enrollees likewise describe how their contractors have committed multifaceted fraud in a marketplace undisciplined by audits and inspections. One low-income homeowner in Orange County—whose contractor falsely promised that an ADU could be PACE-financed, and then charged her for the unit without even building it—recalls:

Back in 2018 [...] people from A&JB General construction came to me with all these promises to build an ADU, a concrete wall and portion of the yard with concrete, within 6 months. Nothing was done on the ADU or the yard. All they did was a concrete wall.

The sales person assure[d] me I was able to borrow a city loan through [Renovate America's] Hero Lending. This loan was going to help me cover the full cost of this project. No payments until one year after project is done [...] sounded great to me. This project [was] supposed to be an investment for me, to better my household income. [It] is supposed to be my daughter's future. [...]

Thinking back [...] I was misled by the sales person. She told me I can use [a] PACE loan to convert my garage into an ADU. Also, I do not remember signing a document saying [the] project was completed. Not one person from Hero Lending came to my home to confirm [the] project was completed. This whole thing has been a nightmare for me. [...]

Before signing with Hero Lending my monthly mortgage was \$1721.04. It went up to \$2859.57, and due to the pandemic I had to apply for a six-month forbearance. The forbearance ended, and starting next month my payment went up to \$3240.77. This is insane. This is what I make a month, and that is if I work 10 hours or more a day. [...]

There is not a day since 2018 that I don't think, "If I can't keep up with the mortgage payment, I can lose my home— the only thing I have."⁶³

Such experiences are common, but could be mitigated if homeowners had objective advice on the front end of PACE transactions, and contractors could not get paid until an inspector verified that promised work was complete and professional. In recent public testimony, the Director of the Consumer Protection and Economic Justice unit at Public Counsel summarized the literally hundreds of PACE abuse cases the organization has handled:

What started as a trickle of complaints of fraud and misrepresentation related to the PACE programs in 2016 turned into a flood for us. [...] Very little of what we have seen has had anything to do with green or clean energy. Instead, we've seen our low-income clients defrauded [...] The impact on our clients' lives is devastating.⁶⁴

Discrepancies between what the PACE program and its home-contractor agents promise, and what the financing mechanism actually delivers, compromise the integrity of PACE as a financing tool, and call into question the accuracy of its reported environmental successes.⁶⁵ Legislatively mandated pre-project audits and post-installation inspection would ensure that homeowners are getting what they paid for, and that PACE funding is being used for environmentally beneficial improvements, as required to meet the public purpose of the improvement bond offerings that fund R-PACE.⁶⁶

Such a mandate would also align residential PACE requirements with those of SASH, mPower, CPUC custom projects, and commercial PACE. It would substantially deter contractor fraud. And it would provide critical information for middle- and upper-income homeowners who wish to make upgrades with PACE financing. As described below, however, PACE financing is categorically unsuited for low-income homeowners, and PACE administrators and their agents should be prohibited from enrolling them—or at the very least, prohibited from soliciting them in the high-pressure context of door-to-door sales.

II. FINANCING ENERGY UPGRADES WITH HOME-SECURED DEBT IS INAPPROPRIATE FOR LOW-INCOME HOMEOWNERS

A. Because PACE acts similarly to loan-based financing, it is too risky for low-income homeowners

Once a homeowner enters into a PACE contract, the resulting property tax assessment acts like mortgage financing: it comes with a property-secured obligation to repay the principal, plus interest.⁶⁷ Public Counsel, the largest provider of legal services to R-PACE victims in California, reports that the average annual property tax increase tied to its clients' PACE assessments is \$5,056.⁶⁸ This is a significant figure for low-income consumers, who have limited disposable income after paying for basic needs. Debt-based financing can be perilous to those with low or fixed incomes and few assets⁶⁹; home-secured financing like PACE can be catastrophic, because missed tax payments can quickly escalate to foreclosure.

PACE is risky for low-income borrowers because eligibility is evaluated based on residential property value rather than credit score. This means that low-income homeowners may qualify to use PACE even where they would not ordinarily qualify for a loan. Without energy savings certain to offset or at least meaningfully mitigate PACE assessment costs, additional property tax costs put the 3.5 million low-income Californians fortunate enough to own their homes⁷⁰ at risk of losing their most precious asset: their home equity, or even, their shelter.

Strikingly, government agencies, utilities, and others have all recognized that financing is problematic for low-income homeowners. The California Energy Commission (CEC) is among the several California regulators that have expressly noted the risks of financing home energy upgrades when serving the economically vulnerable. The CEC's 2016 study of barriers to adoption of energy efficiency and renewable energy in disadvantaged communities specifically instructed that programs to expand energy options for low-income households should not "pass on a debt obligation to the customer."⁷¹

Conclusions from five years of operation of California's Residential Energy Efficiency Loan (REEL) Assistance program bolster this view. The California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA), housed within the State Treasurer's Office, created the REEL program to lower the cost of credit for residential energy efficiency improvements.⁷² By subsidizing loans with ratepayer funds that the CPUC has authorized for this purpose, and thus mitigating creditors' risk from loan defaults, REEL enables participating lenders to offer loans to customers that would normally be deemed too financially risky.⁷³ When the REEL program was formally evaluated for transition from pilot to full-scale program, however, knowledgeable parties sounded cautionary notes as to the continued inclusion of low-income participants.⁷⁴

The CPUC-commissioned study, which included interviews with staff from CAEATFA, investor-owned utilities, and renewable energy networks, emphasized that REEL stakeholders “do not view energy efficiency loans (even at low interest rates) as a solution for reaching truly low-income borrowers.”⁷⁵ It noted that CAEATFA and program administrators were reluctant to offer low-income customers financing “that could potentially add financial stress to this population”; instead, program administrators generally favored “no-cost options available to low-income homeowners.”⁷⁶

Importantly, even though the REEL program could in theory offer homeowners more attractive interest rates, longer payback periods, and lower monthly payments than traditional financing, CAEATFA felt REEL was more appropriate for moderate income borrowers.⁷⁷ Indeed, several program administrators felt REEL may be truly appropriate only for upper-moderate and high-income borrowers, because “moderate-income households may be vulnerable to falling into low-income status.”⁷⁸

Stakeholders echoed this theme in a recently initiated CPUC rulemaking on clean energy financing options. The ratepayer group The Utility Reform Network (TURN), for example, emphasized in public comments the “unique concerns to consider for consumer protections related to clean energy investments,”⁷⁹ observing that “[w]ith regard to energy financing, inadequate consumer protections can result in undesirable to severe consequences for the customer, ranging from service disconnections to impacts on credit and loss of home.”⁸⁰ TURN urged the CPUC to examine “whether certain customers, especially low-income customers, are appropriate for different financing products.”⁸¹

These varied critiques underscore that energy upgrade programs should not impose PACE assessment debt on those for whom additional debt in any form is perilous. Existing and proposed non-PACE programs that provide free or low-cost renewable energy systems are more appropriate than PACE for low-income homeowners, because they protect consumers from financial risk and potential home loss. These programs include energy efficiency, solar energy, and hybrid offerings. To the extent that their financial subsidy or scope of coverage is insufficient to achieve state environmental goals, the most prudent solution is to expand and better fund these proven programs.

B. Existing non-PACE energy upgrade programs are better designed for low-income homeowners

Prospective low-income PACE program participants are not currently screened for free or lower-cost alternatives to PACE financing, even though such programs better suit their needs. The National Consumer Law Center has recommended that:

Homeowners should be screened for eligibility for free or low-cost programs. Before signing a PACE loan contract for energy efficiency improvements, low-income households . . . [should] be screened for eligibility for the free low-income federal Weatherization Assistance Program and other no- or low-cost energy efficiency programs available in the locality. Homeowners should be clearly informed of these programs’ availability and

applicability to the proposed work.⁸²

There is no such screening required by law, however; neither is it provided voluntarily by for-profit PACE administrators or their agents. This omission is insupportable, because existing non-PACE programs are structured to deliver the most cost-effective energy upgrades to low-income homeowners with the least financial risk.

1. Energy efficiency

a. California Weatherization Assistance Program

The California Weatherization Assistance Program (CWAP) distributes federal DOE funds to help low-income homeowners install free or low-cost energy efficiency improvements. CWAP is one model of a financially safe program for its target demographic; it is indeed already considered “the core program for delivering energy conservation services to low-income Californians.”⁸³

In this program, the California Department of Community Services & Development (CSD) works with local energy services providers to provide free energy efficiency and weatherization improvements to households that meet federal eligibility criteria (200% of the federal poverty level) and state eligibility criteria (annual pre-tax household income below 60% of the State Median Income).⁸⁴ Among low-income households, the program focuses on those with elderly residents, individuals with disabilities, and families with children. Thus, low-income homeowners and other vulnerable homeowners receive access to the benefits of energy efficiency and weatherization improvements without financial risk.

In 2019, CWAP completed projects on 1555 units.⁸⁵ The CSD expected to complete work on 1703 units through CWAP in 2020,⁸⁶ enabling low-income families to reduce their energy bills through affordable efficiency improvements.

b. Energy Savings Assistance Program

The Energy Savings Assistance Program (ESAP), authorized by the CPUC and funded with ratepayer and federal monies,⁸⁷ is another energy efficiency improvement program well suited for low-income homeowners. Utilities administer the ESAP to provide no-cost weatherization and energy efficiency services for households that meet California Alternative Rates for Energy (CARE) income guidelines.⁸⁸ Along with the CARE program, ESAP is one of the Commission’s two main low-income energy assistance programs.⁸⁹ ESAP’s objective is to “to promote equity and to help relieve low-income customers of the burden of rising energy prices,” and “improve the quality of life of low-income customers” while also achieving energy savings for the state.⁹⁰

When performing weatherization services for low-income customers, utilities must “tak[e] into consideration both the cost-effectiveness of the services and the policy of reducing the hardships facing low-income households.”⁹¹ State public utilities law requires that the Commission direct electric and gas utilities to provide “as many of these [weatherization] measures as are feasible for each eligible low-income dwelling unit.”⁹² In a 2016 decision document, the Commission noted that in ESAP, maximizing energy savings was “only a part of the Commission’s statutory task,” and “a key policy goal for ESA Program is to promote the

health, comfort and safety of eligible low-income customers.”⁹³

c. Tariff On-Bill or Tariff Based Recovery

Another potential financing option for providing energy efficiency improvements to low-income households is a Tariff On-Bill (TOB). In a review of possible green financing mechanisms for residential households, the CPUC in a 2020 Order Instituting Rulemaking identified TOB, alternatively known as Tariff Based Recovery (TBR), as a possible financing mechanism for low-income homeowners, because it allows them to install energy efficiency or related improvements “without any out-of-pocket expenses or incurring debt.”⁹⁴ A tariff is a pricing schedule or rate plan that utilities offer to customers.⁹⁵ The CPUC must approve tariffs that utilities propose. Through the TOB mechanism, the utility finances qualifying energy efficiency projects at residences using its own capital. With approval from the CPUC, the utility adds tariffs as “system investments” to customer bills as the collection mechanism to pay back the capital used for the projects.⁹⁶ Considered an investment in energy savings for the house, and tied to that property’s meter, the tariff can easily be transferred with the sale of the property.⁹⁷

Although, like PACE, a tariff-based model “assumes that energy cost reduction is greater than the cost of repayment for the improvements,”⁹⁸ the Commission or another regulatory agency would act as a check for the reasonableness of a tariff, since the utility must request approval of its tariffed service for the energy efficiency or related improvement.⁹⁹ Thus, TOB would be subject to considerably more regulatory oversight than residential PACE.

Relatedly, there is no risk that payments would be solicited for energy-irrelevant or program-ineligible upgrades. As such, this much more surgically tailored mechanism would be unlikely to produce the predatory behavior, upselling, and price gouging found in PACE. The CPUC can further require that energy savings equal or exceed the cost of upgrades before adding tariffs to customer bills, ensuring that the TOB model does not saddle low-income homeowners with unaffordable payments that risk their financial security. Finally, and critically, there is no scenario under which a utility tariff would become a super-priority lien on a customer’s home, potentially forcing them into foreclosure in the event of nonpayment.

2. Solar energy

a. Single-family affordable solar homes and disadvantaged communities single-family affordable solar homes

A successful (if currently underfunded) program model in California that provides low-income homeowners with a financially safe opportunity to install renewable energy is the Disadvantaged Communities Single-Family Affordable Solar Homes (DAC-SASH) program, the successor to the Single-Family Affordable Solar Homes (SASH) Program.¹⁰⁰ DAC-SASH and SASH provide low-income families with free or low-cost solar installations to significantly reduce household energy expenses. DAC-SASH and SASH have proven successful in reducing the upfront-cost barrier to accessing renewable energy, without compromising low-income households’ financial security.

GRID Alternatives (GRID), the non-profit manager of DAC-SASH, consults with low-income

homeowners to determine the best solution for bridging the “financing gap” between the cost of a system and a homeowner’s ability to obtain individual financing.¹⁰¹ Approximately 80% of SASH customers qualify for the CARE program.¹⁰² GRID employs government funds or donations, or a third party ownership model (described below), to provide eligible homeowners with free solar installations.¹⁰³ Without the burden of loan or property assessment payments, low-income households can direct their energy bill savings toward other basic needs, while still receiving access to renewable energy.¹⁰⁴ To date, a total of 9,264 residential solar systems have been installed and interconnected in this manner, providing solar capacity to the grid while maintaining consumer economic security.¹⁰⁵

b. Rooftop solar leases and third-party ownership for solar systems

Third party ownership (TPO) arrangements for rooftop solar systems provide another financial model that enables low-income households to receive the benefits of renewable energy without significant financial risk. Under a TPO model, a third party that has sufficient tax liability to use the federal Investment Tax Credit pays for the installation of solar equipment on a low-income household’s property. The third party owns the system, but passes some of the benefits to the low-income homeowners in the form of reduced energy payments.¹⁰⁶ For the TPO model to be financially feasible for low-income homeowners, the energy savings must be greater than the lease payments that homeowners make to the third party for use of the system.

The CPUC initially delayed approval of TPO “due to inexperience with TPO for low-income single family solar incentive programs and concerns about consumer protection and long-term benefits to homeowners.”¹⁰⁷ It ultimately authorized TPO for solar systems funded through the SASH program in 2015,¹⁰⁸ however, and the TPO model could in future expand beyond GRID administration. The deliberation the CPUC displayed before approving TPO in California highlights the careful consideration that must be given to any program designed for low-income homeowners, and particularly, those programs that rely on energy savings to make payments affordable.

Among consumer protections the CPUC required in TPO arrangements is that “SASH customers receive at least 50% of the savings, as compared to standard utility rates, from the solar generating equipment.”¹⁰⁹ In practice, GRID aims for customer savings of 80 percent.¹¹⁰ Additional requirements include “ensur[ing] that all costs are apparent and up front and that there is no risk that the TPO deal would result in an additional financial burden to the family,” and also, that the arrangement must “minimize the risk to the low-income customer that the solar system would be removed for delinquent payment”¹¹¹—even though losing one’s solar installation is far less consequential than losing one’s home.

In developing the TPO model, the CPUC built in crucial protections to help maintain low-income homeowners’ financial wellbeing. Currently, the TPO model is a significant contributor to financing SASH programs.¹¹² Approximately 75 percent of recent SASH projects were funded through third-party ownership,¹¹³ proving that a successful green financing mechanism need not come at the expense of low-income homeowners.

3. Hybrid program

a. Low-Income Weatherization Program

The Low-Income Weatherization Program (LIWP) is yet another financing mechanism that serves low-income homeowners fairly, providing access to the benefits of renewable energy through free energy efficiency upgrades and rooftop solar installations.¹¹⁴ As part of the statewide initiative California Climate Investments, the California Department of Community Services & Development administers LIWP using funds collected through the state's greenhouse gas cap-and-trade program.¹¹⁵

Since 2014, LIWP has received \$212 million from the Greenhouse Gas Reduction Fund to provide low-income households with rooftop solar and energy efficiency upgrades.¹¹⁶ The program currently has three components: Multi-Family, Community Solar, and Farmworker Housing.¹¹⁷ However, previous iterations of LIWP for single-family low-income households from 2015-2019 demonstrate that this model can successfully provide low-income single family homes with renewable energy installations. From 2015-2019, LIWP installed 4,674 no-cost solar systems for low-income single-family homes.¹¹⁸

Unfortunately, the single-family program component has sunsetted pending future funding.¹¹⁹ Nevertheless, programs like LIWP, which directly subsidize low-income homeowners and enable them to obtain renewable energy installations for free, are likely necessary to serve California's most economically vulnerable homeowners.

As critically, any programs serving low-income homeowners must center the economic security of this demographic, rather than treat it as an afterthought. The LIWP program exemplifies this holistic perspective. Although LIWP is designed "with the primary goal of reducing greenhouse gas (GHG) emissions by saving energy and generating clean renewable power," a 2019 LIWP program report emphasizes that "just as importantly, the program reduces residential energy expenses for low-income households, strengthening their economic security."¹²⁰ The program's agency administrators recognize that low-income homeowners are "already struggling to make ends meet—spending a higher proportion of their income on housing than ever before"; they note that "LIWP can help by lowering utility bills and freeing up limited disposable income for other critical expenses."¹²¹ Advancing these multiple policy goals is essential if a green energy program for low-income Californians is to do more good than harm.

C. Non-PACE energy upgrade programs have standards and verification procedures to protect low-income households

Beyond their careful design to avoid creating excessive homeowner debt, programs that provide no- or low-cost energy efficiency upgrades or renewable energy installations typically include protections against fraud and poor workmanship. Numerous programs include verification processes and standards to ensure that the most appropriate products are installed, that the work is quality-controlled, and that the projects provide low-income consumers with energy savings. Again, these features pose a marked contrast with residential

PACE, as implemented by for-profit program administrators and deployed via door-to-door sales in an under-regulated marketplace.

The California Weatherization Assistance Program implements quality checks and verification processes to ensure that low-income households receive the most cost-saving and energy efficient installations. The California Department of Community Services & Development requires projects to comply with numerous standards to confirm that the most cost-efficient projects have been pursued;¹²² that the workmanship is acceptable and the project meets specified performance standards;¹²³ that the correct materials have been used, and energy audits have been conducted when required;¹²⁴ and that the work has been completed and verified by a third-party inspector.¹²⁵ CWAP program standards also build in reporting and accountability mechanisms to help ensure that the program fulfills its stated goals to “reduce[] the heating and cooling costs for low-income families by improving the energy efficiency of their homes,” and to “ensur[e] [low-income families’] health and safety” while moving California closer to its energy goals.¹²⁶

The Energy Savings Assistance Program likewise includes quality-control standards and verification procedures,¹²⁷ including minimum samples of post-installation inspections,¹²⁸ and contractor licensing requirements.¹²⁹ ESAP also includes critical customer protections against upselling, by prohibiting ESAP service providers from offering any other service to the customer or charging the customer for any other service during the ESAP interaction.¹³⁰ The ESAP program specifies procedures for expeditious handling of customer complaints,¹³¹ and has detailed provisions governing the “provision of general program information, the collection of data on the household and the property, the completion of in-home energy education, the completion of the in-home energy assessment, and the installation of measures as approved by each utility.”¹³²

In programs to promote solar homes in disadvantaged communities (DAC-SASH and SASH Program), GRID Alternatives focuses on a holistic integration of energy efficiency improvements with renewable energy installations to ensure that consumers receive the most cost-efficient improvements. Thus, for example, GRID prioritizes energy efficiency upgrades before solar installations, as this will maximize energy savings.¹³³ In so doing, GRID Alternatives refers eligible owners to ESAP for efficiency measures prior to any solar installation.¹³⁴ By the end of July 2020, over 10,254 SASH applicants had been referred to ESAP.

GRID Alternatives’ commitment to this hierarchy of cost-effective improvements, and its referral program, again pose a stark contrast to residential PACE. Making homes more energy efficient before installing a solar system increases the likelihood that energy savings for each household are sufficient to make the entire project cost-efficient. Additionally, DAC-SASH and SASH include a consumer education component: every SASH applicant receives an energy efficiency education and training session to understand energy use reduction, and how to best use a solar installation.¹³⁵ The program uses trained volunteers who have no incentive to pressure customers to install solar systems, and who can ensure that any solar customers receive a properly sized system.¹³⁶ In short, every feature of the program is tailored to the needs and vulnerabilities of the population served, and designed to protect against fraud and abuse.

The TPO model also includes considerable consumer protections. The CPUC and GRID

displayed appropriate caution in developing the TPO financing model, to guarantee that the program would its desired role as a “comprehensive low-income program” that would “serve homeowners in the most distressed and impoverished areas of California,” who benefit most from energy bill savings.¹³⁷ The CPUC must approve all arrangements that GRID proposes with third parties. Proposals must also meet minimum substantive standards to ensure that they “adequately protect[] and benefit[] low-income homeowners in third-party ownership agreements.”¹³⁸

The TPO model additionally provides the benefit of a better-maintained solar system, advantaging low-income consumers. The third-party owner’s stake in system performance naturally incentivizes the TPO to maintain the system to reap the full benefits of renewable energy production. The CPUC goes further in protecting consumers, however, by codifying a maintenance requirement and requiring the third party to “cover maintenance, operations, inverter replacement, and monitoring.”¹³⁹ GRID Alternatives goes further still to ensure the integrity of the systems and benefits, providing customers with a performance guarantee, system monitoring, and 25-year warranty coverage of the work each customer receives.¹⁴⁰

Beyond the California programs detailed above, many programs exist at the federal and state level, and through local governments, utilities, and non-profits, that are far better crafted, controlled, and monitored than PACE to provide energy efficiency improvements and renewable energy installations to low-income households.¹⁴¹ Not all programs offer comprehensive energy efficiency and clean energy options, and not all are geographically or financially available to every homeowner. These programs’ number and design nonetheless demonstrate that energy efficiency and renewable energy financing options exist, or can be created or scaled, that both serve the interests of low-income households and help achieve California’s urgent climate goals.

III. RECOMMENDATIONS

Recent legislative reforms to address problems in residential PACE with respect to low-income homeowners have included, importantly, requiring PACE administrators to assess more accurately whether homeowners can afford the additional property tax assessment that a PACE contract contemplates.¹⁴² To date, however, no PACE reform has addressed the forgone environmental benefits, cost-inefficient investments, and contractor fraud in the inducement that arise from the lack of **pre-contract energy audits**.

Neither has the Legislature addressed the contractor fraud in the performance of PACE-financed work that is facilitated, and the environmental benefits that are forfeited, by the failure to mandate **post-construction inspections** of installed work before home contractors get paid by PACE administrators.

Additionally, the Legislature has not addressed whether **residential PACE financing should**

be restricted to homeowners above a certain income threshold, given that California has deployed many successful energy efficiency and solar-energy financing programs that do not create debt and foreclosure risk for low-income homeowners.

Accordingly, we recommend that the Legislature act immediately to:

1. Mandate a pre-contract energy audit, performed by an independent and credentialed third party, for all residential PACE projects;
2. Mandate a post-installation inspection before any PACE administrator can pay a home contractor for PACE-financed work; and
3. Bar PACE administrators from enrolling low-income homeowners in residential PACE, or at minimum, prohibit PACE marketing through door-to-door sales, which so often pressure vulnerable homeowners into financially unsupportable contracts.

CONCLUSION

This report illustrates serious, interlinked defects in California's residential PACE program with respect to environmental performance and consumer protection. Our three reform proposals are grounded in the heartbreaking stories of hundreds of low-income homeowners victimized by contactors' false representations regarding the net cost of promised green home improvements, and in many cases outright financial fraud, in PACE-financed transactions.

The reforms we suggest are simple, essential, and urgent. Only with these controls can residential PACE deliver on its environmental promise; protect our state's most economically vulnerable homeowners from financial devastation; and protect all Californians from fraud.

NOTES

1. The PACE program operates in the residential sector (R-PACE) and commercial sector (C-PACE). This report addresses only R-PACE, as C-PACE does not raise the same consumer protection concerns. *See, e.g.,* W. Riverside Council of Gov'ts, *Executive Committee Meeting*, YOUTUBE at 0:21:42-0:29:23 (Dec. 7, 2020) [hereinafter W. Riverside Council of Gov'ts, *Executive Committee Meeting* (Dec. 7, 2020)], <https://www.youtube.com/watch?v=1CEaXnPt7Cs&feature=youtu.be> (remarks of Casey Dailey, Director of Energy and Environmental Programs, Western Riverside Council of Governments (WRCOG), explaining WRCOG's proposed suspension of its decade-old residential PACE programs). Said Dailey: "Our recommendation is to discontinue residential PACE. We still have a lot of positive feelings [about] and we still feel very strongly about the commercial PACE program. It's the residential one that we think is appropriate to discontinue at this time." *Id.* Los Angeles County, which suspended its R-PACE program in May 2020, described its action as founded in concern over inadequate consumer protections. Andrew Khouri, *L.A. Ends Controversial PACE Home Improvement Loan Program*, L.A. TIMES (May 21, 2020), <https://www.latimes.com/homeless-housing/story/2020-05-21/la-fi-pace-home-improvement-loans-la-county> (describing concerns motivating program termination). Whereas only two states besides California have attempted R-PACE programs, twenty-four states and the District of Columbia have active C-PACE programs. PACE Nation, *PACE Programs*, <https://pacenation.org/pace-programs/>.
2. Where owners pay property taxes through an escrow account, the assessment is instead reflected in higher mortgage payments.
3. These protections include Truth in Lending Act (TILA) provisions addressing disclosures, rescission rights, periodic statements, arbitration and waiver clauses, loan originator compensation, and mortgage rules. (15 U.S.C. §1601 et seq.) TILA section 1640 creates a private right of action for consumers in federal or state court. (*Id.*) Regulation Z, a joint Federal Reserve System and Consumer Financial Protection Bureau rule that implements TILA, specifically imposes "minimum standards for transactions secured by a dwelling" (12 C.F.R. § 1026.43) in light of the heightened consumer risk inherent in such transactions. These include requirements that a creditor determine a consumer's non-dwelling income and assets, and verify a consumer's repayment ability using reasonably reliable third party records. 12 CFR §§ 1026.43(c)(2)(i) and 1026.43(c)(3)(iii). California law additionally provides that when certain agreements are negotiated primarily in Spanish, Chinese, Tagalog, Vietnamese, or Korean, any written contract will be provided, prior to execution, in the same language as the negotiations. (CAL. CIV. CODE §§ 1632, 1632.5 (a)(1).)
4. CAL. ASSEMBLY COMM. ON LOC. GOV'T, BILL ANALYSIS FOR A.B. 881, at 3 (2008), https://leginfo.legislature.ca.gov/faces/billAnalysisClient.xhtml?bill_id=201920200AB881 (last visited Jan. 19, 2021) [hereinafter A.B. 881 BILL ANALYSIS].
5. CITY OF BERKELEY, BERKELEY FIRST, https://www.cityofberkeley.info/uploadedFiles/Planning_and_Development/Level_3_-_Energy_and_Sustainable_Development/Past%20Programs_Berkeley%20FIRST_PACE.pdf; A.B. 881 BILL ANALYSIS, *supra* note 4, at 3.
6. Legislative permission was necessary both because general law cities cannot ordinarily create special assessment districts that charge structural upgrades to individual properties, and because neither a charter city nor a general law city can create a super-priority lien position for a PACE assessment without state authorization. A.B. 881 BILL ANALYSIS, *supra* note 4, at 4.
7. "Low-income" is defined in various ways for diverse energy program and other purposes. For purposes of this report, and as per input from legal services providers, we define a "low-income" household as one at or below 75% of the Los Angeles County median income, as determined by the Department of Housing and Community Development. *See* Memorandum from Zachary Olmstead, Deputy Dir., Cal. Dep't of Hous. & Cmty. Dev., Div. of Hous. Pol'y Dev., to Interested Parties (Apr. 30, 2020), <https://www.hcd.ca.gov/grants-funding/income-limits/state-and-federal-income-limits/docs/income-limits-2020.pdf> (listing median income for L.A. County). Defining "low-income" with reference to L.A. County is appropriate in the PACE context because that county has the greatest number of residential PACE contract originations.
8. Additional states are contemplating R-PACE adoption, or already have authorizing legislation that allows

- R-PACE. See, e.g., Kari Lydersen, *In Chicago, A New Financing Tool for Clean Energy and Efficiency Upgrades*, ENERGY NEWS NETWORK (Aug. 28, 2019), <https://energynews.us/2019/08/28/midwest/in-chicago-a-new-financing-tool-for-clean-energy-and-efficiency-upgrades/> (describing advocacy for R-PACE in Illinois); Bricker & Eckler LLP, *Ohio Will Become Fourth State to Offer Residential PACE for Energy Improvements* (June 28, 2019), <https://www.jdsupra.com/legalnews/ohio-will-become-fourth-state-to-offer-10738/> (describing contemplated rollout of Renovate R-PACE program in Ohio) (last visited Jan. 17, 2021).
9. PACENATION, PACE FACTS (2020), <https://pacenation.org/wp-content/uploads/2020/04/PACE-Facts-4-24-20.pdf>. In 2019, R-PACE surpassed \$6 billion in cumulative investment. *Id.*
10. Misplaced faith in the home contracting industry is not a late-emerging problem with PACE, but a design flaw: more than a decade before the advent of PACE, the Consumer Federation of America and the National Association of Consumer Agency Administrators reported that complaints about home improvement contractors were second only to complaints about auto sales. AM. PROSECUTORS RSCH. INST., HOME IMPROVEMENT FRAUD AGAINST SENIORS: A MANUAL FOR PROSECUTORS 2 (1999) (citing 1997 data from NACAA/CFA, SEVENTH ANNUAL NACAA/CFA CONSUMER COMPLAINT SURVEY REPORT 1 (1998).) Green advocates’ failure to consult with low-income homeowners, legal service providers, and consumer protection enforcers at the program design stage was an original sin of PACE that requires correction.
11. SB 4659 (2018) authorized localities to “finance the installation of wildfire safety improvements that are permanently fixed to residential, commercial, industrial, agricultural, or other real property” through “a voluntary contractual assessment program,” *i.e.*, the PACE program. CAL. STS. & HIGH. CODE § 5899.4(a)(3).
12. A “PACE solicitor agent” is defined as “an individual who is employed or retained by, and acts on behalf of, a PACE solicitor to solicit a property owner to enter into an assessment contract.” CAL. FIN. CODE § 22017(a). A “PACE solicitor” is defined as “a person authorized by a program administrator to solicit a property owner to enter into an assessment contract.” *Id.* § 22017(b).
13. Louise Seamster & Raphaël Charron-Chénier, *Predatory Inclusion and Education Debt: Rethinking the Racial Wealth Gap*, 4 SOC. CURRENTS 199, 199 (2017).
14. *Id.*
15. Khouri, *supra* note 1; L.A. County, *Los Angeles County PACE: Residential Program FAQ* (“Despite . . . [recent legislative reform] efforts and the implementation of stronger consumer protection practices, the County cannot be certain these measures will provide sufficient protection for all consumers.”) <http://pace.lacounty.gov/> (last visited Jan. 17, 2021).
16. W. Riverside Council of Gov’ts, *Executive Committee Meeting* (Dec. 7, 2020), *supra* note 1. See also Jeff Horseman, *Riverside-Based Agency to End Controversial PACE Loans for Energy Improvements*, PRESS-ENTER. (Dec. 22, 2020), <https://www.pe.com/2020/12/22/riverside-based-agency-to-end-controversial-pace-loans-for-energy-improvements/> (describing WRCOG’s decision to discontinue statewide and regional residential PACE financing, and detailing consumer complaints with the program).
17. JONATHAN EYER, THE IMPACT OF PACE FUNDING ON SOLAR ADOPTION (2020) (documenting increases in solar panel installations as a result of PACE programs in California and Missouri, and declines in installations where PACE programs are terminated). See also Nadia Amelie et al., *Can the US Keep up the PACE? A Natural Experiment in Accelerating the Growth of Solar Electricity*, 191 APPLIED ENERGY 163-69 (2017) (finding that R-PACE programs increased solar installations in Sonoma County as compared to nearby counties without R-PACE).
18. Eric O’Shaughnessy et al., *The Impact of Policies and Business Models on Income Equity in Rooftop Solar Adoption*, NATURE ENERGY (Sept. 1, 2020) (crediting several policy interventions with increasing the diffusion of residential solar in low-income communities, ranging from financial incentives targeting low-income households to solar leasing programs to PACE financing). This article—which, like the Eyer study, *supra* note 17, nowhere mentions or addresses issues of PACE abuse and resulting economic distress—is agnostic as to which among these policy mechanisms is preferable for upscaling residential solar.
19. U.S. Dep’t of Energy, Off. of Energy Efficiency & Renewable Energy, ENERGY SAVER: TIPS ON SAVING MONEY AND ENERGY IN YOUR HOME (2017) [hereinafter ENERGY SAVER TIPS], https://www.energy.gov/sites/prod/files/2017/10/f37/Energy_Saver_Guide-2017-en.pdf. An energy audit is sometimes instead called an “energy assessment.”
20. Danielle Douglas-Gabriel, *Home Energy Audit: The Best Money I’ve Ever Spent*, WASH. POST (Feb. 2, 2018), https://www.washingtonpost.com/realestate/home-energy-audit-the-best-money-ive-ever-spent/2018/02/01/06643628-fbac-11e7-ad8c-ecbb62019393_story.html. The New York State Energy Research and Development Authority, for example, offers low- or no-cost home energy audits due to their many benefits. In addition to helping homeowners reduce energy use and utility bills, audits can uncover hidden problems that make

a home energy-inefficient or uncomfortable, such as leaky air ducts, and can provide health and safety benefits by identifying hazards. *Home Energy Audits & Ratings*, N.Y. STATE, <https://www.nyserda.ny.gov/Residents-and-Homeowners/At-Home/Home-Energy-Audits-and-Ratings> (last visited Jan. 12, 2021).

21. See U.S. Dep't of Energy, Off. of Energy Efficiency & Renewable Energy, *Do-It-Yourself Home Energy Audits*, ENERGY.GOV, <https://www.energy.gov/energysaver/home-energy-audits/do-it-yourself-home-energy-audits>; see also Energy Techs. Area, Lawrence Berkeley Nat'l Lab'y, HOME ENERGY SAVER, <https://hes.lbl.gov/consumer/> (last visited Jan. 12, 2021).

22. *Home Energy Checkup*, PG&E, https://www.pge.com/en_US/residential/save-energy-money/analyze-your-usage/home-energy-checkup/home-energy-checkup.page (last visited Jan. 12, 2021).

23. ENERGY SAVER TIPS, *supra* note 19.

24. Eliminating bias in this context requires that the energy auditor be independent from the home improvement contractor or PACE solicitor, and that they do not otherwise benefit from a potential PACE contract.

25. NAT'L CONSUMER L. CTR. (NCLC), PROPERTY ASSESSED CLEAN ENERGY (PACE) LOANS: STATE AND LOCAL CONSUMER PROTECTION RECOMMENDATIONS 5 (2019). NCLC specifies: "The energy audit should include information regarding the energy savings, stated in (1) kilowatt hours or terms, as applicable and (2) annual dollar savings amount, comparing the homeowner's current utility bills to expected bills based on energy-savings or renewable energy measures that the owner is considering financing with PACE borrowing." *Id.*

26. U.S. DEP'T OF ENERGY, BEST PRACTICE GUIDELINES FOR RESIDENTIAL PACE FINANCING PROGRAMS 5 (2016), <https://www.energy.gov/sites/prod/files/2016/11/f34/best-practice-guidelines-RPACE.pdf>.

27. *Id.* DOE Home Energy Score Certified Assessors must hold a qualifying credential to participate in the Home Energy Score program. U.S. Dep't Energy, *Become an Assessor*, BETTER BLDGS., <https://betterbuildingssolutioncenter.energy.gov/home-energy-score/become-assessor> (last visited Jan. 13, 2021). The Building Performance Institute offers Home Energy Professional Energy Auditor certification, supported by the DOE and its National Renewable Energy Laboratory. Building Performance Institute, *Certified Professionals-Energy Auditor*, <http://www.bpi.org/certified-professionals/energy-auditor> (last visited Jan. 31, 2021).

28. California requires licensed contractors to test heating, ventilation, and air conditioning (HVAC) systems when these are installed or replaced, and uses the Home Energy Rating System (HERS) program to verify that the units are properly installed and perform as intended. The HERS program tests and rates homes based on the energy efficiency performance of HVAC installations. ENERGY SAVER TIPS 3, *supra* note 19.

29. *Home Energy Rating System Program – HERS*, CAL. ENERGY COMM'N, <https://www.energy.ca.gov/programs-and-topics/programs/home-energy-rating-system-hers-program> (last visited Jan. 13, 2021) (discussing the utility of using HERS-qualified raters in evaluating the quality of construction and installation).

30. This greater rigor likely stems from the government's express public policy goals in offering such programs, and its accountability to taxpayers or utility ratepayers who fund the programs.

31. See Elise Hansen, *Embattled Home Finance Biz Renovate America Hits Ch.11*, LAW 360 (Dec. 22, 2020), <https://www.law360.com/articles/1340188/embattled-home-finance-biz-renovate-america-hits-ch-11> (describing the recent bankruptcy filing by PACE administrator Renovate America, which is "fighting 56 cases, including three class actions," stemming from "its PACE assessment practices"). Although defrauded homeowners may in theory obtain redress through complaint to the Contractor's State Licensing Board, in practice this is difficult and rare. Pers. comm. Elizabeth Gonzalez, Directing Attorney (Consumer Unit), Public Law Center (Jan. 11, 2021).

32. APPENDIX D: SINGLE-FAMILY AFFORDABLE SOLAR HOMES (SASH) 2.0 PROGRAM HANDBOOK (2017) [hereinafter SASH 2.0 PROGRAM HANDBOOK], <https://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=4585>.

33. *Energy Savings Assistance Program*, PG&E, https://www.pge.com/en_US/residential/save-energy-money/help-paying-your-bill/energy-reduction-and-weatherization/energy-savings-assistance-program/energy-savings-assistance-program.page (last visited Oct. 26, 2020).

34. SASH 2.0 PROGRAM HANDBOOK, *supra* note 32.

35. *Id.*

36. *Our Process*, GRID ALTS., <https://gridalternatives.org/get-solar/homeowners/our-process> (last visited Jan. 13, 2021).

37. mPOWER Application Checklist, <http://www.mpowerca.org/wp-content/uploads/2017/09/Pioneer-Application-11-27-19.pdf>. Placer County has to date administered its own residential PACE program. In December 2020, however, the Placer County Board of Supervisors voted to conduct a Public Hearing to consider "eliminating

exclusivity for the Placer mPOWER program to provide Property Assessed Clean Energy (PACE) program financing in Placer County,” *i.e.*, opening the door to for-profit PACE administrators. Cnty. of Placer Bd. of Supervisors, Summary Action, Item I.A (Dec. 15, 2020), <https://www.placer.ca.gov/DocumentCenter/View/49396/2020-121520-FINAL-Summary>. It is uncertain whether for-profit PACE administrators would be required to include energy audits in their programs.

38. mPOWER Application Checklist, *supra* note 37.

39. mPower, P-N-F Residential PowerPoint, slide 40 (2020).

40. CAL. INVESTOR-OWNED UTILS., STATEWIDE CUSTOM PROJECT GUIDANCE DOCUMENT 7 (Sept. 20, 2020), https://file.ac/uYINmp1ej0Q/SW%20Custom%20Project%20Guidance%20Document_v1.3_2020-09-30.pdf (“All energy efficiency measures must have a baseline from which energy savings are assessed. The baseline establishes the energy consumption profile prior to enrolling in the energy efficiency program.”) This guidance document reflects “investor-owned utilities’ (IOUs) understanding of CPUC rules and requirements for claiming energy savings from installed energy efficiency measures.” *Id.* at 2. *See also* Decision 11-07-030, Third Decision Addressing Petition for Modification of Decision 09-09-047, attachment B, B1 (Cal. Pub. Utils. Comm’n, July 14, 2011), https://docs.cpuc.ca.gov/publishedDocs/published/FINAL_DECISION/139858.htm, at Attachment B https://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/139860.PDF (requiring “a site-specific analysis of the customer’s existing and proposed equipment” before a proposed energy efficiency upgrade as part of the custom project review process, because such projects are “by definition unique, each with their own characteristics”). Non-custom projects, in contrast, involve rebates and incentives offered to utility customers based on predetermined energy savings per unit (*e.g.*, specific light fixtures or smart thermostats). These savings values are determined through an in-depth process involving stakeholders and experts, obviating the need for site-specific audits to determine expected energy savings. *See* CPUC, *Ex Ante Review*, <https://www.cpuc.ca.gov/General.aspx?id=4132> (describing CPUC’s ability to assess “the potential energy savings for an energy efficient measure before it is installed based on predictions of typical operating conditions and baseline usage.”).

41. *Id.* at 2. (“[T]he customer’s financial incentive and the expected energy savings are determined using a site-specific analysis of the customer’s existing and proposed equipment before installation and are finalized at project completion. An agreement is made with the customer wherein the financial incentive is paid upon the completion and verification of the project installation.”).

42. CAL. INVESTOR-OWNED UTILS., *supra* note 40, at 11 (quoting the CPUC). Non-custom projects involve rebates and incentives offered to utility customers based on predetermined energy savings per unit (*e.g.*, specific light fixtures or smart thermostats). These savings values are determined through an in-depth process involving stakeholders and experts, obviating the need for site-specific audits to determine potential energy savings. *See* CPUC, *Ex Ante Review*, <https://www.cpuc.ca.gov/General.aspx?id=4132> (describing CPUC’s ability to determine “the potential energy savings for an energy efficient measure before it is installed based on predictions of typical operating conditions and baseline usage.”).

43. Decision 11-07-030, Third Decision Addressing Petition for Modification of Decision 09-09-047, *supra* note 40, at attachment B, B7 (“The objective of the Post-Installation Review is to provide the Energy Division with continued opportunity to review and provide input on the accuracy of ex ante values assumed by the IOU prior to the utility making its final incentive payment to its customer.”).

44. *Id.*

45. A panelist in a webinar on renewables asset-backed securities observed that signing up commercial property owners in PACE “is much more time consuming” than enrolling homeowners, as commercial owners “tend to require accommodation and negotiation,” and in view of their greater range of financing options, are “more cautious on adopting PACE.” *Talking Point: Going Green*, STRUCTURED CREDIT INV. (June 13, 2016), <https://www.structuredcreditinvestor.com/PRINT.asp?SID=59686&ISS=23859&pubID=250>. Additionally, because a large commercial building may be a main source of income for a commercial customer, the energy audit and net-positive cash flow requirements are used as part of the underwriting process to ensure that commercial borrowers are able to pay back the loan. *See* TX. PACE AUTH., PACE PROGRAM GUIDELINES (2018), <https://www.texaspaceauthority.org/wp-content/uploads/Program-Guide-Version-3.0-2019-09-23.pdf>. There is no such requirement for residential homeowners.

46. Contractor fraud in PACE programs is well documented. The National Consumer Law Center (NCLC) has collected stories of PACE abuse from numerous consumer advocates, news media, and other online sources, and summarized their findings in the issue brief, RESIDENTIAL PROPERTY ASSESSED CLEAN ENERGY (PACE) LOANS: THE PERILS OF EASY MONEY FOR CLEAN ENERGY IMPROVEMENTS (2017), https://www.nclc.org/images/pdf/energy_utility_

[telecom/pace/ib-pace-stories.pdf](#). See also *Some Homeowners Struggled to Pay PACE Improvement Loans. The Coronavirus Made It Harder*, L.A. TIMES (June 29, 2020), <https://www.latimes.com/homeless-housing/story/2020-06-29/pace-home-improvement-loans-coronavirus-foreclosure>.

47. Estimations are based on generic archetypes and may be inapplicable to an individual home. Estimation techniques also vary from one PACE program administrator to another, so for any given home, homeowners could be quoted dramatically different energy savings for a particular improvement. Program administrators are required to describe their estimation methodologies in semi-annual reports submitted to the California Alternative Energy and Advanced Transportation Financing Authority. Review of these reports (obtained via Public Records Request) confirms that energy calculation methodologies and assumptions vary widely across PACE programs.

48. Homeowners are frequently unaware of the largest sources of their own energy use, and how that relates to their energy bills. A study of approximately 1,700 Dutch households, for example, found that only 56% of respondents were aware of their monthly energy charges. Dirk Brounen, Nils Kok & John M. Quigley, *Energy Literacy, Awareness, and Conservation Behavior of Residential Households*, 38 ENERGY ECON. 42 (2013), <https://doi.org/10.1016/j.eneco.2013.02.008>.

49. Public Counsel provided this true account with the consent of its client. In this and other inset text boxes, legal services clients' names have been changed to protect their privacy. For first-person victim accounts of predation and fraud in the residential PACE program, see, e.g., Public Counsel, *Protecting Homeowners from Predatory PACE Home Loans*, YOUTUBE (Nov. 12, 2019), <https://www.youtube.com/watch?v=gt1OXvmMpl8>; Anna Scott, *Effort to Make L.A. More Eco-Friendly Means Foreclosure for One Homeowner*, KCRW (Sept. 17, 2019), <https://www.kcrw.com/news/shows/greater-la/program-to-boost-clean-energy-in-la-is-leaving-some-people-homeless/effort-to-make-la-more-eco-friendly-means-foreclosure-for-some-homeowners>.

50. W. Riverside Council of Gov'ts, *Executive Committee Meeting* (Dec. 7, 2020), *supra* note 1, at 0:39:42 to 0:41:09 (testimony of Jaime Levine, Attorney, Elder Law & Advocacy).

51. As described by legal services provider Bet Tzedek: "PACE Administrators rely on signed 'completion certificates' (e-signed documents stating that work is complete) to trigger the release of funds to contractors, rather than doing post-project inspections. We have seen contractors obtain homeowner signatures on these completion certificates before work ever starts, telling the homeowner that signing the certificate is a routine part of the financing process. We've also seen signatures procured by fraud, forgery, and harassment. The PACE Administrator then sees the signature on the completion certificate, assumes (without verification) that the project is complete, and pays the contractor in full. At that point, the contractor can take off with the money without doing any work. This encourages fraud, because contractors know they can secure tens of thousands of dollars just by producing a piece of paper ostensibly signed by the homeowner." Email from Daniel Lewis, Legal Fellow, Bet Tzedek, to Environmental Law Clinic (ELC) (Jan. 4, 2021) (on file with ELC).

52. NCLC, RESIDENTIAL PROPERTY ASSESSED CLEAN ENERGY (PACE) LOANS, *supra* note 46.

53. While payment is not supposed to be released until work is completed, in practice there is widespread noncompliance. Due to lack of regulation and accountability on the contractor-payment side of the transaction, homeowners are often left holding the bill for work that is incomplete or of poor quality. Qualified, third-party auditors are better equipped than homeowners to inspect installations properly, identify defects, and perform safety checks, all of which are essential to ensuring that energy improvements are operating as intended and homeowners are benefiting from what they paid for.

54. Inland County Legal Services provided this true account with the consent of its client.

55. See, e.g., the Consumer Legal Remedies Act's prohibition on "home solicitation" of senior citizens by those offering mortgaged-financed home improvements, where a solicitor's conduct is "part of a pattern or practice" that violates federal consumer protection law. CAL. CIV. CODE § 1770(a)(23). The phrase "home solicitation" means door-to-door sales, which are notorious for the undue pressure they exert on consumers.

56. Andrew Khouri, *A Loan Program Was Set up to Boost Energy Efficiency. Instead It's Being Used to Build 'Granny Flats.'*, L.A. TIMES (Feb. 17, 2019), <https://www.latimes.com/business/la-fi-pace-adu-bankrupt-20190217-story.html> (describing PACE programs' promotion of "questionable projects that included ineligible work on 'granny flat' accessory units," with ruinous financial consequences for many homeowners). While specific components of an ADU (such as energy-efficient windows) might be eligible for PACE financing, some home improvement contractors are stating to customers that PACE financing can be used for all construction from the ground up, including ineligible services like kitchen installations and flooring.

57. Email from Kathleen Murray, Contract Attorney, Public Counsel, to ELC (Jan. 14, 2021) (on file with ELC).

58. In 2019, the DBO received 157 complaints relating to PACE program administrators, solicitors, and solicitor

agents. The largest share of these (70 total) were for unethical behavior and tactics. The next most common were for payment disputes and mishandled transactions. CAL. DEP'T OF BUS. OVERSIGHT, ANNUAL REPORT OF OPERATION OF FINANCE LENDERS, BROKERS, AND PACE PROGRAM ADMINISTRATORS LICENSED UNDER THE CALIFORNIA FINANCING LAW (July 2020), Exhibit K (Property Assessed Clean Energy (PACE) Program).

59. Nat'l Consumer L. Ctr., *Los Angeles County Ends PACE Program Marred by Fraud, Abuse, and Unaffordable Loans* (Press Release) (May 20, 2020), <https://www.nclc.org/media-center/los-angeles-county-ends-pace-program-marred-by-fraud-abuse-and-unaffordable-loans.html>.

60. NCLC, RESIDENTIAL PROPERTY ASSESSED CLEAN ENERGY (PACE) LOANS, *supra* note 46.

61. Bet Tzedek Legal Services provided this true account with the consent of its client.

62. *Petersen v. Ygrene Energy Fund, Inc.*, No.19VECV01714 (Cal. Super. 2019).

63. W. Riverside Council of Gov'ts, *Executive Committee Meeting* (Dec. 7, 2020), *supra* note 1, at 0:44:45 to 0:47:50 (public comments of Alma Marquez, Orange County resident).

64. *Id.* at 0:29:50 to 0:32:54 (public comments of Stephanie Carroll, Directing Attorney, Consumer Rights and Economic Justice program, Public Counsel). Ms. Carroll further explained that in the wake of ability-to-pay regulations implemented in 2018, “instead of stemming the tide of abuses, we’ve seen an explosion of outright fraud—including forgery and impersonation—and a long line of low-income, mainly monolingual Spanish-speaking consumers who are faced with huge tax assessments when they received little work, and in many cases no work at all.” *Id.*

65. As Ms. Carroll explained: “Despite the figures often presented and presented here today about the energy efficiencies achieved by PACE, those figures are based on modeling, reflecting what’s on an assessment contract, not on the reality of the work actually done.” *Id.*

66. *See* CAL. PUB. RES. CODE § 26050(a)(4) (“The public subsidy provided by the PACE financing is justified by the benefits received in job creation, lower energy demand, and spurring new clean industries that will grow the economy.”).

67. Indeed, PACE financing is typically offered at above-market interest rates, imposing potentially high costs on low-income homeowners. *See* Federal Housing Finance Agency, Notice: Property Assessed Clean Energy (PACE) Program, 85 Fed. Reg. 2736, 2736-37 (Jan. 16, 2020), <https://www.federalregister.gov/documents/2020/01/16/2020-00655/property-assessed-clean-energy-pace-program> (last visited Jan. 18, 2021) (“Consumer issues have surrounded the PACE programs since their inception. These include [. . .] product sales at above market interest rates . . .”).

68. Email from Owen Smith, Legal Assistant, Public Counsel, to ELC (Jan. 15, 2021) (“Public Counsel has individual data on over 300 liens related to its clients. The average amount of these liens is \$48,975, and . . . the average property tax increase tied to these assessments is \$5,056. For the loans that Public Counsel has information [about], the average interest rate is 7.62%.”); email from Jennifer Sperling, Impact Litigation Attorney, Bet Tzedek, to ELC (Jan. 15, 2021) (stating that the average annual assessment among Bet Tzedek’s R-PACE clients is slightly over \$5,000). According to data submitted by PACE administrators, the average annual PACE assessment for program enrollees statewide is smaller: \$3,024 for the most recent reporting interval for which complete data is available. California Alternative Energy and Advanced Transportation Financing Authority, Property Assessed Clean Energy Loss Reserve Program: Semi-Annual Report (Jan.1, 2019 - June 30, 2019), Part B (obtained by Public Records Act request; on file with authors). ELC calculated the average annual PACE assessment from PACE Program administrators’ Part B data submissions for the reporting period. Statewide averaging tends to obscure the scale of PACE debt carried by many of the state’s low-income homeowners.

69. *See* Abbye Atkinson, *Rethinking Credit as Social Provision*, 71 STAN. L. REV. 1093, 1093 (2019) (“The notion that credit is a valid form of social provision for low-income Americans . . . is deeply flawed. The difficulty with credit as a form of social provision for low-income Americans is that there is an essential mismatch between the problem and the solution. At its best, credit is a mechanism of intertemporal and intrapersonal redistribution. However, low-income Americans often struggle with persistent financial instability, and decades of data show that they can reasonably expect to be in worse economic shape as time progresses.”).

70. Merrian Borgeson, *Understanding CA’s Low-Income Housing Stock to Electrify It* (Natural Resources Defense Council blog, Sept. 28, 2020), <https://www.nrdc.org/experts/merrian-borgeson/understanding-cas-low-income-housing-stock-electrify-it> (visited Jan. 27, 2021). Ms. Borgeson defines “low-income” homeowners as those with incomes at or below 80% of area median income, which is roughly similar to ELC’s definition of low-income for purposes of this report. (*See supra* n.7.)

71. CAL. ENERGY COMM’N, LOW-INCOME BARRIERS STUDY, PART A: OVERCOMING BARRIERS TO ENERGY EFFICIENCY

AND RENEWABLES FOR LOW-INCOME CUSTOMERS AND SMALL BUSINESS CONTRACTING OPPORTUNITIES IN DISADVANTAGED COMMUNITIES 52 (2016). This study, generally referred to as the “Low-Income Barriers Study,” was conducted pursuant to the Clean Energy and Pollution Reduction Act of 2015 (SB 350). This law established ambitious energy efficiency and renewable electricity targets for 2030 to support California’s greenhouse gas reduction goals. Nonprofit advocates at the Public Utilities Commission frequently invoke the Low-Income Barriers Study as establishing program design principles to promote environmental justice.

72. *Residential Energy Efficiency Loan Assistance Program* 14, CAL. STATE TREASURER, <https://www.treasurer.ca.gov/CAEATFA/CHEEF/reel/index.asp> (last visited Jan. 13, 2021).

73. *Id.*

74. CAL. PUB. UTILS. COMM’N, RESOLUTION E-5072 (Apr. 16, 2020) [hereinafter CPUC RESOLUTION E-5072] (Disposition of the Residential Energy Efficiency Assistance Loan Program (REEL) Pursuant to Decision 17-03-026); OP. DYNAMICS, RESIDENTIAL ENERGY EFFICIENCY LOAN ASSISTANCE PILOT: FINAL IMPACT EVALUATION REPORT (2020).

75. CPUC RESOLUTION E-5072, *supra* note 74, at 15; OP. DYNAMICS, *supra* note 74, at 17, 48.

76. OP. DYNAMICS, *supra* note 74, at 17, 48. Programs mentioned as more appropriate included Direct Install programs, Energy Savings Assistance Program [ESAP], and California Alternate Rates for Energy [CARE]), some of which this report discusses.

77. OP. DYNAMICS, *supra* note 74, at 17, 48.

78. *Id.* (emphasis added). It does not appear, however, that REEL has been modified to reflect these critiques.

79. Opening Comments of the Utility Reform Network 3, Order Instituting Rulemaking to Investigate and Design Clean Energy Financing Options for Electricity and Natural Gas Customers, Rulemaking 20-08-022 (Cal. Pub. Utils. Comm’n) (Oct. 5, 2020) [hereinafter TURN Opening Comments].

80. *Id.* at 4.

81. *Id.* at 3.

82. NCLC, PROPERTY ASSESSED CLEAN ENERGY (PACE) LOANS, *supra* note 25, at 5.

83. *California Weatherization Assistance Program*, BENEFITS.GOV, <https://www.benefits.gov/benefit/1844> (last visited Jan. 13, 2021).

84. *Id.*; STATE OF CAL., DEP’T OF CMTY. SERVS. & DEV., WEATHERIZATION ASSISTANCE PROGRAM FOR LOW-INCOME PERSONS: DRAFT 2019-2020 STATE PLAN AND APPLICATION TO THE U.S. DEPARTMENT OF ENERGY 23 (2020), [HTTPS://WWW.CSD.CA.GOV/SHARED%20DOCUMENTS/2020-DOE-STATE-PLAN-DRAFT.PDF](https://www.csd.ca.gov/SHARED%20DOCUMENTS/2020-DOE-STATE-PLAN-DRAFT.PDF) (last visited Jan. 18, 2021) [hereinafter 2020 DOE DRAFT STATE PLAN].

85. 2020 DOE DRAFT STATE PLAN, *supra* note 84, at 17.

86. *Id.*

87. *Energy Savings Assistance Program*, CAL PUB. UTILS. COMM’N, <https://www.cpuc.ca.gov/esap/> (last visited Jan. 13, 2021).

88. Decision on Large Investor-Owned Utilities’ California Alternate Rates for Energy (CARE) and Energy Savings Assistance (ESA) Program Applications, Decision 16-11-022, at 4 (Cal. Pub. Utils. Comm’n Nov. 21, 2016), <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M169/K760/169760972.PDF> (last visited Jan. 18, 2021) [hereinafter D.16-11-022].

89. *Id.* at 2.

90. *Id.* at 2, 11.

91. CAL. PUB. UTIL. CODE § 2790(a); D.16-11-022, *supra* note 88, at 3.

92. D.16-11-022, *supra* note 88, at 3-4 (citing CAL. PUB. UTIL. CODE § 2790(b)(2)).e

93. D.16-11-022, *supra* note 88, at 26 (internal citation omitted).

94. Order Instituting Rulemaking to Investigate and Design Clean Energy Financing Options for Electricity and Natural Gas Customers, at 8 (Cal. Pub. Utils. Comm’n) (Sept. 4, 2020) [hereinafter CPUC Order Instituting Rulemaking], <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M346/K361/346361154.PDF> (last visited Jan. 19, 2021).

95. *What Is a Tariff?*, CAL. PUB. UTILS. COMM’N, <https://www.cpuc.ca.gov/General.aspx?id=12189> (last visited Jan. 13, 2021).

96. CPUC Order Instituting Rulemaking, *supra* note 94, at 8.

97. *Id.*

98. *Id.*

99. *Id.* at 9.
100. *CSI Single-Family Affordable Solar Homes (SASH) Program*, CAL. PUB. UTILS. COMMISSION [hereinafter *CSI SASH Program*], <https://www.cpuc.ca.gov/General.aspx?id=3043> (last visited Jan. 14, 2021).
101. GRID ALTERNATIVES, CAL. PUB. UTILS. COMM’N & GO SOLAR CAL., SINGLE-FAMILY AFFORDABLE SOLAR HOMES (SASH) PROGRAM SEMI-ANNUAL PROGRESS REPORT 11 (July 2020) [hereinafter *SASH SEMI-ANNUAL REPORT JULY 2020*].
102. *Id.*
103. *Id.* Previous iterations of the SASH program used government funds and donations to fund project installations. DAC-SASH primarily relies on the Third-Party Ownership model.
104. *SASH SEMI-ANNUAL REPORT JULY 2020*, *supra* note 101; *CSI SASH Program*, *supra* note 100.
105. *CSI SASH Program*, *supra* note 100.
106. CPUC Order Instituting Rulemaking, *supra* note 94, at 24.
107. Decision Extending the Multifamily Affordable Solar Housing and Single Family Affordable Solar Homes Programs Within the California Solar Initiative, Decision 15-01-027, at 49 (Cal. Pub. Utils. Comm’n Jan. 30, 2015) [hereinafter *D.15-01-027*].
108. CPUC Order Instituting Rulemaking, *supra* note 94, at 24.
109. CPUC, *D.15-01-027*, *supra* note 107, at 52.
110. ELC interview with Renée Sharp, former Executive Director, GRID Bay Area, Nov. 19, 2020.
111. *D.15-01-027*, *supra* note 107, at 52.
112. *SASH SEMI-ANNUAL REPORT (JULY 2020)*, *supra* note 101, at 12.
113. *Id.* Recent SASH projects (“SASH 2.0”) have been funded pursuant to Assembly Bill 217 (2013), which extended SASH funding beyond its original sunset date. (See GRID Alternatives, *SASH 2.0 Program Handbook*. https://gridalternatives.org/sites/default/files/SASH%202.0_Handbook%20Update_FINAL.pdf (last visited Jan. 26, 2021).
114. CAL. DEP’T CMTY. SERVS. & DEV., *Low-Income Weatherization Program*, <https://www.csd.ca.gov/Pages/Low-Income-Weatherization-Program.aspx> (last visited Jan. 14, 2021).
115. *Id.*
116. CAL. DEP’T OF CMTY. SERVS. & DEV., *LOW-INCOME WEATHERIZATION PROGRAM (LIWP) IMPACT REPORT (2020)*.
117. *Low-Income Weatherization Program*, *supra* note 114.
118. CAL. DEP’T OF CMTY. SERVS. & DEV., *LOW-INCOME WEATHERIZATION PROGRAM (LIWP) IMPACT REPORT*, *supra* note 116, at 6. LIWP selected Grid Alternatives as the statewide administrator of the program, and additional regional administrators. CAL. DEP’T OF CMTY. SERVS. & DEV., *LOW-INCOME WEATHERIZATION PROGRAM SUPPLEMENTAL REPORT 5, 7, 9 (2019)*.
119. *Id.* at 5.
120. *Id.* at 4.
121. *Id.*
122. *CSD WEATHERIZATION INSTALLATION STANDARDS (rev. Oct. 2017)*; *CSD WEATHERIZATION FIELD GUIDE (rev. Oct. 2017)*.
123. *CSD WEATHERIZATION INSTALLATION STANDARDS*, *supra* note 122; and *CSD WEATHERIZATION FIELD GUIDE*, *supra* note 122.
124. *CSD WEATHERIZATION FIELD GUIDE*, *supra* note 122, at 35, 382.
125. STATE OF CAL., DEP’T OF CMTY. SERVS. & DEV., *WEATHERIZATION ASSISTANCE PROGRAM FOR LOW-INCOME PERSONS: DRAFT 2019 STATE PLAN AND APPLICATION TO THE U.S. DEPARTMENT OF ENERGY 29 (2019)*; 2020 DOE DRAFT STATE PLAN, *supra* note 84, at 3.
126. *California Weatherization Assistance Program*, *supra* note 83.
127. *STATEWIDE ENERGY SAVINGS ASSISTANCE PROGRAM, 2017-2020 CYCLE, POLICY AND PROCEDURES MANUAL 38-47 (rev. Sept. 2019)*.
128. *Id.* at 41.
129. *Id.* at 44.
130. *Id.* at 26.
131. *Id.* at 27.
132. *Id.* at 28.
133. *SASH SEMI-ANNUAL REPORT JULY 2020*, *supra* note 101.

134. *Id.*
135. *Id.*
136. *Id.* at 15.
137. *Id.* at 11.
138. CAL. PUB. UTILS. COMM'N, DRAFT RESOLUTION E-4829 at 1-2 (Mar. 2, 2017) (GRID Alternatives (GRID) Requests Approval of a Second Third Party Ownership (TPO) Model Provider for the Single Family Affordable Solar Homes (SASH) Program); CPUC, D.15-01-027, *supra* note 112, at 79.
139. CPUC, D.15-01-027, *supra* note 107, at 52.
140. SASH SEMI-ANNUAL REPORT JULY 2020, *supra* note 101, at 11.
141. See *Low-Income Weatherization Program*, *supra* note 114; *Low-Income Home Energy Assistance Program*, CAL DEP'T OF CMTY. SERVS. & DEV., <https://www.csd.ca.gov/Pages/LIHEAPProgram.aspx> (last visited Jan. 14, 2021); N.C. Clean Energy Tech. Ctr, N.C. State Univ., DATABASE STATE INCENTIVES FOR RENEWABLES & EFFICIENCY, <https://www.dsireusa.org/> (last visited Jan. 14, 2021) (describing varied programs).
142. Assembly Bill 1284 (2017); Assembly Bill 2063 (2018).