

# **We can have the cake and eat it too: A case study of how financing can bring clean energy projects to disadvantaged communities**

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## **ABSTRACT**

This paper explores financing's role in ensuring that disadvantaged communities have equitable access to beneficial electrification, decarbonization, and clean energy sources. This paper draws from multiple policy directives, financing pilot initiatives, and recent research and evaluation results that explore the opportunities and challenges of financing as a strategy to give disadvantaged communities equitable access to clean energy. In the Fall of 2020, the California Public Utilities Commission (CPUC) released an Order Instituting Rulemaking to examine options to assist customers with investments in sites designed to reduce greenhouse gas (GHG) emissions. Financing strategies will become increasingly important as California pursues ambitious climate protection goals in the energy sector, aiming to decarbonize the retail delivery of electricity by the year 2045. Achieving these goals will require the involvement of all California customers, and efforts need to ensure involvement of those in living in disadvantaged communities. This paper explores the barriers and opportunities in disadvantaged communities across the state while eliciting insights from a recent market study characterizing home conditions, fuel and appliance usage patterns, energy burden, drivers of hardship, and attitudes toward fuel use with residents living in disadvantaged communities throughout California's San Joaquin Valley (SJV). This paper discusses the pros and cons of two financing models in the marketplace today; and a deep dive into evaluation results from a Pilot Program that attempted to use a Loan Loss Reserve (LLR) and Credit Enhancement financing model to serve disadvantaged communities.

## **Introduction**

Financing is becoming increasingly popular in CA and beyond as an incentive strategy that could help to achieve energy saving and carbon reduction goals. It is important to note that financing is not necessarily the product that energy policy makers are encouraging customers to buy; instead, energy efficiency (EE) or GHG reductions are the desired products and financing, like rebates, is a vehicle to help people afford the cost of making these upgrades to their homes. There are many benefits to offering financing including: Overcoming the "first cost" of energy upgrades; Leveraging rate payer funds by bringing in private capital; Increasing sales of clean energy products and services; and the potential to reach a broader set of customers.

## **Methodology**

This paper draws from a literature review of multiple policy directives in CA, financing pilot initiatives, and recent research and evaluation results that explore the opportunities and challenges of financing as a strategy to give disadvantaged communities equitable access to clean energy. This paper draws heavily from two key market research and evaluation studies in CA known as the San Joaquin Valley (SJV) Data Gathering Effort and the Residential Energy Efficiency Loan (REEL) Pilot Impact Evaluation. The SJV effort involved a survey of 2,660 households and virtual home audits (n=259) and interviews (n=60) with a nested sample of those respondents. Additionally, we analyzed a combination of utility data (for electricity and natural gas) and survey respondents' self-reported energy costs (for alternative fuels) to

assess energy burden. The REEL Pilot evaluation effort involved a consumption analysis, a telephone survey with 49 of the first 200 pilot participants, and an analysis of pilot tracking data, and census data.

## California and Climate Change

The latest reports on climate change have become increasingly dire, for California in particular (Thorne, Wraithwall, and Franco 2018), and have driven CPUC policies over the last 15 years (Exec. Order No S-3-05 2015). The fourth Climate Change Assessment (CCA) notes that if GHG emissions continue at current rates, California will experience average daily high temperatures that are significantly warmer than the historical average, and the number of extreme heat days will increase exponentially in many areas. These changes bring with them increased risk of wildfire, and California is ranked as the most wildfire-prone state (Samanta 2017). The expected increase in temperatures is also expected to increase the saturation of air conditioning, which in turn will exacerbate carbon emissions if electric generation remains fossil-fuel based. Finally, the CCA also shows that all Californians will likely endure more illness and be at greater risk of early death because of climate change, with vulnerable populations disproportionately affected. Heat waves are an example of the current and future risk climate change poses to people. Studies show that while air conditioning can reduce mortality and illness from heat, increased electrical demand for cooling due to hotter conditions could also drive up emissions. Climate change ultimately creates a greater need for EE and RE programs.

Electrification of space and water heating using highly efficient technologies is a key strategy to reduce or eliminate GHG emissions from buildings. The 2018 Integrated Energy Policy Report Update discussed shifting away from a reliance on natural gas at the end-use through electrification. Electrification allows for the integration of RE while also reducing carbon emissions. As shown in the Figure below, the opportunity for reducing natural gas usage is greatest in the residential sector, with most usage in water and space heating. Electrification efforts could also benefit from financing.

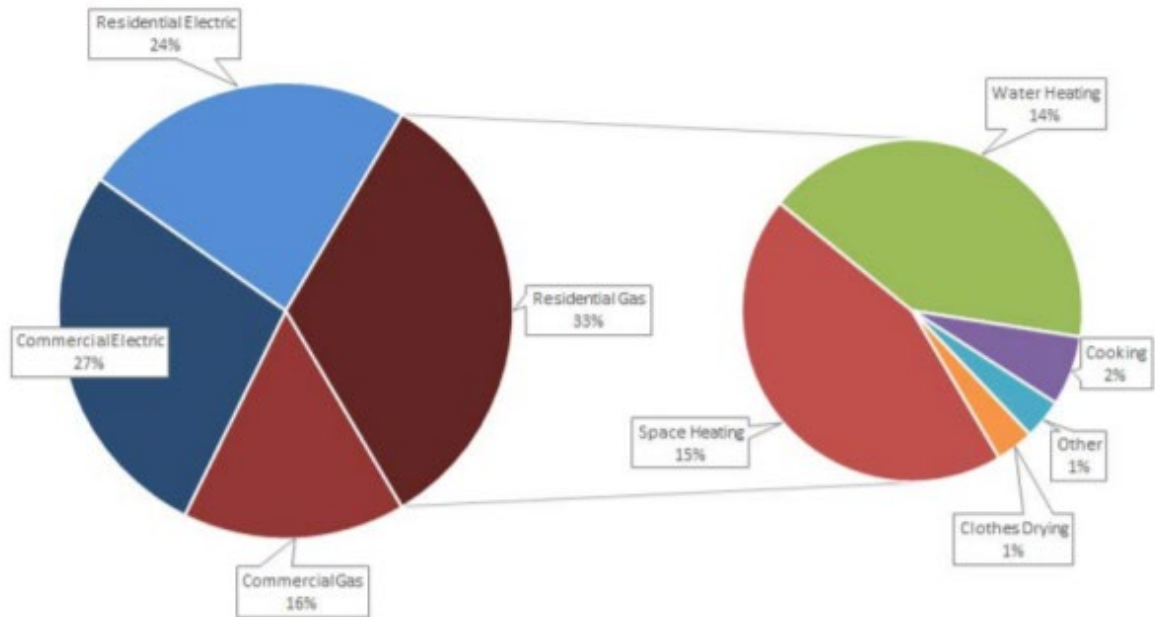


Figure 1. 2016 Energy Use in California Buildings (MMBtu)

Source: California Energy Commission. Accessed at: [https://www.energy.ca.gov/sites/default/files/2019-05/energy\\_efficiency.pdf](https://www.energy.ca.gov/sites/default/files/2019-05/energy_efficiency.pdf).

Energy storage is also a key strategy to reducing carbon emissions. With a growing amount of renewable generation needed to meet the state's GHG emission reduction goals, energy storage can help address the issue of intermittent electricity supply. In compliance with AB 2514 (2010), the CPUC set targets for California's electric IOUs, requiring them to procure more than 1.3 GW of energy storage by 2020, with specific targets for transmission-connected, distribution-connected, and customer-side energy storage systems. Customer-side energy storage systems make up approximately 15% of the total target. Residential storage opportunities are becoming more prominent as battery costs fall.

### **Making sure no customers are left behind**

Investing in electrification for space and water heating, on-site renewable energy generation and energy storage is a costly endeavor for each upgrade alone. Most households in CA cannot afford this cost and will need big incentives to afford them, e.g. the average cost of an Air-Source Heat Pump is \$4,500 more than a natural gas furnace. Otherwise, low-to-moderate (LMI) customers may be left behind in our carbon reduction efforts.

New data from the U.S. Census Bureau's supplemental poverty measure shows that roughly 7.5 million Californians—about 19% of the state's population—live in poverty (Fox 2018). California is one of the three states tied for highest poverty rate, along with Florida and Louisiana. The national poverty rate is 14%. This underscores the continuing need for affordable financing and other low-income programs for the foreseeable future. CA has 39 million people living in 13 million households across 58 counties and 482 cities. Nearly 2/3 of these households are in Southern California. California has the third lowest rate of homeownership in the U.S. at 55.2%. Residents living in CA's Disadvantaged Communities (DACs) will be disproportionately affected by climate change. DACs meet specific income, geographic, and population requirements. These communities have a large proportion of low-income households combined with other environmental characteristics.

In 2015, California State Bill (SB) 350 increased California's renewable electricity procurement goal from 33% by 2020 to 50% by 2030. In addition, SB 350 requires the state to double statewide EE in electricity and natural gas end-uses by 2030. Then, in 2018, SB 100 set a planning target of 100% zero-carbon electricity resources by 2045 and increased the 2030 renewables target from 50% to 60%. On the same day that SB 100 was signed, Executive Order B-55-18 set a new statewide goal to achieve carbon neutrality (zero-net GHG emissions) by 2045 and to maintain net negative emissions thereafter. CA policy-makers recognized the importance of targeting LMI<sup>1</sup> customers with additional support to ensure these households are not left behind in this endeavor.

*"In addition, because of the large number of households qualifying as low-income in California, and with Californians' financial situations likely worsening considerably since the onset of the COVID-19 pandemic, it is all the more critical to become even more creative about how we can support customers investing in energy projects that ultimately improve their properties, save money on energy bills, improve air quality, and provide for health and comfort in the long run" (R.20-08-022).*

### **The San Joaquin Valley: A California Priority for Enhancing Energy Affordability and Health & Safety**

The "San Joaquin Valley" (SJV) is a region of central California that encompasses the counties of Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare.

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<sup>1</sup> The CA Department of Housing and Human Development define LMI as any household earning 0-120% of the local area median income (AMI). <https://www.hcd.ca.gov/grants-funding/income-limits> as of December 2021.

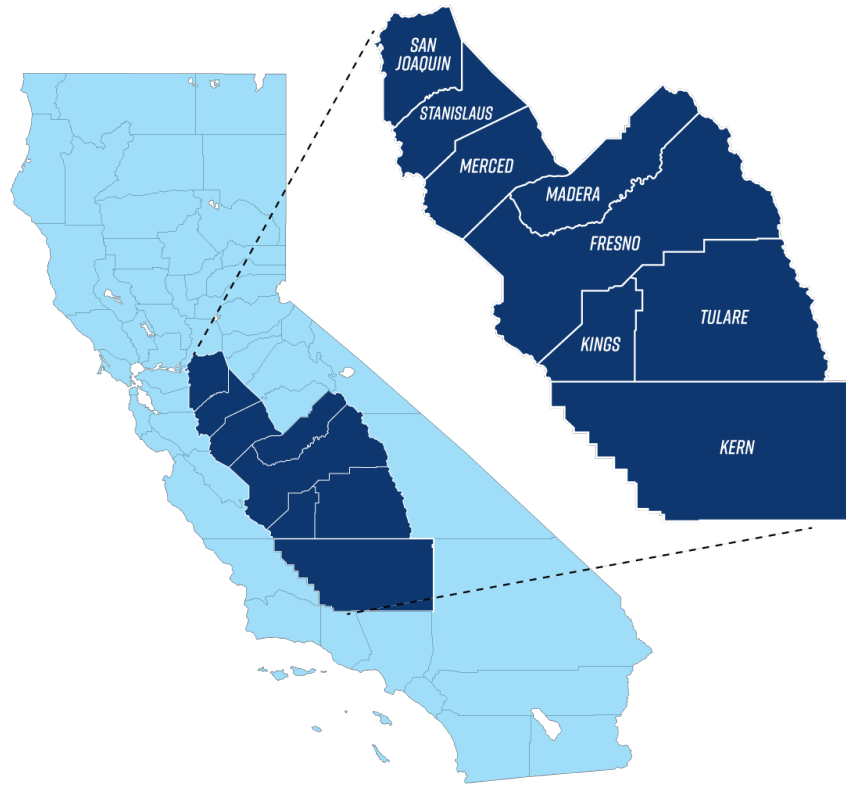


Figure 2. Map of San Joaquin Valley

The SJV is home to many LMI Californians who lack access to natural gas pipelines and, as such, their households often rely on relatively expensive (e.g., electricity) or unhealthy (e.g., propane, wood, wood pellets) fuels to fulfill their space heating, water heating, and cooking needs. This situation has created a disproportionate energy and environmental burden for these communities. In response, in 2014, the California legislature passed Assembly Bill (AB) 2672, which directed the CPUC to identify DACs in the SJV and understand the barriers and opportunities to improve affordable energy access, indoor air quality, and overall health and safety. In 2015, the CPUC adopted Decision (D.) 17-05-014, which approved a methodology for identifying SJV DACs, and then approved a list of 170 communities. The criteria for an SJV DAC included:

- At least 25 percent of the residential households with electrical service in the community are enrolled in the California Alternate Rates for Energy (CARE) program (a discount rate for income-qualified Californians);
- The community has a population greater than 100 persons within its geographic boundaries as identified by the most recent survey;
- The geographic boundaries of the community are no further than seven miles from the nearest natural gas pipeline operated by a gas corporation; and
- The community is within the counties of Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare.

Next, in 2017–18, the CPUC scoped and launched two efforts—a set of twelve pilots and a data gathering exercise—to support an analysis of the economic feasibility of extending affordable energy options to these communities, in particular to dwellings that currently lack access to natural gas.

The SJV Data Gathering Effort unveiled a number of important trends related to alternative fuel use, preferences and barriers, and energy burden.

- Propane is the most common alternative fuel:** Nearly two-thirds of households without access to natural gas (72%) use propane for at least one major end-use: most likely for space heating (66%), followed by water heating (60%), cooking (46%), and then clothes drying (22%). A sizable percentage of customers without natural gas use wood for space heating (42%); and one-quarter use electricity.
- Access is the main barrier; not preferences:** The main reason SJV DAC customers use propane is because they lack access to natural gas (75% of respondents). Relatively few customers prefer to use propane, though some (12%) said it was less expensive than other alternatives available; and 7% said it was the most convenient option.
- Reliance on alternative fuels significantly increases energy costs:** Regardless of income, customers who do not have access to natural gas pay more to fuel their homes than customers with natural gas. The annual total energy costs of customers without access to natural gas are up to 38% higher than customers with access to natural gas (\$2,312 vs. \$1,671) on average. Further, the cost escalates as we examine groups with higher and higher reliance on alternative fuels. All electric households (i.e., those with zero reliance on alternative fuels) have the lowest annual total energy costs (\$1,687 on average); and those costs were on par with natural gas users. Those who rely only on propane are in the middle (\$2,597 on average), and those who rely on both propane and wood have the highest cost (\$2,919 on average).
- Low-income households bear the greatest burden:** Lack of access to natural gas has a disproportionately greater impact on lower income customers (indicated by CARE eligibility) than non-low-income customers, leading to a greater energy burden. CARE eligible customers who lack access to natural gas, live in small communities or mobile homes, or own their homes have particularly high energy burdens (11.1%, 10.1%, and 9.4% respectively). CARE eligible homeowners have higher energy burdens than renters because they are more likely to use expensive alternative fuels whereas renters are more likely to be all-electric.

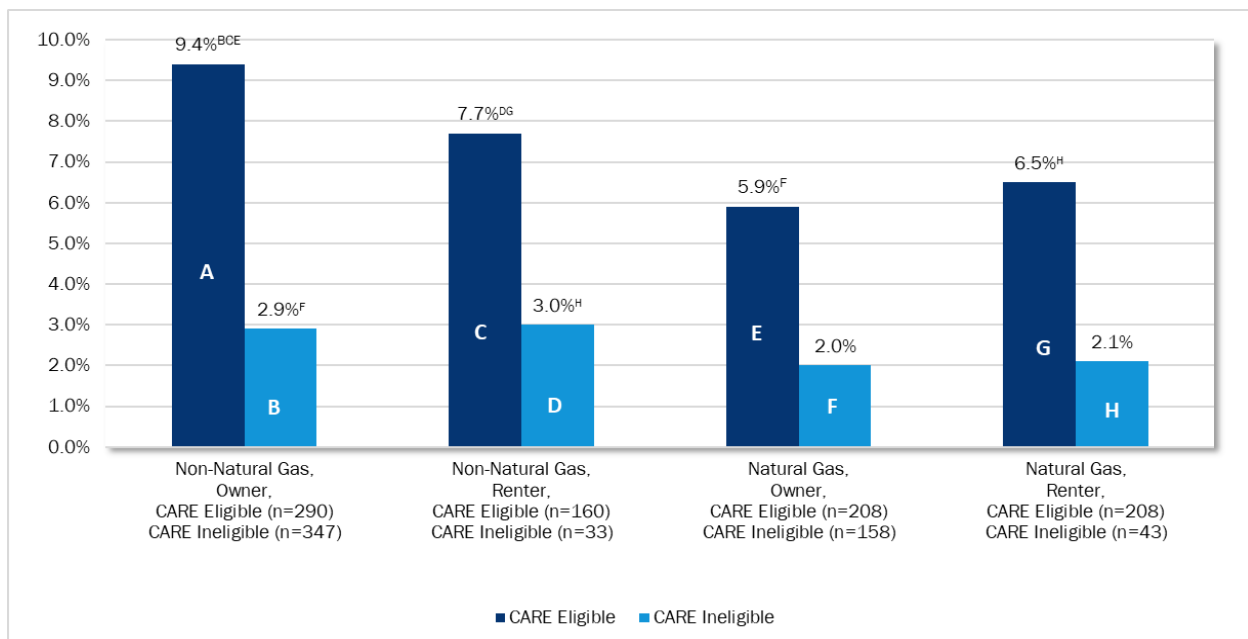


Figure 3. Energy Burden by Natural Gas Access, CARE Eligibility, and Home Ownership

Note: A/B/C/D/E/F/G/H Indicates significant differences at a 90% confidence level between the following tests: AB, CD, EF, GH, AC, BD, EG, FH, AE, BF, CG, DH

The findings from the SJV Data Gathering Effort leave no doubt that the current situation is untenable for the SJV DACs; and that natural gas would be a preferable, cheaper, and cleaner alternative to propane and wood burning. However, the CPUC's economic feasibility assessment will very likely show that resolving this challenge by expanding access to natural gas pipelines to all SJV DACs would require a massive investment to overcome; though it may make more economic sense in some communities than others. In anticipation of this potential challenge, the CPUC is looking for alternatives to increasing natural gas access through the pilots happening concurrently with the Data Gathering Effort. These include a number of renewable energy and electrification pilots. For instance, several of the SJV pilots are providing homes with no-cost high efficiency, all-electric technologies paired with access to discounted community solar subscriptions. However, this approach could be difficult to scale. Financing, particularly programs like REEL that provide access to affordable financing for LMI or credit-challenged individuals, could help households afford high-efficiency electrification technologies, especially if paired with available incentives. There is no one-size-fits-all solution for the SJV DACs, but financing can be a major pinch-hitter where increasing access to natural gas does not make economic sense.

Financing strategies will become increasingly important as California pursues ambitious climate protection goals in the energy sector, aiming to decarbonize the retail delivery of electricity by the year 2045. Achieving these goals will require the involvement of all California customers, and efforts need to ensure that those living in disadvantaged communities are also involved. The CPUC recently opened an Order Instituting Rulemaking proceeding to explore financing options, especially those that would benefit LMI customers.

*“The purpose of this proceeding is to provide a venue for investigating and designing mechanisms that can help customers finance all of the energy investments they might wish to make on their properties, without artificial barriers, such as those caused by regulatory rules related to funding source. This proceeding will also recognize that just as there are different financing needs across customer segments, there are a diversity of needs within customer segments. This diversity includes, but is not limited to, access to capital, creditworthiness, funding to rehabilitate the home or building, awareness of and exposure to new energy technologies, and potential that results in certain communities continually being underserved” (R.20-08-022).*

## **Two Financing Options for LMI Customers**

There are several options to pay for energy efficiency projects and these are depicted in Figure 4. The utility rebates can pay for a portion of the project (up to 100%) and the customer pays the balance. Rebates reduce first costs and accelerate paybacks. They have been popular because they are easy to calculate and to administer. In general, rebates have been accounting for a small percentage of project first costs over time.

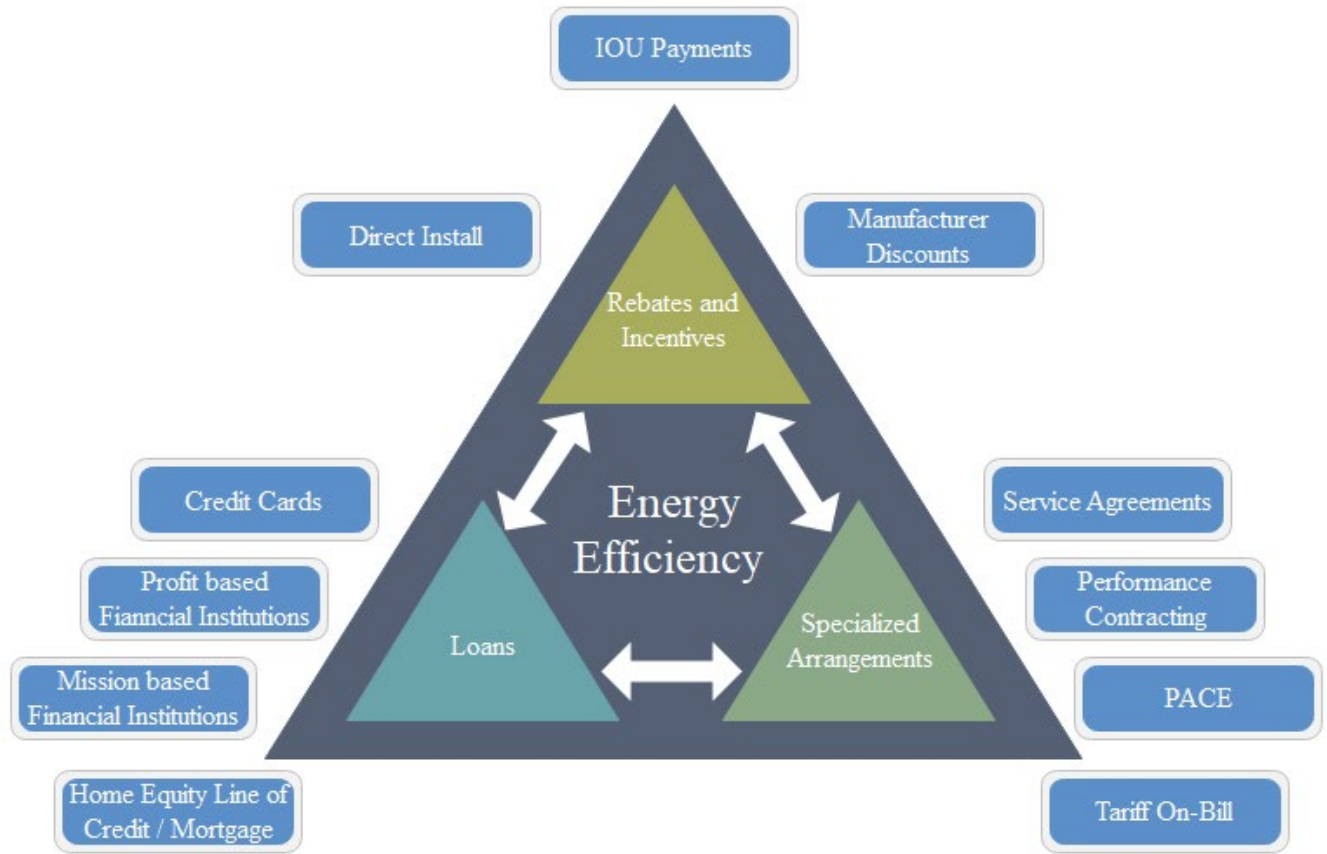


Figure 4. Types of Financing for EE

Taking on any additional debt or repayment obligations reduces household cash flow for customers. This increase in fixed payment obligations decreases spending flexibility and as a result, contributes to financial stress. There are, however, two options that can alleviate the “additional debt” burden incurred from implementing energy efficiency projects. According to research by the American Council for an Energy-Efficient Economy (ACEEE), financing can be divided into two categories: 1. loans and 2. tariff on-bill (Bell, Nadel, and Hayes 2011).

Table 1: Loan vs. Tariff

	Loan	Tariff
Allowable repayment mechanism?	On-bill or off-bill	On-bill only
Where does the financial obligation lie?	Usually, the individual who applied for the loan, but some states allow loans to be attached to meter, so if the resident moves, the next resident takes over the loan payments.	With the meter. If the member-consumer moves, the financial obligation stays where the energy improvements were made, and the new resident takes over payments.
Disconnect for non-payment?	Sometimes	Usually, yes

	Loan	Tariff
What laws are applicable?	Federal and state consumer lending laws, possibly some state public utility commission regulations	Regulations from state public utility commission, if applicable
Is bill neutrality a common program requirement?	Bill neutrality is rarely required for loan-based financing programs	Bill neutrality is a requirement for nearly all meter-attached financing programs

Source: Environmental and Energy Study Institute (EESI 2017)

**Loan** (DOE n.d.). With loans, the homeowner qualifies for and borrows funds to eliminate the up-front cost of the energy efficiency investment.<sup>2</sup> In a well-designed program, the monthly bill reduction from energy savings is greater than or equal to the monthly loan repayment amount. Upon sale of the home, the borrower usually must pay off the loan, although some programs allow transfer to the next occupant if they are able and willing to take on the debt. EE and RE financing can help reduce household hassle costs and still be budget neutral. Across programs the interest rate and term length for these loans is driven by the policy that created them, such as policy mandates, loan buy downs, and loan guarantees. Depending on the source of the loan funds, credit requirements, and debt burden thresholds involved in these loans, they may effectively preclude many low-income households from participating. Renters are also not necessarily benefiting from these offerings. This is because owners usually do not pay the energy bill and renters may not be in one location long enough to pay off a loan, let alone benefit from a lower monthly bill. One approach to overcoming these shortfalls and expanding the market for energy efficiency upgrades is a modification of financing referred to as an on-bill tariff.

**Tariff On-Bill.** Regular loans do not tend to take into account the potential monetary savings achieved by reduced energy costs or increased energy production, however a Tariff model does. An on-bill tariff (OBT) program allows a utility to invest in energy efficiency improvements at a specific residence and recover payment for those improvements over time through the utility bill for that location. The on-bill tariff model differs from loans and other repayment models because tariffs are not a loan. Tariffs are a utility expenditure for which cost recovery is tied to the utility meter according to terms set forth. The OBT sidesteps the cons of **loans** by associating the repayment of funds with the utility meter location, not an individual household account. Therefore, lenders do not have to evaluate occupant credit scores, debt-to-income ratios, or screen for homeownership to offer to pay for energy efficiency work. The key determinant is the consistency of monthly utility bill payments. Homeowners are not required to repay the loan upon selling their home and, just like owned homes, investments in rental units, (single or multifamily) will be paid for by the current occupant. Once repayment is complete, renters should experience lower energy bills and landlords can market the energy efficiency of the unit.

Loans and tariffs are offered in many jurisdictions across several states in the U.S. and in other countries. One well-established, on-bill tariff program is the Pay-As-You-Save system (PAYS), first introduced in the United States by the Energy Efficiency Institute in 1999 (Lachman 2003) and more recently championed in the United States by Dr. Holmes Hummel from Clean Energy Works (Clean Energy Works n.d.). PAYS has three essential elements (Hummel and Lachlan 2018):

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<sup>2</sup> Qualification criteria are determined by the lending institution



1. Estimated savings of energy efficiency upgrades significantly exceed charges on an annual basis and over the life of the upgrades
2. A tariffed charge for cost recovery is assigned to a location, not an individual customer
3. Billing and payment for utility cost recovery is on the utility bill, and protocols for disconnection and nonpayment approved by a utility commission apply

Utilizing these elements, technically the only eligibility requirement is to be a utility customer. Due to the uncertainty of estimated lifetime energy savings, however, PAYS uses an “80% rule.” Under the “rule” the utility investment (and cost recovery) is 80% of the estimated savings based on current electric and gas rates during 80% of the estimated life of the upgrades. The net effect is cost recovery for 64% of the full investment. If a project does not conform to the “80% rule,” the customer can buy down the project with an upfront payment.

Interestingly, while Europe has different cultural values and public institutional structures, the issues with financing projects there are the same as in California. For example, according to a 2018 European Commission Sustainable Energy Investment Forum (Réfabert 2018):

- Property owners are either not aware of benefits, or are aware but do not know how to approach it
- Most residential refurbishment projects are partial and initiated due to equipment failure, not necessarily for whole house energy efficiency improvements
- The concept of a one-stop-shop is ambiguous in terms of what services it offers
- For banks, energy efficiency retrofits are not a relevant market segment

The PAYS model is getting more attention now in the U.S. as one potential solution to ensuring LMI customers are not left behind in our efforts to reduce GHG emissions from residential buildings. This model is a bit young in its tenure so far but states such as Arkansas have reported success so far in terms of getting energy savings for these customers and realizing the benefits for both the utility and customers. However, this model is still early in its deployment in jurisdictions around the country and how well it will perform across climates and jurisdictions. One utility in Missouri has attempted to launch the PAYS model over the last 18 months with limited success so far. One challenge in that jurisdiction is related to their ability to claim savings from dual-fuel customers and ultimately count the dual-fuel savings as benefits in cost-benefit calculations. The electric utility is not allowed to claim gas savings and can only count electric savings. This has introduced a huge barrier to offering this model to dual-fuel customers as projects aren’t able to meet the cost-effectiveness to participate just based on the projected electric savings alone. This has caused the utility to introduce a monthly “copay” requirement for customers to participate which goes against the initial intent of this program to be “free” to customers and even “cash positive” based on the energy savings.

### **REEL Pilot and LMI Customers**

Starting in 2013, the CPUC allocated ratepayer funds to support several energy efficiency financing pilots (CPUC D. 13-09-044) that were designed to test “scalable” products, “leverage” ratepayer funds, and “stimulate deeper EE projects than previously achieved through traditional program approaches (for example, audits, rebates, and information).” One of these products, known as the REEL Pilot, provides customers in single-family residences with access to lower-cost financing for eligible EE

projects. CPUC D. 13-09-044 called on agencies to implement a residential financing pilot for the single-family residential market funded with ratepayer dollars.<sup>3</sup> The decision outlined several pilot goals, one of which is focused on disadvantaged communities:

- To increase the volume of EE financing to attract capital providers and attract new market participants
- To increase the number and comprehensiveness of EE projects
- To reach low to moderate income (LMI) customers

A 2016 ACEEE study suggested cementing stronger relationships to lenders that are already assisting LMI customers, such as community development financial institutions (CDFIs).<sup>1</sup> The REEL Pilot, also known under the umbrella term GoGreen Financing, is similar to this proposed model, as it is implemented by a state agency and leverages the established reputations of locally based credit unions as partner lenders. The pilot established an LLR for enrolled lenders who offer loans of up to \$50,000 to single-family residential customers to carry out EE upgrades. The LLR is intended to help mitigate lender risk and ideally lead to reduced capital costs for borrowers, improved loan terms, and broader market coverage in the LMI and low-FICO-score segments.<sup>4</sup>

REEL financing is designed to help households overcome the up-front cost of such upgrades and may be especially helpful for some LMI households. REEL has a target of disbursing approximately one-third of the total credit enhancement funding to serve LMI single-family residents. This is supported through multiple design features (Cal. Code Regs., tit 4, § 13):<sup>5</sup>

- The LLR contribution for LMI borrowers is set at 20% of the loan principal amount, while it is set at just 11% for other borrowers (to provide a stronger risk mitigation tool for the LMI market).
- Borrowers with FICO scores as low as 580 will be considered for loans under the pilot. However, for applicants with FICO scores between 580 and 640, the lender must verify the borrower's income as part of the underwriting process.
- A "Credit-Challenged Program," which was a voluntary "opt-in" program to allow lenders to receive the underserved credit enhancement rate for loans to borrowers with credit scores under 640, if they could prove that this allowed them to offer a better product to a broader set of borrowers. Three lenders opted into the offering.
- Optional use of area median income (AMI) by census tract to qualify for the underserved credit enhancement rate. Loans to borrowers in census tracts with AMI of less than 120% of county or metropolitan statistical area (MSA) median income would receive the underserved credit enhancement rate.

After 2.5 years of offering REEL to customers throughout CA, REEL issued loans to over 200 households. On average, these customers borrowed \$17K; and are paying \$200/month for 10 years at 7% interest. REEL also reached LMI customers, a third of borrowers are low- to moderate-income (LMI); representing half (51%) of loan volume. A third could also be considered "underserved" based on CalEnviroScreen data. With REEL, lenders changed existing loan products by specifying energy efficiency, extending terms, and increasing amounts that translated into smaller monthly payments for customers. Lenders say they would not be able to offer the same interest rates, terms, and loan amounts without REEL. Many borrowers would likely not have qualified for other loans they could afford or would accept. Further, many of these energy efficiency projects would not have occurred at all without REEL or

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<sup>3</sup> The pilots define single-family residential buildings as those that contain no more than four units. The pilots also include a multifamily unit building financing program, but from a financing perspective this program is better considered in light of the nonresidential market baseline.

<sup>4</sup> The REEL regulations state that interest rates on enrolled loans must not exceed 750 basis points over the US. Government's 10-year treasury rate.

<sup>5</sup> These regulations are currently under review and program design features may change based on the review.

customers would have piecemealed the upgrades over a longer period of time (Opinion Dynamics, et al. 2020).

While REEL is successfully reaching some LMI customers, there are some constraints to this loan model in terms of its ability to serve all LMI customer needs throughout CA.

- **Offering EE loans (even with low interest rates) is not viewed as a solution for truly low-income borrowers.** Stakeholders throughout CA are weary of programs that put customers under additional financial stress and pointed to other options available to low-income homeowners (for example, low-income focused programs and rates) where homeowners do not pay anything.
- **REEL could be a better option for moderate-income borrowers.** While REEL offers attractive interest rates and longer payback periods to lower monthly payments, moderate-income households may be vulnerable to falling into low-income status. REEL may be most appropriate for moderate-, upper-moderate- and high-income borrowers or that, if lower-income homeowners are participating, that the savings-to-investment ratio be greater than 1.0, so that the energy savings exceed the costs to pay for the EE upgrades.
- **REEL design changes could reach more LMI customers.** Some other loan programs in other states have taken further steps to direct loan financing toward customers most in need. For example, the New York State Energy Research and Development Authority (NYSERDA), as a direct lender, introduced tiered interest rates, charging higher rates to households with higher income and high credit ratings, while continuing to offer subsidized lending to lower-income/lower FICO applicants. Connecticut Green Bank introduced a “Credit-Challenged Program,” expanding underwriting requirements and loan access to participants with lower scores (FICO < 580). For further improvements, Connecticut is considering the possibility of only covering loans that are not super-prime with the LLR.

## Conclusions

The main conclusions of this research are as follows:

- Financing can help address the barriers to electrification in DACs. Multiple types of financing are needed to address this market, there is no one size fits all solution.
- Financing needs to allow for a full array of GHG emission reduction opportunities at each residence including energy efficiency, renewable energy, demand response and energy storage.
- Financing options need to be available to renters and changes to the dwelling must at least be neutral to the landowner. Tariff on bill is an option that, in theory, benefits both tenant and property owner.
- It is important to incorporate specific consumer protections (e.g., energy project performance) to mitigate unnecessary risk for customers, particularly for LMI customers and disadvantaged communities. The affordability threshold for LMI households must be factors into a cap in financing of any energy efficiency or clean energy projects.

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