

Financing Energy Upgrades: Not a "One Size Fits All" Proposition

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ABSTRACT

Financing solutions for energy efficiency improvements have been around for more than two decades, but uptake has been tepid. However, state policies are increasing pressure on utilities to reduce carbon emissions, develop community resiliency, and provide climate-centric solutions that can benefit all customers. As a result, utility program sponsors and local governments are looking for new strategies to help make choosing energy upgrades – including traditional efficiency solutions and those that enable resiliency and electrification – easier and more affordable for all customers. Many utilities are giving financing solutions a second look. But with options ranging from traditional unsecured loans to energy efficiency-as-a-service (EAAS) and inclusive utility investments (IUI), it can be challenging for program sponsors to identify the best solution(s) for their needs. This paper will help stakeholders understand strengths and weaknesses of several solutions through observations from current program sponsors. We will demonstrate how financing tools are helpful to increasing access for more customers to pursue clean energy technologies and solutions, while identifying that some limitations to broad applicability and scale still exist. We contest that the best approach may be one that fosters the inclusion of multiple financing solutions and complementary programs to enable program sponsors to address different barriers and help ensure broader adoption of energy improvements by those customers who have not historically participated.

Introduction

Energy efficiency improvements that provide deep savings (e.g., air sealing and insulation, heating and air conditioning (HVAC) replacements, and water heater replacements) are not cheap, and overcoming first cost barriers to participation has been a theme since the early days of energy conservation. With the economic potential for previously successful measures and program models declining already or soon due to advancing codes and standards (e.g., lighting and appliances), coupled with consistent or growing savings requirements, program sponsors are looking for effective ways to invigorate deeper retrofits and drive scale beyond what they currently achieve. Project financing or similar tools are gaining traction to lessen or eliminate the upfront cost of making deeper retrofits. The Environmental and Energy Study Institute, which offers technical assistance to rural electric cooperatives interested in financing programs, maintains a map of current on-bill financing programs in the United States that shows 110 active programs including more than 20 investor-owned utilities (Environmental and Energy Study Institute 2021). In addition, there is a growing interest in tariff on-bill programs with states of Missouri and Illinois requiring investor-owned utilities to implement or pilot such programs (Uhlenhuth, Karen 2021, Illinois Commerce Commission 2021).

Ever growing concerns about climate change and the need to drastically curtail fossil fuel consumption are also driving interest in financing tools. Financing has the potential to be an important mechanism to help utilities reach the scale necessary to meet clean energy policy

goals, including beneficial electrification and decarbonization, and to ensure that all households – both owner occupied and rental units – are served.¹

There are dozens of finance tools in the market today, each with its own set of objectives, rules of engagement, and prospects for success. New models or variations on old models continue to evolve. The common denominator is that each financial tool is limited in its applicability, i.e., its ability to serve all types of households. We suggest multiple financing tools may ultimately be needed to achieve program goals of deeper retrofits and decarbonization. While a one-size-fits-all solution may be attractive, increasing access to a variety of tools could best serve the needs of diverse target customer groups.

Methodology

In this paper we define existing financing tools common in the market. We then provide insights on how these models have fared by drawing on learnings from current program sponsors. For the purposes of this paper, we define financing tools as a mechanism that covers the full or partial cost of an energy efficiency retrofit, which will be paid back in some form by the (current) occupant or owner of the affected space. Our focus is primarily on the residential sector, though we included commercial program sponsors in our conversations and lessons from residential programs may be extended to the small business sector in some cases. We narrowed our scope to programs most often used by utilities, rather than trying to capture the myriad financial mechanisms available to state and local governments or through direct-to-consumer channels. Learnings and observations were informed by conversations with current managers of financing programs offered by Evergy Missouri (Evergy MO), New York State Energy Research and Development Authority (NYSERDA), Pacific Gas and Electric (PG&E), Public Service Electric and Gas Co. (PSE&G) New Jersey, PSE&G Long Island, Southern California Gas Company (SCG), and BlocPower. Our focus of these conversations was to uncover three key aspects of program design and delivery:

1. Stated goals/objectives.
2. How well goals have been addressed.
3. What program sponsors would change (to help achieve their goals).

In preparation for each conversation, we shared the key aspects with the program sponsor. During conversations we allowed the discussion to concentrate on topics that were most salient and important for program sponsors to share. As a result, the discussion of their experiences is organized thematically rather than by utility and concentrates on the key take-aways communicated by the discussion partners. Not all program sponsors are represented in each of the sections.

High Level Findings

Stated goals/objectives. We found that goals and objectives can be grouped into four high-level categories and show some consistency across the field of potential tools in use today. The main

¹ Renter-occupied households can be subject to what is commonly known as “split incentives”. This describes a situation where the party responsible for the capital investment may not reap the improved comfort and safety benefits accruing from the energy efficiency improvement and therefore lacks the motivation to make the investment.

goal for all programs was to reduce the first cost barrier, but expanding access to program offerings, allowing measure flexibility, and being mindful of risk for various stakeholders are also common objectives of current programs.

How well goals have been addressed. The program sponsors of all programs studied had positive things to say about the performance of their programs. They found that customers were interested in learning more about the financing option and that financing was effective in addressing the first cost barrier for those customers that participated. Several of the hypotheses that utilities had about their financing programs were still being tested, including whether it would increase adoption of specific measures and better address the split incentive barrier.

What program sponsors would change. While utility program managers were generally happy with their financing program, there were several recommendations they had for improvement. These included making tweaks to the program design, such as better addressing early loan payoff, improving processing time for loan approvals and payments to contractors and taking customer patterns (e.g., spending time in another state for the winter season) into account when determining length of time for delinquency before writing off a loan. Utilities also noted the importance of upfront and continual education of contractors for them to effectively discuss the financing option with their customers.

Financing Tool Overview

Deep energy efficiency upgrades to a home improve comfort and indoor air quality, save money, and are critical for mitigating the worst impacts of climate change. Yet, these measures are unaffordable to many and low priority for others. Financing mechanisms can help overcome the inclination to avoid these investments. According to the National Energy Improvement Fund (NEIF), 60 percent of all energy efficiency improvements are financed using tools like home equity, credit cards, or loans (Brown, M., et al. 2021). However, unless the homeowner is rolling these investments into a larger project, or purchasing single measures at a time, “most energy improvements fall into the financing “twilight zone” – too big to pay cash or use a credit card and too small to go through the effort of obtaining a home equity loan.” (Brown, M., et al. 2021) These traditional financing methods also assume that the homeowner has decent credit history, income level, and financial literacy. Because not all customers fit this profile, large numbers of potential projects go unexplored or uncompleted, leaving numerous benefits unrealized. Simple financing mechanisms with the ability to reach consumers more equitably, with point of purchase availability, and low monthly payment options seem ideal for overcoming these complications.

There are several financing mechanisms available for utilities to encourage and increase the adoption of energy improvements by customers. These span traditional financing, such as loans and leases, specialized financing, property assessed clean energy loans, and efficiency as a service. Internal funding and green bonds are also part of this solution set. On-bill—including financing, repayment, and tariff on-bill—and efficiency-as-a-service (EAAS) financing mechanisms are most relevant to utilities as they either rely on their own billing process for collecting payments or, as in the case of EAAS, can be easily integrated into utility demand side management (DSM) portfolios. These options are explained further below.

On-Bill Options

On-bill options function so that the upfront cost of the upgrades is either fully or partially covered, and the repayment happens as part of the customer's utility bill. This eliminates an additional payment process, cycle, or organization the consumer needs to engage. Most programs are designed in a way that the financing option is offered seamlessly with the plan for upgrades in the home. Three main options exist, with their unique or differentiating aspects noted here.

On-Bill Financing. In on-bill financing (OBF), a utility acts as the lender and supplies capital to its customers (U.S. Department of Energy 2022). OBF program sponsors can leverage third party capital, their own capital, and/or ratepayer funds to pay for projects. The interest rates charged to participating customers are generally low, but like traditional loan products, OBF usually requires an assessment of credit history and ability to repay the loan. In OBF programs, customers own the improvements, and the loans are generally nontransferable and must be paid off by the customer if they move from the property (definitions of these mechanisms are provided in detail in ACEEE 2017). The amount of funding available is determined by the utility and its regulatory or advisory body.

On-Bill Repayment/Recovery. On-bill repayment/recovery (OBR) leverages third party capital (e.g., for-profit or non-profit financial institutions) instead of utility sources of capital, but similar to OBF uses the utility bill as the vehicle for repayment. For this mechanism, the utility is essentially acting as an intermediary, collecting repayments from the customer, and passing them on to the lender. Because OBR programs use private capital from third-party investors, the interest rates charged to participating customers are higher than OBF, but usually below market rates (Maryland Public Service Commission 2020). In contrast to OBF, OBR can make more funding available through financial institutions if the utility is willing to work as the conduit (ACEEE 2017). OBR also requires underwriting or an assessment of the customer's ability to repay the loan. Like OBF, customers own the improvements in OBR, and the loans are typically nontransferable and must be paid off by the customer before moving (ACEEE 2017), though there are exceptions as presented below with NYSERDA.

In both OBF and OBR programs, creditworthiness can be an insurmountable barrier to many low- and moderate-income households. Both models are difficult to engage renters and landlords due to the phenomenon of split incentives. Split incentives can lead to situations of delayed maintenance or upgrades by property owners. This can result in uncomfortable and/or unhealthy indoor living environments for tenants due to inefficient heating, cooling, and water heating systems, as well as poor air sealing and insulation and with little impetus to improve the conditions.

Tariffed On-Bill. The final on-bill category is tariffed on-bill (TOB), which differentiates itself from the others by being tied to the property's meter rather than the current occupant (owner or renter). Repayment charges remain in force regardless of a change in occupancy, whether that is due to a new tenant, a point of sale, or a foreclosure. New occupants are obligated to pay the tariffed charges until the utility cost recovery is complete. This feature theoretically opens the field to a wider group of potential customers including renters and landlords. Unlike the differentiating feature of the source of capital in OBF and OBR, TOB can be either public or

private capital (or a combination). The creditworthiness of the current occupant is generally not relevant when issuing funds.

The trademarked Pay As You Save® (PAYS®) program is a branded TOB program that is gaining attention in recent years as large investor-owned utilities and their regulators begin to consider the TOB option (Liberty Homes 2022). PAYS incorporates consumer protections, including what is called the 80 percent rule. This rule requires that the annual repayment amount cannot exceed 80 percent of the estimated annual savings and that the repayment term is not more than 80 percent of the estimated life of the shortest-life measure in a package of upgrades. This is designed to help the customers save money even though they are obligated to make repayments (Energy Efficiency Institute, Inc. 2021).

EPA also recently began promoting TOB programs, under the term Inclusive Utility Investment (IUI) (U.S Environmental Protection Agency, ENERGY STAR Program. 2022). Like PAYS, they believe that effective consumer protections should be in place with a TOB program, and they list several best practices on their website.

Efficiency-As-A-Service (EAAS)

The final option is EAAS, also referred to as pay-for-performance. This financing method is like TOB in that it centers on recovering the costs of the measures implemented through their associated energy savings. This option is unique as it is most often implemented by a third party who covers the costs of the improvements and recovers them based on actual energy savings. This arrangement allows customers to implement chosen projects with no upfront capital expenditure. After measures have been installed, service payments for the work are paid based on actual energy savings or other equipment performance metrics (U.S. Department of Energy 2022). Some EAAS programs, such as SEALED (Sealed 2022) and BlocPower, exist as direct-to-consumer models, in which case a customer will be directly responsible for the service charges over the repayment period. This type of EAAS is sometimes known as a Managed Energy Services Agreement (MESA). In a MESA structure, the provider takes a hands-on role in facility management and utility bill payment. The provider will charge the customer an agreed-upon fixed rate based on historical energy consumption to recoup costs, while insulating the customer from rate changes. MESAs may be applicable where a “split incentive” between landlord and tenant exists since charges could be passed through to tenants (U.S. Department of Energy 2022).

Observations and Lessons from Current Program Sponsors

To inform this paper, we held conversations with program sponsors and implementers of financing programs on behalf of utilities across the country. The choice of who to speak with was made with the aim of presenting a diverse sample of approaches. While these conversations only represent a subset of the existing financing programs, the viewpoints can help build a foundational perspective for the different models and provide insight into whether they have delivered their desired outcomes. Basic program descriptors are presented in Table 1 below, followed by observations from the conversations, which are organized by major themes.

Table 1. Overview Characteristics and Target Audience of Five Cases

Type of Financing Tool or Mechanism	Representative Program Sponsor
On-bill Financing*	Public Service Electric & Gas (New Jersey) • Active since 2009 for commercial, expanded to include residential in mid-2021. • Uses ratepayer funds to offer interest-free on-bill financing for its Home Performance with ENERGY STAR, HVAC, and Quick Home Energy Check-Up programs. • The principle of the loan is paid out in the first year – full amount becomes a regulatory asset that is amortized over/up to 10 years. • Cannot be transferred. • Measures include high-efficiency gas and electric HVAC, water heater measures, and building envelope upgrades.
	Pacific Gas & Electric (California) • Active since 2011 for commercial and government agencies. • Uses ratepayer funds to offer interest-free on-bill financing for retrofit projects with estimated annual energy savings that are at least \$1,000. • Financing offers are not allowed to be bundled with other incentives offered (i.e., weatherization measures). • OBF loans must be “bill neutral”, i.e., the estimated energy savings must be sufficient to repay the loan during the maximum allowable payment term (up to 10 years). • Cannot be transferred. • Measures are identified through an engineering analysis and can include LED lighting, pumps, motors, HVAC systems, and other retrofit measures.
On-bill Repayment/Recovery	New York IOUs/PSE&G Long Island/NYSERDA • Active since 2009 with the Green Jobs/Green New York (GJGNY) legislation. • NYSERDA acts as the lender, overseeing revolving loan funds that are a combination of Regional Greenhouse Gas Initiative allocations, U.S. Department of Energy grants, and bonds. Customers may apply for low interest loans which are repaid through utility on-bill repayment for programs like Assisted Home Performance with ENERGY STAR, Residential Energy Efficiency, Comfort Homes, NY-Sun, and Air and Ground Source Heat Pumps

	(New York State Energy Research and Development Authority 2022). • Can be transferred at time-of-sale with consent. • Measures identified through home assessments may include simple weather-stripping and home envelope measures, appliances or heating equipment maintenance and upgrades, and upgrades to energy-efficient lighting.
Tariff On-bill	Evergy Missouri PAYS Pilot • Launched in September 2021, currently approved through 2023. • Uses existing utility lines of credit to finance and a combination of customer on-bill repayment charges, ratepayer funding, and (future) base rate adjustments to recover costs (File 2021). • Transferrable by design. • Measures may include HVAC upgrade, water heating, attic insulation, air sealing, duct sealing, and smart thermostats.
Energy Efficiency as a Service	Southern California Gas (SCG), Smart Home Optimization Program • Launched in 2020, runs through 2022. • Provides high-impact direct install measures that are fully financed by the program implementer. Repayment is based on actual bill savings using the CalTRACK methodology leveraging rate-payer funds with a cost-recovery period of 12 months. Implementer finances the program measures and is repaid through energy bill savings realized. • Transferability not directly applicable; if a customer moves then SCG will make remaining payments to the implementer based on average savings of similar projects. • Measures include smart thermostats equipped with a weather optimization protocol, an Aquanta retrofit water heater controller (like a smart thermostat for water heaters), and thermostatic control valves for tub spout and shower heads.

* The PSE&G program is officially known as “on-bill repayment”. However, since ratepayer funding is used, we classify this program in the paper as an OBF program.

Design Elements that Address Stated Goals and Objectives

Program sponsors embarked on offering a financing tool chiefly to reduce or eliminate the first cost barrier that hinders their customers from investing in energy efficient choices. A secondary, but related goal was to expand access to programs for specific target groups. A third goal was measure flexibility. Specifically, the level to which a financing tool can be used for

measures that fit customers' needs, the utility's needs, and for which the utility can claim savings. Finally, financing inherently comes with risk and minimizing risk for utility and consumers was another goal that program sponsors had. The section below captures the rationale behind sponsors' goals and some of the program design elements incorporated to help sponsors address their goals.

Reduce first cost barrier. At the foundation of all programs reviewed is the goal to offset or eliminate the upfront cost of participation for customers to increase program participation. Financing, regardless of the actual mechanism (e.g., OBF, OBR, TOB, EAAS), is a useful method for enabling this to happen.

Expand access. Program sponsors have struggled to engage certain segments of the population with their DSM programs. Beyond upfront cost, barriers to participation can be manifold. Communication methods may be inadequate (e.g., not reaching consumers in languages they understand, using culturally appropriate messaging, and/or leveraging channels customers trust and regularly engage with). Limited time and ability to engage with programs and often a general lack of trust of one's utility can also lead to customers not participating in available offerings. Ownership status and current conditions of the home often exclude certain households outright. Yet harder-to-reach populations are an important target for program sponsors, whether they are low- and moderate-income homeowners or renters, market rate renters, or small business owners.

New York program sponsors have made expanding access a priority. New York State Energy Research and Development Authority (NYSERDA)'s revolving loan fund supports several OBR options in conjunction with the utilities in that state and is aimed at increasing participation in energy efficiency upgrades for all customers. To further enable customer participation, loans in NYSERDA's programs may also cover removal of equipment or systems and any related services needed, including essential health and safety improvements (New York State Energy Research and Development Authority 2021).

Customers of PSE&G Long Island (and the investor-owned utilities in the state) with a total household income equal to or less than 80 percent of state or area median income (AMI) can apply for financing incentives through the Assisted Home Performance with ENERGY STAR[®] subsidy program, which includes a home energy audit and deep energy retrofits.

Measure flexibility. A common obstacle for retrofits in homes is the mismatch between the design of the program, the limitations of the program sponsor, and the actual needs or preferences of the intended customer. This mismatch can be related to timing, cost-effectiveness requirements, or program requirements related to pay-back.

It is generally rare for customers to proactively upgrade their HVAC or water heating systems before they fail (Wilson, E. et al. 2017). For emergency replacement, a major factor in the consumer's choice about efficient options is product availability and if access to a financing tool is available quickly and easily. In the case of PSE&G New Jersey's OBF option, customers can apply for financing as part of its midstream HVAC program. Customers have an identifier in the company database as to whether they are eligible for financing and the funds can be available almost immediately.

In the Evergy MO PAYS pilot, the required 80 percent rule that ensures net annual savings can limit which measures are possible to install without requiring a co-payment from the customer. Yet when this model is designed in a way that allows ready access to products, such as

through bulk purchase of common measures, it could more easily apply to emergency replacements since the credit worthiness of the customer is irrelevant to determining eligibility.

Tools like the SCG EAAS program that require immediate net savings realization restrict the measures that work with the model and/or require targeted outreach to find properties with baseline conditions that allow savings to accrue right away. For program sponsors interested in offering a broader set of beneficial electrification measures, this factor would be an important consideration.

Levels of risk. If the goal is to minimize risk for the utility, very few financial tools have a positive risk profile. Of the four financing mechanisms studied, only the EAAS can significantly shelter the utility from risk. In the case of the SCG EAAS, the utility repays the program implementer only after verified savings begin accruing. For OBR approaches like NYSERDA's, where third party capital is utilized without the need for ratepayer funding subsidies, risks to all customers are minimized. OBR may, however, still incur costs for the program sponsor for administration, which in turn increases the level of risk for the utility. From the customer perspective, the Evergy MO PAYS pilot can be low risk for customers if the program includes the requirement that bill savings be equal to or greater than the repayment charge. Risk would be further minimized for a TOB or EAAS models if repayments are paused if savings are not realized.

Comments on How Well Goals Have Been Addressed

The sponsors of all financing models discussed were positive about the performance of their programs, yet each had qualifications related to their success. For example, Evergy Missouri's PAYS pilot targets households with high energy bills relative to home size and other characteristics (e.g., age) who would be less likely to require an upfront co-pay to meet the 80 percent rule. While results from this very new pilot are still largely outstanding, Evergy contends that the model is likely going to work best when customers are able to make a small co-pay, needed to meet the program requirements. This could limit the model's ability to reach customers with more limited income who Evergy may have hoped to reach through the pilot.

The SCG Smart Home Optimization Program was designed to be a proof-of-concept program to install measures (nearly) free of charge and then study meter-based savings compared to deemed savings assumptions. The pilot targeted two populations—"hard-to-reach" and "disadvantaged communities" (as defined in California) with a set package of measures intended to yield savings immediately. Participants were expected to pay a small co-pay. The goal of the pilot was to reach about 1,800 homes in two years. SCG faced immediate hardships in 2020 with the onset of lockdowns in response to the COVID-19 pandemic. Without the ability to enter customer homes, the program essentially stagnated. In 2021, as restrictions lifted, the program implementer doubled down on its efforts to reach customers and managed to engage about 1,600 homes, or close to 90 percent of the goal. Contrary to original plans, the small co-pays were eliminated and customer targeting efforts increased to achieve goals, which added to the cost of the program. Since most installations were completed within the last year program outcome metrics are unavailable, but the increase in program costs are concerning for the implementer.

Since program inception in 2009, PSE&G New Jersey's OBF program has been very popular among business customers. With the recent expansion of residential energy efficiency programs managed directly by the utility rather than the New Jersey Clean Energy Program (NJCEP), residential OBF options have been added. Program managers have seen a steady

uptick in participation since July 2021, with about 70 percent of Home Performance with ENERGY STAR (HPwES) and about 35 percent of HVAC customers taking advantage of financing as of December of 2021.² The program sponsor noted that the discrepancy in participation in financing between HPwES and HVAC may relate to the contractor network's familiarity with the option. HPwES had financing options for many years under the NJCEP and its contractor network is comfortable with talking about the financing opportunity and process. This is not the case with the newly added HVAC financing option. Additionally, PSE&G New Jersey has seen 70-75 percent of interested customers able to meet eligibility criteria, compared to its 60 percent goal.

In New York, the NYSERDA residential revolving loan fund has had by far the greatest demand compared to other programs established as part of the GJGNY legislation, with over 20 thousand energy efficiency loans closed between October 2010 and June 2021, valued at more than \$186 million. In the years 2020-2021, over 10,000 applications were received and close to 80 percent were approved. Participation in the program overall is impressive, but results show that the target audience—low-income households and those without access to reasonable credit options—may be underutilizing the tools. To expand its reach to lower income households, NYSERDA created Tier 2 loans, which expand eligibility by considering mortgage payment history and an alternative debt-to-income ratio instead of FICO score for the primary qualification metrics.³ This change has led to Type 2 loans making up about 15-25 percent of loans issued monthly (New York State Energy Research and Development Authority 2021). Less than 30 percent of Assisted HPwES projects completed in the 12 months ending on June 30, 2021, were financed through a GJGNY loan (New York State Energy Research and Development Authority 2021). This raises the question of how the remaining 70 percent of participants in this program (for households who are at or below 80 percent of AMI) are paying for the program. Alternatives may include out of pocket, accessing other low-interest financing, or using higher interest or more predatory type loan products.

What Program Sponsors Would Change (to Help Achieve Goals)

Program sponsors noted several program elements they would be interested in changing or refining, with varying levels of effort to do so. For example, PSE&G New Jersey, despite seeing a higher number of interested customers qualify for their program compared to their goal, would like to revisit its decision-making criteria, and consider ways to open the eligibility to an even greater percentage of customers.

The New York OBR program has faced significant burden in two areas. First, NYSERDA's program requires loans to be written off after 120 days of no payments received. They have found this rule to be too restrictive for special circumstances, such as customers forgetting to pay bills while they spend the winter in warmer states. Writing off loans that could eventually be paid causes balance sheet issues for the loan fund and NYSERDA would wish for more flexibility in certain cases.

Second, NYSERDA has found that the requirement to file a declaration of the loan with the county has resulted in unexpected administrative efforts and costs. For example, whenever a

² Based on conversations with the program implementer on February 10, 2022.

³ Tier 2 expands the number of people who can qualify by substituting mortgage payment history for the FICO score as a primary qualifier. In addition, Tier 2 provides alternative debt-to-income ratio requirements in recognition that the households energy costs are reduced, addressing what is currently the most common cause of loan denial.

customer refinances their home and/or moves, lenders reach out to NYSERDA to subordinate the loan although this is technically not required, which equates to a substantial administrative burden. In addition, counties typically charge a fee for filing the declaration, which has exceeded \$1.8 million over the life of the program and is money that otherwise could have been lent to customers. Further, although uncommon with OBF programs, NYSERDA allows loan transfers at the time of sale to offer flexibility for consumers. However, transfers have only been successful about 20 percent of the time, due in part to arduous county reporting requirements and customer confusion about the process (NYSERDA 2021. Pg. 10). To address this, NYSERDA has worked in recent legislative sessions to remove the filing declaration and amend the requirements for transferability. They seek to have the rules be voluntarily, assumed by the new owner through a written agreement, completely paid off at the time of sale, or for payments to continue by the previous owner but paid directly to the loan servicer rather than through the utility bill. Amendments to the criteria have yet to be adopted, but NYSERDA is persistent in trying to accomplish this.⁴

Evergy MO sees advantages in being able to have greater line of sight into customer eligibility for existing income-qualified programs. While its PAYS program does not consider income to determine eligibility, the utility would like customers who are able to take advantage of free programs to do so—including income qualified weatherization, duct sealing, and like-in-kind-replacement for HVAC equipment when needed—rather than take on repayment charges through PAYS. Additionally, Evergy MO would be interested in offering customers the option to repay their total project amount early, which would allow customers planning to stay in their homes to realize total bill savings sooner. This point relates to the requirements of the PAYS program and is part of the reason Evergy stopped short of requiring PAYS in the public filing for an on-bill financing program in its Kansas territory (Ives, D., Winslow, K., File, B., et al. 2021) though in general Evergy supports the design of PAYS.

For SCG, the nature of the program for the utility and program implementer was highly experimental. Having to deal with an unexpected challenge of COVID-19 lockdowns, the rules of engagement, and the assumptions used for modeling and savings calculations played a more pronounced role than anticipated. As a utility, SCG has been largely sheltered from the financial risks associated with the program while the implementer, as the upfront funder of the program, is significantly exposed. Full program results are still pending, but the general feeling is that a similar program approach in the future would need to place a more critical eye on potential scenarios and how to build program rules (e.g., related to increased costs to cover co-pays and recruit customers and how to treat negative savers) and modeling assumptions (e.g., the CalTRACK methodology uses the previous year's weather as the baseline, which can inadvertently lead to more homes appearing to be negative savers) to spread risk more evenly.

⁴ NYSERDA proposed a department bill (S6331/A8277) during the 2019–2020 Legislative session to amend the requirements for transferability and recording of OBR loans. The proposed change would allow the loan to either be voluntarily assumed by a subsequent purchaser of a property through a written agreement or for the loan to be satisfied by the existing owner through ongoing payments directly to the loan servicer (not through the utility bill), therefore eliminating the need for recording a declaration. This amendment to the statute would eliminate the confusion and other issues that have arisen with property transfers. The legislative amendment passed the Senate, but not the Assembly. NYSERDA will continue to work with the Legislature again in the 2022 session to consider passing the bill (S.6612) and enacting this amendment.

Conclusions

Program sponsors agree—new savings need to be found and new customers need to be engaged to achieve their savings goals. There is a growing sense in the industry that financing tools or mechanisms can help move sponsors in this direction. As with most things in energy efficiency programs, finding the right financing tool that pushes the industry further down this path is fraught with complications. Yet, current sponsors of financing programs remain generally positive about the prospects of their financing approaches, seeking ways to amend their chosen tools rather than abandon them. In this paper, we presented learnings from current managers of financing programs about the tools being used in the market today. Our hypothesis at the outset was that available tools are limited in their ability to serve the needs of all customers, and by providing access to a variety of financing tools, a utility may better meet its goals and the needs of all its customers.

While it is clear financing can help increase access to utility energy programs, we believe there is no “perfect” mechanism. Each type has its strengths and weaknesses, but this realization can be used as an advantage for utilities by allowing them to offer multiple financing mechanisms to ensure the broadest impacts of their programs. Exhibit 2 summarizes common program goals for financing tools and provides a high-level positive rate (thumbs up 👍), negative rating (thumbs down 👎), or a neutral rating (side-ways thumb 👉) rating for how well that tool addresses the common goals defined in this paper and in use with program sponsors.

Exhibit 2: Comparison of Financial Tools & Their Relative Relationship to Common Goals

Common Goals		OBF	OBR	TOB	EAAS
Reduces Upfront Cost		👍	👍	👍	👍
Expanding Access	LMI customers eligible	👉	👉	👍	👍
	Renters eligible	👎	👎	👍	👉
Measure Flexibility	Can handle emergency replacement	👉	👉	👉	👎
	Can cover all measures (e.g., regardless of cost-effectiveness)	👍	👍	👉	👉
	Can cover beneficial electrification	👍	👍	👉	👉
Risk Management	Level of Risk for Utility	👎	👉	👎	👍
	Level of Risk to Customer Participant	👎	👎	👍	👍
	Level of Risk to Ratepayers	👎	👍	👉	👉

Financing tools become their own unique manifestation under the specific rules governing the program. As a result, we stop short of providing any conclusions about the specific scenarios or target audiences for which a particular tool might be appropriate. Nonetheless, there are many notable lessons learned that utilities could apply as they consider financing mechanisms for their program. These include:

- Developing metrics to help with the prequalification of customers may increase the use of financing mechanisms and make it applicable for midstream or other program delivery models that enable energy efficient choices in replace-on-failure scenarios.
- Considering the implications for cost/benefit tests. While financing programs can certainly help make energy improvements more accessible to customers by lowering the first cost and split-incentive barriers, the cost of financing may negatively impact most cost/benefit tests.
- For maximum flexibility, considering permitting loan transfers and the requirements for doing so, as well as allowing pre-payments.
- Considering external factors and their potential impacts on your program. COVID-19 is one example, but it is widely anticipated that interest rates will eventually rise.
- Conducting due diligence on potential rules relating to filing requirements with the county or other levels of government, as this could add administrative burden and costs.
- Considering your customers' bill paying behavioral patterns when deciding how long to wait before writing off loans to avoid potentially unnecessary balance sheet issues for the loan fund.

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