Tool Time: How PG&E Organized Its Financing Program Development

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ABSTRACT

"*What are we forgetting?*" That was the question facing Pacific Gas and Electric (PG&E) when it was tasked with working with the statewide investor-owned utility (IOU) Team to develop seven energy-efficiency financing pilots in less than a year. The seven pilots ordered by the California Public Utilities Commission span residential, commercial, and multifamily markets and multiple financing models that include leasing and on-bill repayment. PG&E needed a comprehensive, organized, and uniform approach to developing these programs.

To address this need, PG&E's Energy-Efficiency Finance Team commissioned Cadmus to create a Financing Program Analysis Tool. The tool is a highly functional spreadsheet that organizes the analysis of energy-efficiency finance programs into a hierarchy of six categories, 25 attributes, and 118 details. For example, one of the six categories is Marketing. Under Marketing there are five attributes, one of which is Customer Experience. Under Customer Experience there are seven details: Customer Support; Audit; Recommended Measures; Contractor Quotes; Rebate and Loan Process; Timing; and Other. These are just seven of the 118 details addressed by the Tool.

The tool prompts program managers and other users to enter program details and analyze each detail based on a number of considerations. Users achieve a thorough understanding of each attribute and whether it represents a positive or negative for the program. The tool also serves to identify critical steps for program development and improvement, any information gaps needing to be addressed, and more. This paper describes PG&E's approach so readers can determine if it is a useful example for developing and analyzing their own energy-efficiency programs.

Introduction

Pursuant to California's Energy Action Plan (EAP), the state has determined to invest first in energy efficiency and demand-side resources, followed by renewable resources, and only then in clean conventional electricity supply. It is widely accepted that energy-efficiency measures are the most important tool for addressing greenhouse gas emissions, a desirable outcome for all utility customers. Lowering the barriers to energy-efficiency retrofits and financing, particularly in underserved market sectors, is also critical to reaching the state's goals of reduced energy consumption (CPUC D-13-0-044, p. 2).

While financing and delivery options for solar products have seen explosive growth, pure energy-efficiency financing and delivery models have languished, especially for certain sectors. Recognizing that the cost barrier is an issue and that the state's aggressive goals for energy efficiency will require significant capital, the California Public Utilities Commission (CPUC) has pursued several energy-efficiency finance initiatives. The CPUC's most recent initiative Decision 13-09-044, issued September 2013, authorized the California investor-owned utilities (IOUs) to implement seven energy-efficiency financing pilot programs.

In order to develop the pilots, the CPUC directed the IOUs, with Southern California Gas Company (SoCalGas) as the lead, to hire expert financing consultants to develop programs that would leverage private capital using ratepayer funds. The CPUC provided guidance on the forms the programs should take, such as a credit enhancement strategy for the single-family market, a credit enhancement and on-bill repayment option for the multifamily market, credit enhancement for the small business market, and on-bill repayment for all non-residential customers.

The CPUC specified that the programs should "keep it simple and fast" to ensure uptake by the contractors delivering energy efficiency to the utility's customers. The programs are to be uniform across California to help attract financial institutions with sufficient private capital to match the scale of the California market.

By ensuring that financing is available for energy efficiency, the CPUC and IOUs hope to meet several goals that include:

- Increase the use of energy-efficiency products
- Broaden access across market segments to financing
- Support deeper and larger projects so that each project achieves greater energy savings
- Encourage private lenders to increase access to capital for the energy-efficiency market

Table 1 lists the recommended pilots, customer segments, IOU billing functionality, and credit enhancements.

Table 1. Recommended pilots

Customer Segment	Pilot	IOU Billing Functionality	Credit Enhancements (CE)
Single Family Residential	Single Family Loan Program (SFLP)	N/A	Loan Loss Reserve (LLR)
	Energy Finance Line Item Charge (EFLIC)	On bill repayment- without shut-off for non-payment of financing charges. No transfer to subsequent owners or occupants.	Sub program of the SFLP. Customers who take out a SFLP loan can elect to repay via the utility bill, subject to lender participation.
Multi-Family Residential	Master Metered Multifamily Financing Program (MMMFP)	On bill repayment- without shutoff for nonpayment of financing charges.	Debt Service Coverage Reserve (DSRC) - up to 10% of loan value
Small Business as defined by the Small Business Administration (SBA)	On-bill Repayment (OBR) with CE and Lease Providers w/CE	OBR - Shutoff on no payment, transferability with customer consent.	Loan Loss Reserve (LLR)
	Lease Providers w/CE - Off-Bill	None	
Medium and Large Business, Institutional	OBR without CE	OBR - Shutoff on no payment, transferability with customer consent.	None

Energy-Efficiency Financing: Evolving Market, Evolving Needs

The market for energy-efficiency financing has been and is continuously evolving. The California IOUs have been offering customer programs since the 1970s. From the late 1970s to the mid-1980s, PG&E administered the Zero Interest Loan Program (ZIP) to support residential energy-efficiency investments. This program originated a significant number of loans (450,000 loans), but issues with program design and administration created a lasting negative impression for both customers and the utility. Interestingly, when the program was ended, energy-efficiency programs were redesigned to instead offer rebates and incentives, which were less costly at the time.

Over the years, there have been a number of products and initiatives that have been developed to support energy-efficiency investments by customers in different market segments. These include innovative financial models, such as Property Assessed Clean Energy (PACE) and derivations of traditional financial transactions such as the Federal Housing Administration's Energy-Efficiency Mortgage and PowerSaver loan. While none of these programs have been (to date) the "killer app" of energy efficiency, program managers need to be aware of an ever-changing market to ensure that programs they create meet a specific market need and do not duplicate existing offerings.

Recently, much of the current guidance and best practices for energy-efficiency financing programs are based on the experience of a variety of programs sponsored by the U.S. Department of Energy and funded by the American Recovery and Reinvestment Act (ARRA) during 2009–2013. ARRA was an economic stimulus effort designed and implemented at a time of unprecedented turmoil in the housing, real estate, and financial markets. It supported a number of successful and innovative programs.

What the history of energy-efficiency financing has taught us is that there is no single solution. Various customer segments will have differing needs and, even within certain segments, solutions will also differ depending on customer attributes and preferences.

Energy-Efficiency Financing: What Drives Uptake?

When evaluating financing programs, the attributes that often come to mind are interest rates, underwriting criteria such as borrower income and credit, ease of use for contractors and homeowners, loan term, and borrowing limits. One might expect it would be easy to identify an offering that would be widely popular, such as the one with the lowest interest rate. However, this is not always the case.

While some programs successfully offer low interest rates, generous underwriting, and simple origination processes, such programs typically require heavy subsidies. Programs like the California pilots, which have goals to create long-term value for ratepayers by creating a sustainable model, are limited in what they can offer.

In order to develop a successful financing pilot, program managers need to comprehensively address a number of questions, including:

- What other attributes might contribute to a program's success?
- What are the key differences among financing programs?

- What is the market willing to offer without ratepayer subsidy?
- What are the key make-or-break aspects of program design?
- What are the nice-to-have-but-not-necessary aspects?

To ensure that nothing was forgotten during program design, PG&E's Energy-Efficiency Finance Team engaged Cadmus to create a program evaluation spreadsheet tool that allows the user to thoroughly consider all aspects of an energy-efficiency program.

Designing the Tool

The Energy-Efficiency Finance Team and Cadmus quickly recognized that the tool also needed to simplify and clearly communicate information about financing options to other IOU staff and management. Although financing programs are not necessarily integrated into existing utility infrastructure, stakeholders throughout the company must understand the nuances of differing financing options, how such programs will be delivered, and how these programs impact their jobs.

The new tool builds on an earlier version Cadmus developed with a member of the Energy-Efficiency Finance Team during his time with the Greater Cincinnati Energy Alliance, an ARRA-funded program. The Cincinnati program had to choose from among a wide variety of potential financing models and partners—loan loss reserves and interest rate buydowns with third-party lenders, subordinated debt with mission-related investors, PACE programs, energy service agreements with commercial investors, and more—and needed a tool to analyze and compare the options in an organized and expedited fashion.

The current tool also builds on work by Cadmus performed with the U.S. Environmental Protection Agency (EPA) to provide state and local government officials with guidance about clean energy financing programs. They created the Financing Program Decision Tool (U.S. EPA 2013), which guides the user through a short list of questions about program objectives and resources to narrow down a list of nine possible program types (revolving loans, credit-enhanced private loans, etc.) to a manageable few that may be appropriate. The EPA tool is not intended to propose definitive answers or replace the need for financing expertise in program design, but it does help introduce public officials to the issues and considerations that are involved.

The Energy-Efficiency Finance Team tested the tool by evaluating existing programs, giving feedback that Cadmus used to refine the tool. The team will apply the tool for a number of purposes, such as understanding the nuances that differentiate programs, avoiding programmatic errors, and perhaps most importantly, ensuring that the team does not use scarce ratepayer funds to duplicate terms and conditions already offered by the market. The team will also apply the tool in pilot implementation to ensure development of processes and procedures that meet program participants' needs.

How To Use The Tool

The tool leads the user through a process of describing a program's details and analyzing their impacts. The goal is to develop a clear picture of the positives and negatives, any open issues and questions to be addressed, any required action steps, and how the program compares

to other relevant programs. The process is subjective, and many program details have both positive and negative implications. For instance, if a program administrator decides to offer a low interest rate program, it may improve uptake but the cost may be unsustainable. The choice of which other programs are relevant for purposes of comparison is up to the user and might include alternative program models being considered or existing programs already available in the market.

Details are organized into six categories—Product, Marketing, Funding, Operations, Other, and Overall—and 25 attributes under those categories. For each attribute the user must fill in a number of details. Table 2 illustrates the tool's structure with some of the details filled in for the California IOUs' on-bill finance programs. After entering information on the details of the program, the user then analyzes each detail within the context of the other details of the program and of the other relevant programs. The tool does not auto-populate the details or enter information automatically. The intent is not to provide the user with canned answers, but rather to facilitate critical thinking across the breadth and depth of issues that a program must address.

Table 2. How the financing program analysis tool is structured

6 Categories	25 Attributes	118 Details	*Enter Information*
A. Product	1. Defining features	Sponsor	*Investor-owned utilities (...*
		Administrator	*IOUs*
		Market sector	*Non-residential*
		Financing type	*On-bill finance (OBF) lo...*
		Credit enhancement	*None*
		Other	*May be replaced by on-b...*
	2. Eligible borrowers	Market segments	*Commercial, industrial, ...*
		plus 2 more details	
	3. Loan terms	Interest rate	*0%*
		plus 5 more details	
	4. Credit review	Credit check	*None*
		plus 4 more details	
	5. Security	Collateral	*Unsecured*
		plus 5 more details	
	6. Eligible measures	Categories	*Lighting, HVAC, refriger...*
		plus 3 more details	
	7. Program coordination	Related programs	*All non-residential EE in...*
		plus 2 more details	
B. Marketing	8. Target Market plus 4 more attributes	Geographic area	*All IOUs' territories*
		plus 24 more details	
C. Funding	13. Loan capital plus 2 more attributes	Capital source	*Ratepayers*
		plus 18 more details	
D. Operations	16. Delivery channel plus 3 more attributes	Contractors/others	*Contractors*
		plus 18 more details	
E. Other criteria	20. Evaluation plus 4 more attributes	Performance metrics	
		plus 20 more details	

6 Categories	25 Attributes	118 Details	*Enter Information*
F. Overall average	25. Overall analysis	Key details	*Dependent on ratepayer funds for loan capital*

The tool was developed as a highly functional and cross-linked Microsoft® Excel file with 10 sheets. The first sheet is an introduction with instructions and room to enter the names of up to 20 financing programs to be analyzed in each of three market sectors: nonresidential, residential, and multifamily. For each market sector, there are three sheets: analysis, considerations, and summary. These are discussed in the following sections.

Analysis Sheet

The Analysis sheet includes a page for each program. Figure 1 shows the top portion of a page for a program in the nonresidential sector. The Attribute column and the first column under Details are already prepopulated when the user opens the tool.

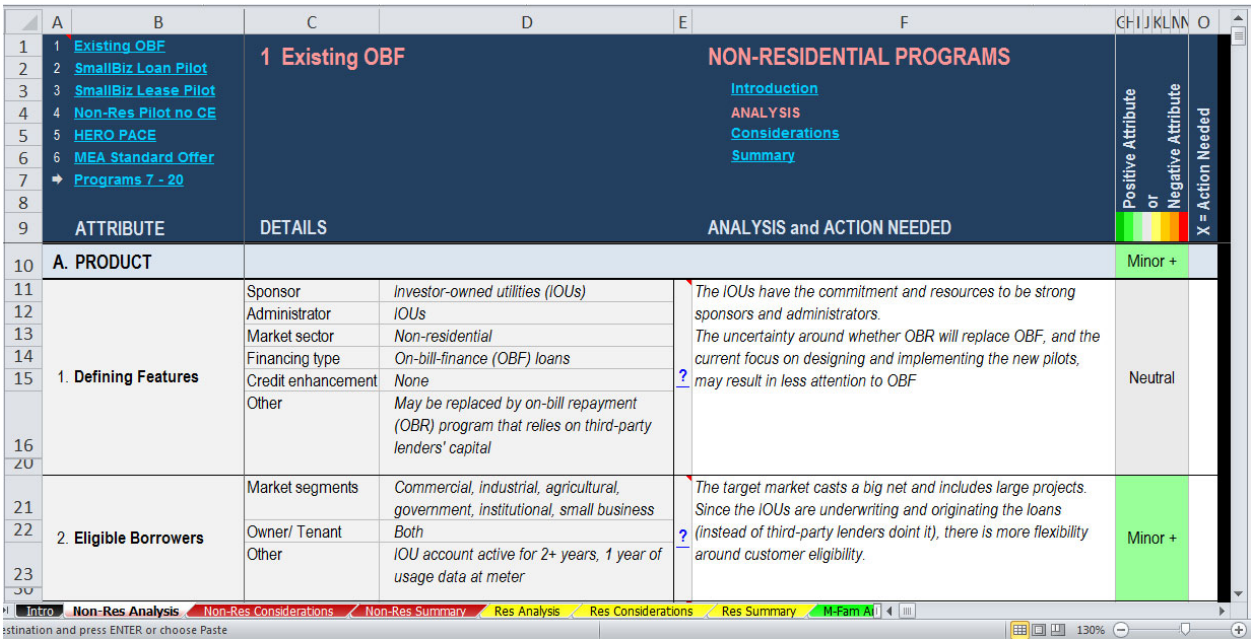


Figure 1. Screenshot of analysis sheet.

The user begins by filling in the second column under Details with information that describes the program. As shown in Figure 1, for example, next to Sponsor on the first line the user has filled in "*Investor-owned utilities (IOUs).*" All information entered by the user is automatically italicized throughout the tool. The user entering these initial details need not be an expert on clean energy financing programs but should have enough familiarity to understand what details to enter and what information might require further probing.

Note that the tool is not intended to help design a program from scratch. Its purpose instead is to analyze a program that is already at least initially defined. Although the tool can

help identify details of a program that may warrant further consideration and modification, it is more an implementation and improvement tool than a design tool.

The Analysis and Action Needed columns do require the user to have experience with clean energy financing programs. In the first column, the user fills in an analysis of the details for that attribute. For help with the analysis, the user can click on the blue "?" at the left of the column to jump to the Considerations sheet (discussed below) for guidance. This column is also where the user identifies any action needed to address this attribute. For instance, if the program has not decided whether to include tenants as eligible borrowers, the user notes this and places an "X" in the far right Action Needed column.

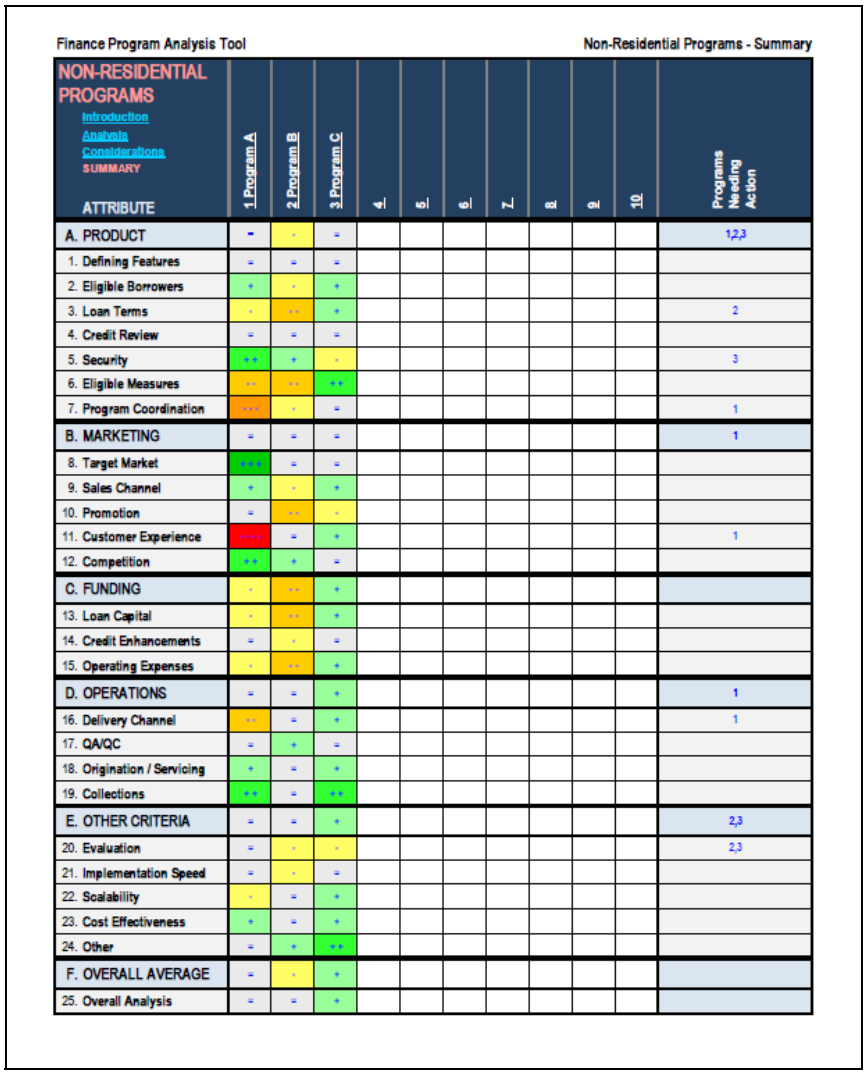
In the color-coded Positive or Negative Attribute column, the user chooses a subjective color to indicate if this attribute's details represent a positive or negative for the program compared to other programs being analyzed or to programs in general. The choices are subjective based on the user's analysis, and range from a dark green major positive (+ + +) to a gray neutral (=) and a bright red critical negative (- - - -). Although the pluses and minuses are totaled at the bottom of the Analysis sheet and rounded to the nearest "+"or "-" color, the totals tend to average around neutral. The user can also choose a separate overall score that reflects human judgment instead of a calculated average. The primary value of the colors is to draw attention to the major positive and negative attributes that may differentiate one program from another. Bright red critical negatives, such as state consumer lending laws that may preclude an on-bill finance program, will draw particular attention.

Considerations Sheet

The Considerations sheet offers guidance as the user fills in the Analysis sheet. As described above, by clicking the blue "?" to the left of the Analysis and Action Needed column (Figure 1), the user jumps to the corresponding row of the Considerations sheet where a number of questions are presented. Although not every question will be pertinent or require an answer, some will likely be useful in thinking through the issues.

Summary Sheet

The Summary sheet (Figure 2) displays on one page all the color codes entered by the user on each program's Analysis sheet. It also indicates any "action needed" that the user identified on the Analysis sheets, such as further research, discussions with stakeholders, or pending decisions. Although the display shows the calculated Overall Average at the bottom and the user-selected Overall Analysis, the Summary sheet's primary value is to focus attention at a glance on the major positive and negative attributes of each program and on the actions that are needed. The user can jump to any attribute of any program by clicking on its color code.



Finance Program Analysis Tool — Non-Residential Programs - Summary

NON-RESIDENTIAL PROGRAMS Introduction Analysis Considerations SUMMARY ATTRIBUTE	1 Program A	2 Program B	3 Program C	4	5	6	7	8	9	10	Programs Needing Action
A. PRODUCT	-	-	-								1,2,3
1. Defining Features	-	-	-								
2. Eligible Borrowers	+	-	+								
3. Loan Terms	-	- -	+								2
4. Credit Review	-	-	-								
5. Security	+ +	+	-								3
6. Eligible Measures	- -	- -	+ +								
7. Program Coordination	- - -	-	-								1
B. MARKETING	-	-	-								1
8. Target Market	+ + +	-	-								
9. Sales Channel	+	-	+								
10. Promotion	-	- -	-								
11. Customer Experience	- - - -	-	+								1
12. Competition	+ +	+	-								
C. FUNDING	-	- -	+								
13. Loan Capital	-	- -	+								
14. Credit Enhancements	-	-	-								
15. Operating Expenses	-	- -	+								
D. OPERATIONS	-	-	+								1
16. Delivery Channel	- -	-	+								1
17. QA/QC	-	+	-								
18. Origination / Servicing	+	-	+								
19. Collections	+ +	-	+ +								
E. OTHER CRITERIA	-	-	+								2,3
20. Evaluation	-	-	-								2,3
21. Implementation Speed	-	-	-								
22. Scalability	-	-	+								
23. Cost Effectiveness	+	-	+								
24. Other	-	+	+ +								
F. OVERALL AVERAGE	-	-	+								
25. Overall Analysis	-	-	+								

Figure 2. Screenshot of summary sheet.

Application of the Tool

The tool is dependent upon user expertise and judgment. This was important to Cadmus and the team because it ensures the tool is useful to program managers. The many and varied financing programs must be analyzed within the context of current and local conditions. For example, it is not realistic to compare a nonsubsidized program that offers 9% interest rates today with a nonsubsidized program that offers 3% interest but is no longer available. Although programs from different time periods can be compared, doing so without proper context could undermine any useful analysis and lead to certain program attributes being deemed negative.

The population of programs must also be limited to realistic peer groups. Obviously, unsecured energy-efficiency loans cannot be compared to mortgages or car loans because the results would be misleading. In addition, data on non-IOU or government backed programs is

often proprietary and can be difficult to obtain or evaluate. Despite this, using the tool and evaluating programs on publicly available information and anecdotal evidence can still yield significant findings.

Using the Results

PG&E used the tool to evaluate California-based programs as well as some federally-funded programs. It is important to note that in order to attract financial institutions to the energy-efficiency lending market, several of these programs rely on similar mechanisms, such as credit enhancements, which cover loan losses in the event of default in exchange for the financial institution's capital commitment to energy-efficiency lending. Using the tool and populating available information, several findings were easily identified:

- Interest rates were comparable, ranging from 6% to 9%
- Length of the loans varied from five to 20 years
- Income requirements, such as debt-to-income ratio, were comparable and minimum
- FICO score requirements started in the mid-600s

Generally, quantitative and measurable aspects of the various programs were similar, not surprising given the similarity of the mechanisms used by program managers. Despite the provision of credit enhancements however, loan terms for programs backed by credit enhancements were not significantly different from programs that were not backed. This suggests that risk models used by financial institutions are well-established and influencing loan terms can be difficult or costlier than anticipated. Non-quantitative attributes appeared to contribute the most towards differentiation between programs.

- **Marketing:** One local lending program is limited by geography and has relied on integration with other non-financing programs such as audits and local government support. By coordinating with the audit program and effectively using its relationship with the local government, a fairly seamless process evolved where a potential homeowner can move more easily from an audit to a project quote to an application for financing. Additionally, this program did not rely on utility or government funds and has been perceived as successful, per feedback from various stakeholders.

- **Flexibility and ease of use:** The loan terms and fees for another successful program have tended to be modestly higher than other offerings, but the program's marketing, ease of use (for example, fast approval, no FICO score requirement, and flexibility of eligible measures) have contributed to its fast growth. Again, feedback from various stakeholders implies some success for this program.

Such diversity in energy-efficiency financing options highlight the importance of ensuring that program managers monitor the market, use public funds wisely, and create value for ratepayers. Program managers who are not cognizant of these issues run the risk of creating programs that do not support additional uptake or that simply encourage financial institutions to originate loans they would have made anyway.

Program Evaluation and Point of View

Because a program's success can be influenced by various parties and defined differently, program managers must evaluate and consider many factors. Common issues include:

- **Very low interest rates that are below market, but the program is not easy to use.** Unless consumer demand is high, contractors may not be willing to promote energy-efficiency financing options and help a potential homeowner through a difficult process.
- **Interest rates are at or slightly above market rates, but the program is easy to use.** High ease of use for contractors and consumers in the form of fast approval, flexible measures, and few restrictions means that all parties may be motivated to use the program to achieve project completion with limited hassle.
- **Financial institution view of incentives or funds from utilities or government entities (for example, federal loan insurance).** There may be perceived or actual high costs, such as having to adhere to regulations or restrictions that limit participation.
- **Other market participants, such as energy-efficiency mortgages.** There is a perception among homebuyers and realtors that there is already enough to do to close on a house without adding processing an energy-efficiency mortgage.

The tool also allows for consideration of the energy-efficiency financing offerings from varying points of view, such as a residential customer, as shown in Figure 3.

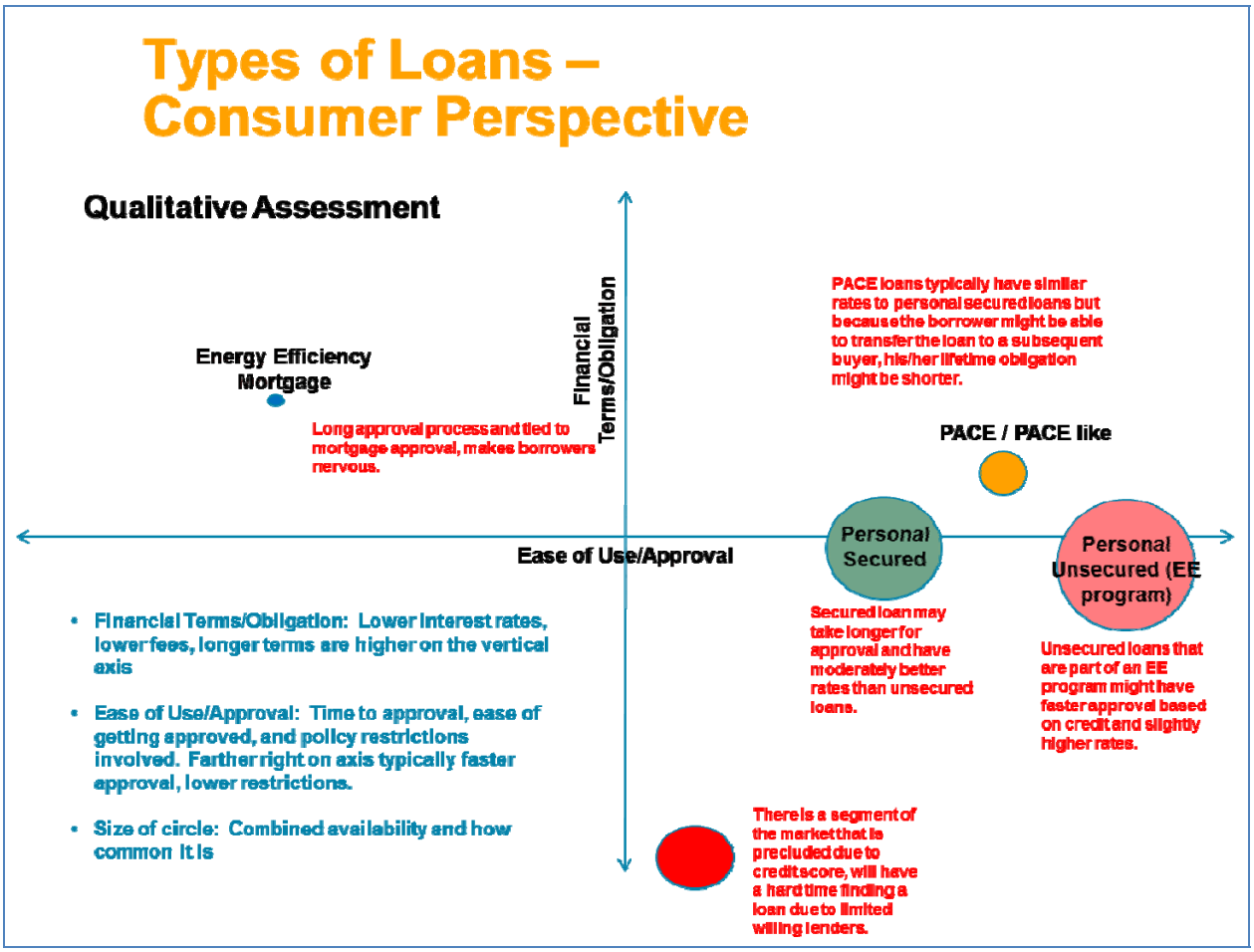


Figure 3. Qualitative assessment of loans from the consumer perspective.

Program Design Implications

What is the measure of program success? Factors such as loan volume or news articles can make a program appear successful, but is it really? For example allowing solar as an eligible measure will increase loan volume, but will this option help achieve a program's energy-efficiency goals? What are the implications for program managers? How should money be spent? Some questions that need to be addressed are:

- What purpose is a credit enhancement intended to achieve: lower interest rates for creditworthy borrowers or broader eligibility for customers with lower credit scores?
- Should the programs allow incentives to be repurposed to reduce interest rates?
- If there is evidence suggesting programs can succeed without reducing the interest rate, is it the result of effective marketing and execution? Should administrators focus funds on consistent and widespread marketing?
- What is the best model for engaging contractors?

As the seven pilots begin rolling out in 2014, PG&E program administrators and the CPUC have many things to consider. The Financing Program Analysis Tool is simple and comprehensive and will help ensure that nothing is forgotten as these programs are designed and implemented.

An Evolving Tool

PG&E is making the tool available to users with a specific need who will commit to providing feedback. The intent is for the tool to be a living document that will become even more useful with continuing input from the broader user community. The Energy-Efficiency Finance Team hopes to release the tool to a broader audience at some point in the future, perhaps at the 2016 ACEEE Summer Conference. Users interested in accessing the tool can contact the team at eefinance@pge.com.

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