

Final Report

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THE
CADMUS
GROUP, INC.

**California 2010-2012
On-Bill Financing
Process Evaluation and
Market Assessment**

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Prepared by:

The Cadmus Group, Inc.
Energy Services Division
720 SW Washington Street, Suite 400
Portland, OR 97205
503.467.7100

Prepared for:

California Public Utilities Commission
Energy Division
505 Van Ness Avenue
San Francisco, CA 94102

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Prepared by:
Cynthia Kan, Ph.D.
Carol Mulholland
Linda Dethman
James "Pat" McGuckin
Ryan Fox
Allie Marshall

The Cadmus Group, Inc.

720 SW Washington Street
Suite 400
Portland, OR
Tel: 503.467.7100
Fax: 503.228.3696

An Employee-Owned Company
www.cadmusgroup.com

Corporate Headquarters:
57 Water Street
Watertown, MA 02472
Tel: 617.673.7000
Fax: 617.673.7001

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CPUC OBF Study Team

Jean Lamming, California Public Utilities Commission (CPUC)

Sharyn Barata, Itron

Christie Torok, Itron

Nikhil Gandhi, Strategic Energy Technologies, Inc.

Investor-Owned Utilities

Frank Spasaro, Sempra Energy Utilities

Taimin Tang, Sempra Energy Utilities

Jill McGhee, Sempra Energy Utilities

Greg Lawless, Sempra Energy Utilities

Rob Rubin, Sempra Energy Utilities

David Carrell, Sempra Energy Utilities

Michael Kung, Sempra Energy Utilities

Jesse Martinez, Sempra Energy Utilities

Frank Mateo, Sempra Energy Utilities

David Jacot, Southern California Edison

Gary Levingston, Southern California Edison

Pierre Landry, Southern California Edison

Reggie Wilkins, Southern California Edison

John Rensch, Southern California Edison

Larry Sutton, Southern California Edison

Phoebe Kimble, Southern California Edison

Danielle Schofield, Southern California Edison

Brian DiGiorgio, Pacific Gas & Electric

Josef Isaacs, Pacific Gas & Electric

Adriane Gardner, Pacific Gas & Electric

Barbara Butterfield, Pacific Gas & Electric

Eva Chu, Pacific Gas & Electric

Other Contributors

Jennifer Finnigan, CPUC

Jeanne Clinton, CPUC

Hank Ryan, Small Business California

Adam Gardels, Research Into Action

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1. EXECUTIVE SUMMARY

Introduction and Purpose

The California Public Utilities Commission (CPUC) recognizes the growing importance of financing in helping California meet its energy-efficiency goals. The CPUC directed each of California's investor-owned utilities (IOUs) to offer on-bill financing (OBF) to nonresidential customers in decision 07-10-032, and approved the IOUs' OBF programs for the 2010-2012 program cycle in decision 09-09-047.

In June 2011, the CPUC contracted, through Itron, with The Cadmus Group, Inc. (Cadmus), to conduct a process evaluation and preliminary market assessment of each IOU's OBF offering. This report details study findings about the current OBF offering and provides insight into both utility and consumer thoughts on an enhanced financing program for future program cycles. The nine main research areas, presented below, either relate to current program processes or provide insights relevant to future financing efforts.

Current Processes

1. Identify key program and participant characteristics that drive success.
2. Understand methods used to disburse limited loan funds.
3. Determine OBF's effectiveness in increasing energy efficiency-program participation.
4. Understand how OBF interacts with other utility programs.
5. Examine strengths and weaknesses of current OBF delivery channels.
6. Identify ways that OBF can support comprehensive retrofits.

Future Considerations

7. Understand how financing can help customers overcome barriers to energy efficiency.
8. Examine current OBF infrastructure and processes needed to support scale-up.
9. Explore reactions to changes in loan terms, rebates, capital provider, and debt vs. non-debt approaches to OBF.

Methodology

Cadmus conducted the OBF study between June 2011 and February 2012. Subject utilities included Pacific Gas and Electric (PG&E), Southern California Edison (SCE), San Diego Gas and Electric (SDG&E), and Southern California Gas (SoCalGas). Research tasks included reviewing program documents and tracking databases, conducting two rounds of interviews with four IOU program managers, interviewing CPUC staff members and an intervener, surveying 76 OBF participants and 29 vendors who helped deliver the program, interviewing 12 account executives, and conducting six focus groups across California with 46 energy audit participants who had not participated in OBF.

Key Findings

Participation

At the time of the study (fall 2011), SDG&E had the highest number of issued loans and PG&E had the fewest, as shown in Table ES-1. Thus, statewide participant research and loan statistics are weighted toward SDG&E. Customers from different segments (government, small and large

commercial) and multiple industries (retail, education, manufacturing, food service, etc.) participated in OBF. Larger customers, on average, had larger loans.

Table ES-1. OBF Participation by Number of Loans and Dollars Loaned

IOU	Number of Loans	Dollars Loaned
SDG&E	506	\$13,541,298
SoCalGas	15	\$459,301
SCE	78	\$2,012,717
PG&E	4	\$210,140
Statewide	603	\$16,223,456

Program Goals

The OBF program's stated goals are to increase participation in utility incentive programs by removing the upfront cost barrier. The CPUC and IOUs also want OBF to encourage more comprehensive projects.

Program Design

Some OBF elements are uniform across utilities. These are bill neutrality, 0% interest, ability to disburse loan proceeds directly to the customer or their vendor, repayment through the utility bill, customer account history requirements, maximum loan terms and caps, the California Department of Corporations (DoC) waiver, disconnection for non-payment or partial payment of energy and loan charges, and the program's non-resource status.

Elements which differ are OBF account structure and fund allocation approach, loan tracking system, the most prevalent delivery channel, and how applications are processed (e.g., PG&E requires a credit check in addition to checking bill payment history).

Application Processing

OBF processes are built upon existing incentive program processes and application requirements, which means processing times and inspection requirements are dictated by the underlying program. Adding OBF to a project increases the overall project processing time.

There are two steps in the application process when a customer or project can be disqualified: when customer creditworthiness and eligibility are assessed, and when the payback and other loan calculations are performed. Utilities require pre- and post-installation inspections on all OBF projects; no loan will be issued for equipment installed prior to the first inspection or for projects that do not meet savings requirements.

Participant Research Key Findings

Ninety-two percent of customer survey respondents had not researched other financing options outside of OBF, and 91% also said they thought the ability to pay the loan through the utility bill was a valuable feature. Nearly three-quarters of those surveyed (72%) would not have been able to proceed with an energy-efficiency project were OBF not available.

Eighty-six percent of survey respondents had no problems with the application process. Four-fifths (80%) said they would be more likely to pursue energy efficiency in the future as a result of their experience with OBF.

Vendor Research Key Findings

Eighty-six percent of vendors surveyed said OBF was important or very important in enabling them to sell energy-efficiency projects to customers who otherwise would not be able to afford to take action. However, vendors often do not properly fill out applications. For example, SDG&E returns 25% of applications for rework. Nearly three-fourths (72%) of vendors surveyed said they had to rework an application. Vendors and IOU staff members indicated rework was often caused by improper savings calculations.

Vendors do not seem to realize their application errors affect the application processing time. Half of those surveyed said it takes too long to receive OBF loan proceeds from the utility, which can cause them to have cash-flow problems. The utilities attribute the processing delays to vendors submitting noncompliant paperwork.

Finally, some vendors mislead customers, either by telling customers they represent the utility or by telling them that OBF is “free” and not a loan. This misinformation has caused problems for the utilities with their customers.

Conclusions and Recommendations

Key program and participant characteristics that drive success

Both design and implementation elements help make OBF successful. Customers, vendors, and utility staff members all commented that OBF removes upfront costs, enabling customers to complete energy-efficiency projects they otherwise would not have pursued. Zero percent interest, the loan installment on the bill, and bill neutrality also contribute to OBF’s success at attracting customers.

There are two potential definitions of a “successful” OBF participant: one that qualifies for and is able to develop a project that would not otherwise have been done and one that has completed the process and repaid the loan in full. For the former, OBF has drawn customers from all eligible segments, including government and institutional (G&I), small commercial/industrial/agriculture (CIA), and large CIA. No utility reported that OBF is meant to target one customer group over others, nor did Cadmus’ research indicate that one customer segment would be better suited for OBF than another. Both SCE and PG&E expect to loan most of their 2010-2012 money to G&I customers, while SDG&E’s program started by loaning money to smaller customers and was then expanded to larger customers.

SDG&E’s program is the only one that has been offered long enough for customers to have repaid their loans, so it is the only one that, at this time, offers examples of that type of “successful” participant. SDG&E’s screening process has resulted in an overwhelming majority of customers that pay back loans.

Recommendations:

- The utilities should continue to offer OBF in its current form for at least the next program cycle. Both customers and vendors report that the existing program offering of 0% financing and bill neutrality are what have “sold” the program; account executives and utility staff agree. All four IOUs need to concentrate on resolving the current offering’s implementation issues before they can consider making significant design changes. As discussed below, Cadmus offers a number of recommendations for research that could feed into a revised program.

OBF interaction with other utility programs

To get financing from the utility, customers need to apply for both OBF and energy-efficiency program incentives. The incentive program applications are where most problems occur because customers and their vendors may calculate savings incorrectly or submit insufficient documentation. Incorrectly calculating project savings affects not only the efficiency program application, but also the OBF application because OBF uses these calculations to determine project payback and loan terms. SCE and PG&E, and to a lesser extent SDG&E, have struggled with lack of coordination between OBF and energy-efficiency program staff.

Recommendations:

- Increase coordination between OBF and efficiency staff to reduce application processing time and increase customer satisfaction.
- Any OBF vendor training offered should include training on the relevant energy-efficiency incentive programs.

Strengths and weaknesses of current OBF delivery channels

The four IOUs use two different OBF delivery channels. SoCalGas and PG&E have assigned account executives to introduce the OBF mechanism to customers and help them with the application process; SDG&E and SCE rely much more on vendors, but their account executives also do some marketing. PG&E has recently begun to work with vendors, but most of its applications still come from account executives.

Account executives are a limited resource that cannot reach all customers; most account executives are dedicated to larger customers, although the IOUs have some executives who cover unassigned smaller accounts. SDG&E’s and SCE’s experience shows that vendors can effectively reach smaller CIA customers. Using vendors to deliver OBF offers the utilities much greater access to eligible customers, but this also presents challenges because vendors need:

- Training to understand both OBF and the efficiency programs so that they represent the programs accurately to customers.
- Some level of oversight by the utility to make sure customers are not misled.
- To be told how long it may take for the utilities to approve completed projects and process loan payments.

Recommendations:

- The utilities should continue to use both vendors and account representatives to deliver OBF.

- All four utilities should develop a formal vendor support and monitoring function.

Ways OBF can support comprehensive retrofits

Both the CPUC and IOUs would like customers to implement comprehensive energy-efficiency equipment retrofits, rather than to focus on measures with the most rapid payback, such as lighting. Although OBF supports any type of project that can meet payback requirements, the majority of OBF loans have been for lighting retrofits. Two factors seem to be driving this trend. First, most customers reported installing lighting-only projects because that was what they were offered at the time they made the decision to implement a project. Many of the vendors that market OBF to those customers specialize in lighting, so they sell what they know. Second, both customers and vendors may not understand the OBF benefits from bundling lighting with other retrofits.

Vendors and other stakeholders mentioned that the direct install (DI) program offered by the electric utilities can compete with OBF projects. Customers who install lighting measures through DI may lose the opportunity to finance more comprehensive retrofits in the future, since other equipment tends to have longer payback periods and needs to be bundled with lighting.

Recommendations:

- Vendor training should include a module on all the energy-efficiency measures for which different customer groups might be eligible. The training also should include several case studies that show the benefits of bundling lighting retrofits with other equipment retrofits.
- The CPUC and IOUs should examine whether the DI program affects comprehensiveness goals and adjust accordingly.
- The CPUC and IOUs also should examine whether other incentive programs working with OBF support comprehensiveness.

How financing and other utility support can help customers overcome barriers

Focus group participants report two main barriers to implementing energy efficiency projects: lack of knowledge about appropriate retrofits and the initial cost of making those retrofits. Although upfront cost issues are a much greater barrier for customers than is the lack of knowledge, most focus group participants reported they had not considered financing energy-efficiency projects.

Recommendations:

- The IOUs should do more to publicize OBF's ability to remove the upfront cost barrier. While not the only barrier, first-cost is clearly the greatest barrier for many customers, and it is OBF's biggest selling point.
- Conduct additional customer research on how best to overcome the other barriers mentioned during the focus groups.

Current OBF infrastructure and processes to support participation scale-up

Scaling up OBF will require all four IOUs to make some changes. SDG&E and SoCalGas have had time to identify and address staffing and incentive program coordination issues. PG&E's and SCE's OBF programs are relatively new, so both utilities are beginning to address those issues.

Both SCE and PG&E have ceilings on their loan funds because those funds come from energy-efficiency program funding. They will need either to raise their OBF ceilings with CPUC approval or use a two-way balancing account structure.

All four IOUs have made a considerable investment in their IT and billing systems to allow loans to appear on their bills and to credit payments appropriately. Those systems can support larger OBF programs within existing program parameters.

Any significant increase in OBF will require more staff, both for OBF and for the efficiency programs, to handle the increase in applications and inspections. Because utilities have limited numbers of account executives, scaling up OBF also will require them to make greater use of vendors to market the funding mechanism.

Recommendations:

The following steps need to be taken prior to any scale-up effort.

- The CPUC needs to work with SCE and PG&E to resolve funding issues.
- The IOUs need to have strong vendor support programs in place.

Loan terms, rebates, capital provider, and non-debt approaches to financing

Interest rates: Surveyed customers were willing to pay a higher interest rate, but charging interest under the current program design would cause a number of problems: the utilities would lose their DoC exemption; fewer projects would meet payback requirements; and utilities would need to modify their billing and payment systems to handle interest charges.

Rebates vs. financing: Over half of survey respondents indicated financing to be more important than rebates.

Third-party capital: While an infusion of third-party capital would help resolve the issue of limited loan funds, it also introduces several new problems, the first of which is how utilities would need to change their systems to transfer monthly loan payment to lenders. Second, it is not clear whether the utility or the lender would be expected to deal with late loan payments and loan defaults. Third, the utilities and lenders would need to work out a streamlined process for approving projects and disbursing loans.

Most customers interviewed have no preference for what entity provides loan capital. In contrast, account executives generally thought the introduction of a third-party capital provider would make the program complicated.

Tariff approach: Based on focus group feedback, the tariff approach to financing is more attractive to renters than it is to owners; renters are enthusiastic about it, but owners worry how the tariff would be handled during property sales. Customers also are concerned about what a lien against the meter would do to their property values. Before utilities consider a tariff approach, they will need a mechanism to ensure full loan payment, even if the property changes owners.

Recommendations:

- Before making changes to rebates and financing offered to customers, consider how those changes will affect project eligibility (especially for gas-only or comprehensive projects).
- Consult with the real estate industry to determine how a tariff would affect commercial property transactions.
- Determine what legal or regulatory actions would be required to support tariff transferability

2. INTRODUCTION AND STUDY OBJECTIVES

The California Public Utilities Commission (CPUC)¹ recognizes the growing importance of financing in helping California meet its energy-efficiency goals, and directed each of the large California Investor-Owned Utilities (IOUs) to offer on-bill financing (OBF) to nonresidential customers in decision 07-10-032. Decision 09-09-047 approved the IOUs' OBF programs for the 2010-2012 program cycle. The CPUC contracted, through Itron, with The Cadmus Group, Inc., (Cadmus) in June 2011 to conduct a process evaluation and preliminary market assessment (hereafter referred to as the study) of each IOU's OBF offering. Results of this study will support CPUC decisions in the development of an enhanced financing program in future program cycles.

Research Needs and Scope

Overall, the study set out to assess the current state of each IOU's OBF offering, and to understand stakeholders' reactions to hypothetical changes in program design, which will inform future financing developments. Within these larger goals, we worked to meet the following research objectives:

Current Processes

1. Identify key program and participant characteristics that drive success with the current offering.
2. Understand methods used to disburse limited loan funds.
3. Determine OBF's effectiveness in increasing energy-efficiency program participation.
4. Understand how OBF interacts with other utility programs.
5. Examine strengths and weaknesses of current OBF delivery channels.
6. Identify ways that OBF can support comprehensive retrofits

Future Considerations

7. Understand how financing and other utility support can help customers overcome barriers to capital investments in energy efficiency.
8. Examine current OBF infrastructure and processes needed to support participation scale-up.
9. Explore reactions to changes in loan terms, rebates, capital provider, and debt vs. non-debt approaches to financing.

Cadmus conducted research covering all four of the IOUs that offer OBF: Pacific Gas and Electric (PG&E), Southern California Edison (SCE), San Diego Gas and Electric (SDG&E), and Southern California Gas (SoCalGas).²

¹ The full list of acronyms and abbreviations can be found in appendix A

² Sempra Energy is the parent company of both SDG&E and SoCalGas. We refer to Sempra Energy Utilities (SEu) when discussing topics applicable to both SDG&E and SoCalGas.

Methodology

Cadmus conducted the OBF study between June 2011 and February 2012. The methods for each of the study tasks are described next; the tasks are listed in chronological order. Within each method description, we addressed, as appropriate, the eight research objectives described above.

Throughout this study, Cadmus divided customers with OBF loans into three groups using readily available utility data: government and institutional (G&I), small commercial/industrial/agricultural (CIA), and large CIA. This segmentation scheme was used as a way to compare and contrast the responses of key customer segments. G&I customers are defined as those whose funding comes from taxpayers, e.g., municipalities, schools, etc. Small CIA and large CIA can be defined in various ways; Cadmus chose to define those groups based on energy use and monthly demand, as shown in Table 1. The IOUs provided Cadmus with participants' average monthly usage and demand. This segmentation scheme is similar to one SCE uses to classify its OBF participants, and, according to Small Business California's (SB-CAL) executive director, utilities on the East Coast use the same monthly demand levels to delineate large and small businesses.

Table 1. OBF Customer Segmentation

Customer Type	Description
G&I	Taxpayer funded
Small CIA	Monthly demand/usage below or equal to 200 kW or 20,800 therms*
Large CIA	Monthly demand/usage greater than 200 kW or 20,800 therms

* PG&E's small commercial gas schedule indicates average monthly use must not exceed 20,800 therms

Document and Database Review

One of the first documents Cadmus reviewed after contracting with the CPUC was a recently released whitepaper by Harcourt Brown and Cary titled *Energy Efficiency Finance in California: Needs and Gaps*. The paper looked at a wide range of financing options and provided perspective on potential alternatives to OBF.

Cadmus also reviewed a wide range of program documents, including program implementation plans, application forms, sample bills with the OBF line item, loan calculation sheets and guidelines, and OBF rate schedules. We requested and received multiple databases from each IOU, including loan and project tracking databases, and lists of account executives and vendors helping to deliver OBF. Cadmus used the databases to develop OBF customer profiles for each utility, and to examine loan amounts and the equipment for which loans were given.

Stakeholder Interviews

Cadmus interviewed IOU staff members who focus on OBF, as well as stakeholders at the CPUC and a utility intervener (Table 2). We conducted two rounds of interviews with each IOU's OBF manager.

Table 2. Interview Participants

Organization	Main Interviewee(s)	Other Attendees
California IOUs		
San Diego Gas and Electric (SDG&E)	Former SDG&E OBF Program Manager OBF Program Manager	Commercial Portfolio Manager
Southern California Gas (SoCalGas)	OBF Program Manager	
Pacific Gas and Electric (PG&E)	OBF Program Manager	Regulatory Staff
Southern California Edison (SCE)	Former OBF Program Manager who is the current Manager of Business Portfolio	
External Stakeholders		
CPUC	Energy-Efficiency Finance Lead Analyst Special Advisor to the Governor	CPUC OBF Study Team Management
Small Business California (SB-CAL)	Executive Director	CPUC OBF Study Team Management

Participant Surveys

Cadmus conducted telephone surveys with customers from all four IOUs who had closed OBF loans, obtaining 76 completes (out of a sample frame of 413 unique participants³) and achieving an overall confidence/precision level higher than 90/10. Cadmus requested customer data from each of the IOUs and prepared the sample frame based on the data supplied. Each customer was called up to six times to minimize non-response bias. Cadmus surveyed at least one OBF participant per IOU, and at least one participant per customer segment (Table 3). The number of completed surveys is proportional to the size of the participant sample frame; because SDG&E has the longest-running and largest OBF program, many of the sample and resulting completed surveys represent SDG&E's small CIA customers. PG&E's sample frame contained four customers who had closed OBF loans at the time of the data request.

Table 3. Completed Participant Survey Distribution

IOU	Large CIA	Small CIA	G&I	Total	Percent
PG&E	0	1	0	1	1%
SCE	3	9	0	12	16%
SoCalGas	0	4	0	4	5%
SDG&E	7	50	2	59	77%
Total	10	64	2	76	100%
Percent	13%	84%	3%	100%	

Vendor Surveys

We surveyed vendors who help deliver OBF at PG&E, SDG&E, and SCE. SoCalGas does not use vendors as a delivery channel. Twenty-nine vendors responded to our telephone survey out of a sample frame of 66 unique vendors;⁴ multiple vendors reported participating in OBF with

³ We removed duplicates from customers with multiple loans and SDG&E customers recently surveyed by the SEu nonresidential portfolio process evaluation team.

⁴ The sample frame was prepared to avoid contacting vendors multiple times as a result of overlapping evaluation efforts.

more than one IOU. The vendor sample frame was obtained from an IOU data request; vendors on both SCE and SDG&E's list were asked primarily about their work with SDG&E because it has the more mature OBF offering.

Table 4. Vendor Survey Respondents' Participation by IOU

Main IOU	Main IOU Only	Secondary IOU			All Three IOUs	Total Vendors
		PG&E	SCE	SDG&E		
SDG&E	9		3		7	19
SCE	5			3	0	8
PG&E	1				1	2
Total	15	0	3	3	8	29

Focus Groups with Audit Recipients (nonparticipants)

Cadmus conducted six focus groups (Table 5) in economically and geographically diverse locations around California (two each in Irvine, Fresno, and San Francisco). The groups targeted key financial decision makers within businesses⁵ that had received utility-sponsored energy audits of their facilities. The primary segmentation for the groups was based on the level of complexity used in decision-making about property upgrades; i.e., a single decision-maker or multiple ones.⁶ The self-reported business size was used as a second segmentation variable, with the goal of grouping smaller businesses together, and medium/large businesses together. Decision makers from 46 organizations attended the groups (29 single-decision-maker businesses and 17 multiple-decision-maker businesses). CPUC, Itron, and IOU staff members observed the groups.

Table 5. Focus Group Composition and Locations

Groups	Irvine	Fresno	San Francisco
Complex Decision-Making and Large/Medium Organizations	1 group	NA	1 group
Single Person Decision Making and Small Organizations	1 group	2 groups	1 group

Utility Account Executive Interviews

We interviewed 12 account executives assigned to different OBF-eligible customer segments at PG&E, SCE, and SoCalGas (Table 6). Because SDG&E uses vendors to drive its program, SDG&E account representatives were not interviewed.

Table 6. Number of Account Executives Interviewed

Segment	PG&E	SCE	SoCalGas
G&I	2*	2	1
CIA	2	2	3

*One account executive works with both G&I and CIA customers

5 The term business has been used in this document to cover all non-residential consumers. Institutional consumers may also be included in the groups.

6 Family businesses that have two co-decision makers were treated as one primary decision maker.

Coordination with Sempra Energy Utilities Portfolio Evaluation

At the beginning of the study, Cadmus learned that SDG&E had contracted with the Heschong Mahone Group, Inc. (HMG) to conduct a process evaluation of its nonresidential program portfolio, which includes OBF. Research Into Action (RIA) led the OBF portion of the study. Cadmus collaborated with RIA on a number of research tasks to avoid duplicating efforts and to maximize limited resources. These tasks included Sempra Energy Utilities (SEu) program staff interviews, the participant survey, and the vendor survey. Cadmus led the participant survey and RIA led the vendor survey task. For the vendor survey, RIA surveyed SDG&E's vendors while Cadmus surveyed SCE and PG&E vendors.

Report Organization

To ensure balanced findings, this report incorporates results, by topic area, from multiple research tasks. Detailed findings from each individual research task are contained in the appendices. The chapters and appendices for this report are as follows:

1. Executive Summary
 2. Introduction and Study Objectives
 3. OBF History and Design
 4. OBF Implementation Across IOUs
 5. Participation and Loan Characteristics
 6. Key Program Findings
 7. Future Considerations
 8. Conclusions and Recommendations
- Appendix A – Acronyms and Abbreviations
Appendix B – Interview Guides and Surveys
Appendix C – Participant Survey Results
Appendix D – Participating Vendor Survey Results
Appendix E – Account Executive Interview Results
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3. OBF HISTORY AND DESIGN

California's investor-owned utilities (IOUs) offer on-bill financing (OBF) to nonresidential customers as a way to "*facilitate the purchase and installation of comprehensive,⁷ qualified energy-efficiency measures*"⁸ by removing the upfront cost barrier. Eligible customers applying for energy-efficiency program rebates or incentives can finance the balance of their project costs using an OBF loan at 0% interest. Loan installments are incorporated as a line item on the utility bill; loans are nontransferable and must be paid in full when the account is closed. Partial bill payments are applied *pro rata* to the loan and energy portions of the bill.

While we refer to OBF as a program in this report, it is actually a funding mechanism supporting other IOU-administered energy-efficiency incentive programs. Because OBF is not a stand-alone resource program, energy and demand savings from projects receiving OBF funding are reported under the resource programs providing the incentives. All OBF programs offer customers the option of designating a third-party payee, such as a vendor, to receive OBF loan proceeds. When the customer directs the utility to make the OBF check payable to the vendor, it removes the customer's upfront costs because the vendor is paid directly by the utility and not by the customer.

History of OBF in California

In 2004, SB-CAL's executive director noticed that current energy-efficiency programs were not serving the small business sector effectively. SB-CAL was familiar with an OBF program being offered by an East Coast utility (United Illuminating, or UI) that helped small businesses and had low loan default rates. At a 2004 meeting, SB-CAL convinced a CPUC commissioner that California needed a program like OBF; he had found one utility (SEu) willing to try it. The CPUC commissioner approached SEu executives to inform them that CPUC was considering requiring all California IOUs to offer OBF. SEu executives embraced the idea, and tasked a staff member to "*help as many customers as possible but don't make us a bank.*"

SEu staff designed the program by researching what other utilities had done to make OBF successful, obtaining feedback from public advisory groups, and reviewing lessons learned from similar programs SEu had tried in the past. The OBF staff worked with Sempra Energy's legal department to understand lending law requirements, and then worked with the information technology and billing departments to arrange for loan payments to appear on customer bills. SEu's goal was to automate the entire process by incorporating the OBF program into the utilities' normal billing systems. A second goal was for the program to be sustainable over the long-term, unlike the utility's previous unsuccessful experience in administering a similar program. SEu and SCE⁹ initiated OBF as pilot programs in 2006. These pilot program designs have since been expanded to include all types of nonresidential customers. PG&E began offering

⁷ SDG&E defines comprehensive as two or more distinct measure types not including CFLs or delamping.

⁸ SoCalGas OBF Program Implementation Plan.

⁹ SCE's pilot program provided financial assistance to the targeted convenience store/small grocer sector in the form of incentive and loan funding to offset 100% of energy-efficiency project costs. In this program cycle, SCE has expanded OBF to a broader market.

a temporary “off-bill” loan program in July 2010 before the utility had functional “on-bill” loan servicing, and launched OBF in the third quarter of 2011.

Protecting Against Default

Because loan losses are included in OBF’s cost-effectiveness calculations, utilities have an incentive to keep the default rate as low as possible.

SEu based its OBF program on UI’s design, configuring it to work with SEu’s existing rebate/incentive programs. SEu designed its OBF program to incorporate loan installments into monthly bills as a line item (Figure 1), and the project payback calculation methodology is designed to result in estimated monthly cost savings covering or exceeding their monthly loan installment (bill neutrality).

Figure 1. Example OBF Bill with Loan Installment (from SoCalGas)

 	ACCOUNT NUMBER 111 222 3333 4 SERVICE FOR OBF CUSTOMER 123 MAIN STREET LOS ANGELES, CA 90000-0000	DATE MAILED Dec 14, 2010 page 1 of 2 24 Hour Service 1-800-427-2000 English 1-800-427-6029 Español www.socalgas.com				
	H					
Account Summary Previous Balance - Unpaid Amount Due Now \$1,837.22 Payment Received 12/06/10 THANK YOU - 1,837.22 Current Charges + 1,370.50 On-Bill Financing Program Loan Installment + 681.05 For detailed loan info call 800-GAS-2000		<table border="1"> <tr> <td>DATE DUE</td> <td>Jan 4, 2011</td> </tr> <tr> <td>AMOUNT DUE</td> <td>\$2,051.55</td> </tr> </table>	DATE DUE	Jan 4, 2011	AMOUNT DUE	\$2,051.55
DATE DUE	Jan 4, 2011					
AMOUNT DUE	\$2,051.55					
Total Amount Due \$2,051.55		Gas Usage History (Total Therms used) 280				

The other IOUs also adopted this design, which protects the utility from default in two ways:

1. Because paying the utility bill and preserving electric/gas service is usually a high priority for customers, this design makes it convenient for customers to pay a single bill for both their energy charges and the loan payment.
2. The program is designed to be bill neutral so that the loan will not impact participating customers’ ability to pay.

A SCE staff member interviewed for this project believes estimated bill neutrality to be very important because the utility does not want its customers to be burdened with a negative cash flow situation. Were the utilities to allow negative cash flow projects, they would have to conduct more formal credit checks than they do at this time.¹⁰

Because no collateral is involved in the transaction, the OBF program loans are unsecured. To prevent customers from paying only the energy portion of their bill and defaulting on the OBF loan, “*partial payment is applied to the energy bill and loan obligation in proportion to the amount owed for each, and the customer may be considered in default of both the energy bill and*

¹⁰ All utilities review customer bill payment history, but PG&E also requires a credit check.

*the loan obligation.*¹¹ Put another way, if the customer does not make full payment on the required bundled energy charge and loan payment, the customer is considered in default. This provision allows the utility to begin collection procedures up to and including regular shut-off procedures consistent with collection and shut-off practices used when a customer does not pay energy charges.

Delinquent customers are allowed a certain number of months to catch up on their payments, or “cure.”¹² The amount of time allowed depends on the type of customer, likely ability to pay, business conditions, and other factors described in each utility’s protocols. The OBF program does not assess late payment charges.

When a customer defaults, the billing department administers the case and determines when to send the deficiency to collections. After a loan goes to collections, collections will seek to negotiate payment terms with the customer. An inability to reach agreement may result in the utility writing off the outstanding loan amount. For SCE, write-offs are recoverable from ratepayers through balancing account adjustments, and any funds retrieved are returned to the OBF loan pool. For SEu, loan losses are costs to the OBF program and SEu charges them to public purpose program/public goods charge (PPP/PGC) energy-efficiency accounts with corresponding credits to the loan pool through accounting entries as they occur. Any funds retrieved are returned to the PPP/PGC funds.

Although the billing departments take over the account once a loan has been added to a customer’s bill, each IOU’s OBF team regularly monitors its loan portfolio.

In addition to the security provided by bill neutrality and having the loan on the bill, the IOUs built in additional requirements to minimize default risks. For SEu, these include requiring OBF customers to have had an active account for at least two years—the amount of time in which many new businesses fail—and for the account to be in good standing for the past 12 months. They also have a maximum allowable loan length¹³ for different market sectors (five years for CIA and 10 years for G&I) that reflects the average duration of occupancy for those sectors (e.g., a city building will generally experience less frequent turnover than a restaurant, so a city building is justified for a longer loan repayment period). Other than the loan length provision, the IOUs did not factor in perceived risks unique to particular customer segments. Originally, SEu maintained a three-year loan term requirement for its CIA customers, but increased this to five years because gas projects had difficulty meeting that payback requirement.

Restrictions Due to Lending Laws

In California, organizations that lend money are subject to lending laws, which are overseen by the Department of Corporations (DoC). The DoC requires lenders to pay fees based on the amount they lend. Because they do not profit from lending (at 0%), and did not know how much they would lend through OBF, SEu requested a waiver from this requirement.

¹¹ This quote is specific to the PG&E Electric Schedule E OBF, but is applicable to all the IOUs.

¹² To make a payment on a liability in default.

¹³ When the effective useful life (EUL) of a measure is shorter than maximum allowable loan length, EUL dictates the repayment period.

SEu approached the DoC, explained its program offering (0% interest and no fees), and noted it was ordered by the CPUC. The DoC agreed to grant SEu an exemption, provided the company lend only to the business segment¹⁴ and not violate lending laws. The DoC waiver applies to all the California IOUs. The fact that utilities are regulated by the CPUC also made the DoC more comfortable with OBF.

Should a utility seek to make loans to residential consumers, further discussion with the DoC would be required. California laws strongly protect consumers, and violations of consumer lending laws carry greater penalties than violations of commercial lending laws. Currently, IOUs are not authorized to make consumer loans, defined as any loan less than \$5,000, regardless of which type of customer receives them. While SEu originally sought to offer OBF to all customers, the utility chose to offer loans only to business customers after learning about the restrictions on consumer loans.

Residential-Sector Design Challenges

One utility indicated that programmatic issues for the residential sector actually present a greater concern than strict lending laws. First, residential customers do not typically live in the same location for more than seven years, which limits the loan repayment period. Second, while a utility can disconnect commercial customers with active OBF loans for not paying their bill, the IOUs do not believe they would be able to gain approval from the CPUC to disconnect residential OBF customers who have defaulted on their loan charges.

0% Interest

The utilities' DoC waiver stipulates that they must offer 0% interest loans. Utility program managers noted that as long as the utility serves as the capital provider, they will continue to offer 0% interest rates because of their advantages: utilities can track the loan more easily; vendors, account executives, and program staff can explain it easily; and the customer can understand it easily. The IOUs do not have protocols in place to handle non-zero interest rates.

¹⁴ The two types of loans—commercial and consumer—are subject to different lending laws, which are outlined in the California Financial Codes.

4. OBF IMPLEMENTATION ACROSS IOUs

The CPUC requires that the IOUs offer OBF with terms that are as consistent as possible. For example, all utilities use the same interest rate (0%) and implement OBF as a financing mechanism on top of other nonresidential energy-efficiency rebate and incentive programs. In addition, the IOUs use the same approach to calculate the loan term and monthly payment, outlined in Table 7. However, some differences exist in the way OBF is implemented among the utilities, based on each IOU's specific needs, its corporate culture, and its experience offering OBF. This section describes the similarities and differences between the four IOUs' programs, based on conversations with OBF staff members and Cadmus' program documentation review. Table 8 summarizes each utility's OBF program as of January 2012.

Table 7. OBF Project Payback, Loan Amount, and Loan Term Calculation (from SoCalGas)

Terms	Definitions/Guidelines
Total installed project cost (A)	Installed cost for measure(s) in the project
Adjustment to project cost (B)	Rebates/incentives (can include other utilities' offering or government grants)
Adjusted project cost (C)	Business Customers: (C) = (A) – (B) Institutional Customers: (C) = (A) – (B) – customer contribution, if any; has to be from customer's own general fund or stimulus funding, cannot be borrowed funds.
Projected total gas savings (D)	Natural gas savings from all measures in the project in dollars, calculated by multiplying the projected gas savings (therms) from measures installed by the average delivered cost of gas to that meter (dollars per therm)
Simple project payback (E)	(E) = (C)/(D); subject to program limits
Loan term (F)	Simple project payback in months plus one month
Total loan amount (G)	Business Customers: (G) = (C) – customer contribution, if any; or maximum loan amount Institutional Customers: (G) = (C) or maximum loan amount
Monthly payment for (H)	(H) = (G)/(F)

Table 8. Summary of OBF by Utility

	SDG&E	SoCalGas	SCE	PG&E
Program Type	Non-resource funding mechanism	Non-resource funding mechanism	Non-resource funding mechanism	Non-resource funding mechanism
Funds Available for Loans	No hard limit ^a	No hard limit ^a	\$16 million ^b	\$18.5 million
Interest Rate	0%	0%	0%	0%
Loans Made at the:	Site level	Meter level	Meter level ^c	Site level
Commercial Loan Cap	\$5,000 - \$100,000	\$5,000 - \$100,000	\$5,000 - \$100,000	\$5,000 - \$100,000
Commercial Loan Term	5 years (lighting and low cost measures 3 year maximum)	5 years or effective useful life (EUL), whichever is less	5 years or EUL, can be extended	5 years, can be extended up to EUL
Government/Institutional Loan Cap	\$5,000 - \$250,000 (per meter) Up to \$1 million (for eligible State of California accounts)	\$5,000 - \$250,000 (per meter) Up to \$1 million (for eligible State of California accounts)	\$5,000 - \$250,000 Up to \$1 million (for eligible State of California accounts)	\$5,000 - \$250,000 (per meter) Up to \$1 million (for unique opportunities to capture energy savings) ^d
Institutional Loan Term	10 years or EUL, whichever is less	10 years or EUL, whichever is less	10 years or EUL, whichever is less	10 years or EUL, whichever is less
Most Prevalent Delivery Channel	Vendors	Account Executives	Vendors for non-G&I customers; Account Executives for G&I customers	Account Executives
Vendor Delivery?	Yes	No	Yes	Yes
Vendor Training Offered?	Yes	NA	Yes	Yes
Default Rate (Dollar Basis)	<1%	0%	0%	0% (too early to tell)
Funding Approach	2-way balancing account outside of EE portfolio (soft limit)	2-way balancing account outside of EE portfolio (soft limit)	Fixed loan pool within EE portfolio (hard limit)	Fixed loan pool within EE portfolio (hard limit)
Fund Allocation Approach	N/A; no hard limit on loan pool size	N/A; no hard limit on loan pool size	\$12 million G&I \$2 million small CIA \$2 million large CIA ^e	A minimum of 25% of loan funds reserved for non-G&I customers
Fully Subscribed?	N/A	N/A	Yes ^f	Not yet
Number of Issued Loans 1/1/2010 To 9/15/2011	506	15	78	4
Loan Tracking System	SAP Loan Module	SAP Loan Module	Access and Smart Web based platform	Utility Billing System Loan Module

^a For the 2010-2012 program cycle, SEu anticipates adding \$9 million for SDG&E and \$3.5 million for SoCalGas to funds already allocated for OBF

^b CPUC resolution E-4473 approves transferring \$31 million from SCE's unspent, uncommitted efficiency funds from pre-2010 and from SCE's local partnership program to augment OBF

^c This is likely to change to site level in April 2012 per Advice Letter 2710-E

^d LED street lighting projects are capped at \$250,000 to avoid having such projects use up too much funding

^e This is the original allocation. Once all G&I funds were committed, unused large CIA funds were merged into G&I. Small CIA remained in its own category.

^f All loan funds have been reserved but not all have been disbursed

Project Bundling and Loan Buy-Down

Each IOU packages its loans differently. SDG&E, SoCalGas and PG&E can bundle projects at the customer site level across multiple meters, while SCE considers projects at the meter level. This arrangement prevents SCE from combining projects on different meters to make the overall project at a customer's facility meet OBF program requirements. For example, SCE cannot combine negative cash-flow improvements on one meter with positive cash flow improvements on another meter to achieve bill neutrality at the site level. While SCE staff do not believe this to be a significant issue at this time, staff acknowledge the possibility some customers would want to implement multiple smaller projects that each would be under the \$5,000 threshold, but that could be combined to meet the \$5,000 loan threshold at the site level.

If a project does not qualify for OBF because it does not meet the payback requirement, some utilities allow the customer to buy down the loan amount; PG&E and SCE encourage customers to leverage OBF funds by buying down the loan amount so that the amount being financed meets payback requirements. To manage risk, SEu allows only institutional customers to buy down project payback.

Loan Pool Account Structure and Management Buy-In

All OBF loan pools are ratepayer funded and function as a revolving fund. As loans are paid off, money returns to the OBF account, allowing for new loans to be issued. SEu structured its OBF differently from the other utilities: SEu uses a two-way refundable balancing account. With this structure, any overspending can be recovered through the following year's rates. This approach means that SEu's overall loan pool is technically unlimited, while PG&E and SCE have fixed loan pools derived from limited energy-efficiency funds. SEu's OBF funds derive from a separate account that is not part of the utility's energy-efficiency portfolio, and thus has no hard ceiling. While SCE executives and staff researched this two-way balancing account structure, they decided not to adopt it because of rate pressure concerns. PG&E also does not use a two-way balancing account.

According to SB-CAL, senior management support is key to running OBF successfully. *“If upper management feels that it's a good idea, it will get done—if they don't, it won't or it will only be done begrudgingly.”* For example, SB-CAL believes the OBF account structure reflects senior management's commitment to OBF, with SEu's use of a two-way balancing account indicating that senior management supports the program. SCE and PG&E staff members interviewed said they generally support OBF, but that their management has concerns because financing does not fall within a utility's core competency. Management needs to be convinced of OBF's necessity, and that it is worth the associated administrative efforts, costs, and risks. Like SEu, PG&E has a history with financing programs. Some years ago, the utility offered a large off-bill residential financing program, which was complicated to administer and oversee. PG&E's experience with that prior financing program has shaped its current OBF offering and attitude toward future lending programs.

Most of the utility staff interviewed stated that OBF's main benefit is that it offers the utilities another tool for obtaining cost-effective energy savings from projects that otherwise would not have been completed. One PG&E staff member does not believe the case for OBF is so strong, because incentive programs might be more cost-effective over time than the combination of financing and rebates/incentives.

Participant Fund Allocation

All four IOUs currently accept eligible customers on a first-come, first-served basis. Because SCE and PG&E earmarked funding for different customer segments, the first-come, first-served policy is also by segment; once a customer segment becomes fully subscribed, more loan funds need to be allocated to that segment before the utility can loan more money. The IOUs have tried various strategies, outlined below, to distribute program funds. None of the IOUs require proof of capital constraint for customers to be eligible for OBF.

SEu

When SEu first offered OBF as a pilot program in 2006, it targeted the small business segment, which appeared to have the greatest need for upfront capital. Typically, this segment is composed of “mom and pop stores” whose owners may be interested in energy efficiency, but who may not have the time, knowledge, or capital needed to participate in a utility program.

SEu later expanded its OBF program to include larger customers, because participating vendors and utility account executives believed that having access to the program would improve larger customers’ satisfaction with the utility. Currently, SEu is indifferent to the type of customer that participates, as long as the customer is a good credit risk and meets program requirements. One SEu staff member said that it would be ideal to have customers submit proof of capital constraint; another said need-based financing could eliminate customers who would prefer to preserve their capital or borrowing capacity for core business operations. SDG&E’s applicant mix is approximately 65% commercial and 35% G&I customers.

SEu originally had a loan pool limit (2006-2009), although it was not reached before the utility transitioned to a two-way balancing account approach for 2010-2012. The utility does not fund OBF loans out of its energy efficiency funds; instead, SEu created a two-way balancing account where the funding is drawn from non-PPP/PGC funds. Because the loan pool is not limited, SEu has not encountered the oversubscription issues other utilities have had. Any losses SEu incurs are covered by ratepayer funds, so the utility works hard to minimize default.

SCE

All of SCE’s nonresidential customers are eligible for OBF, which is funded through the utility’s energy efficiency program. Because it wanted to serve as many customers as possible, SCE set aside funds for each customer segment (\$12 million for G&I, \$2 million each for Small CIA and Large CIA) so that no segment would be left out. Because the government partnership program staff had surveyed partner customers to assess their demand for financing, SCE knew that G&I customers had a number of “shovel ready” projects that could use all of the allocated funding. SCE did not have similar information about commercial demand, so was less certain how much demand to anticipate.

SCE began marketing OBF in July 2010, and started accepting applications on August 2, 2010. SCE’s tariffs, accounting, and billing systems for its OBF program are usually implemented at service account levels, but during the program’s first 90 days, SCE applied the loan cap limit at the customer level instead of at the meter level to prevent faster acting customers from reserving all the funds. This meant that customers, such as University of California, would only get one loan for \$250,000, the maximum for G&I customers, instead of multiple loans for that amount.

SCE removed the loan amount restriction on November 2, 2010, and by January 2011, the program had become fully subscribed. SCE began putting customers on a waiting list, but closed the waiting list in April 2011 because SCE believed the combination of reserved loans in the pipeline and waitlisted customers would fully exhaust authorized funding levels. Because customers in the large CIA category had not reserved all allocated funds, SCE merged that category with the G&I category, which quickly absorbed the remaining funds.

SCE's greatest challenge has been that the demand for OBF far exceeds available OBF funds. The SCE waiting list represents \$4.8 million in OBF loans. Because SCE has not known when financing would become available again, the utility has found it challenging to manage customer expectations. SCE uses the loan payments it receives every month to execute new loans.

SCE has requested that the CPUC allow it to move unspent G&I partner incentive funds¹⁵ into OBF for those customers. SCE has not requested additional funding for other segments; staff reported that the utility is hesitant to request more ratepayer funding because it does not want to increase its rates.

PG&E

PG&E initially reserved a minimum of 25% of its loan funds for non G&I customers so that G&I customers would not claim a disproportionate share of funds. (Like SCE, PG&E's OBF funds are part of its energy efficiency program.) This initial reservation is considered a "*reasonable level of funding availability*"¹⁶ for customers eligible for smaller loan amounts; PG&E plans to raise or lower this reservation as needed to ensure all loan funds are utilized. When the program started, PG&E received a rush of G&I customer projects because its G&I account executives had actively recruited their customers. Although PG&E's OBF pipeline appears to be full, PG&E's project completion rate has been slow. Most G&I customers have been slow to implement projects, with some being in the queue for more than a year.

As of February 2012, PG&E had funded 19 loans, 18 of which went to commercial customers. Although PG&E's loan funds are not yet fully subscribed,¹⁷ the program manager is not concerned about demand because 300 customers, representing a mix of customer segments and projects, are moving through the utility's pipeline. PG&E's loan reservations so far are as follows: \$0.8 million for deemed projects; \$1 million for third-party projects; \$1.5 million for government partner projects; and \$1.4 million for LED street lighting.

Marketing and Delivery

Because OBF's purpose is to support existing IOU energy-efficiency programs, not just to lend money, the IOUs have done little to market OBF on a stand-alone basis. Instead, OBF staff members rely on IOU account executives, other energy-efficiency program staff members, and trade allies to spread the word. OBF staff members provide regular updates to account executives and work with energy-efficiency program staff members to integrate OBF into their programs.

¹⁵ Contractual partners have funds set aside for incentives.

¹⁶ PG&E OBF PIP

¹⁷ Loan funds are reserved when the loan documents are signed

Local government programs and state and institutional partnership programs also are important channels for reaching G&I customers.

Most of SDG&E's OBF projects are submitted by vendors, and the OBF staff notifies account executives when their customers have an application in the queue. PG&E and SCE staff mentioned that OBF "*sells itself*" once customers and vendors learn about the 0% financing. Both SCE and SDG&E reported significant vendor involvement, with core groups of very active vendors driving a large percentage of projects. PG&E staff commented that they are seeing vendors with OBF experience in Southern California moving into Northern California. Although SoCalGas has reached out to vendors, they have expressed little interest, so SoCalGas relies on account executives to tell customers about OBF.

SCE marketed OBF as part of its overall suite of energy-efficiency offerings until the program became fully subscribed in January 2011. SoCalGas is cautious about promoting the mechanism because so many of its customers do not qualify (i.e. natural gas projects typically have long paybacks). When the mechanism was first introduced, SoCalGas' customer rejection rate was 90%, and many of the customers interested in OBF already were struggling with their utility payments. Now that the account executives are involved and carefully screen potential participants, the rejection rate has dropped, and nearly every project that applies for OBF receives it.

Table 9 summarizes each IOU's most prevalent OBF delivery channels as of October 2011.

Table 9. Most Common OBF Delivery Channel by IOU

IOU	Most Common OBF Delivery Channel
SDG&E	Vendors submit 97% of applications.
SoCalGas	Account executives submit applications; vendors have not shown interest in delivering the program.
SCE	Local Government Partnership and State Government & Institutional Programs drive most G&I projects, while vendors drive the majority of CIA projects. SCE did not realize until after they became fully subscribed that vendors would significantly drive loan volume demand (approximately 75% of loan demand, by number, is driven by vendors).
PG&E	Account executives submit applications; vendors are starting to team with account executives.

Vendor Management and Support Practices

SDG&E, PG&E, and SCE all train vendors on how to use OBF, but have different requirements for participating vendors and offer differing support levels.

SDG&E requires vendors to participate in formal training before they can submit OBF applications for customers. Because the efficiency programs are attracting new vendors, SDG&E also needs to train them on the rebate/incentive programs with which OBF works. SDG&E is considering offering more comprehensive training and posting resources online for vendors to access more conveniently. The current training is a two-hour class that leads vendors through OBF requirements, applications, and vendor guidelines.

Once vendors have received training, SDG&E supports them by sharing best practices, and by ensuring strong communication between the OBF staff and the utility's vendor alliance staff that help vendors with OBF. SDG&E maintains vendor guidelines and participation agreements, which vendors must sign before they are allowed to participate in OBF. The agreement includes a clause allowing the utility to limit or deny participation. SDG&E has warned several vendors about less than satisfactory practices and has logged these notices in its system, but it has not yet banned any vendors. Because some vendors have tried to mislead customers, SDG&E has tightened its vendor guidelines.

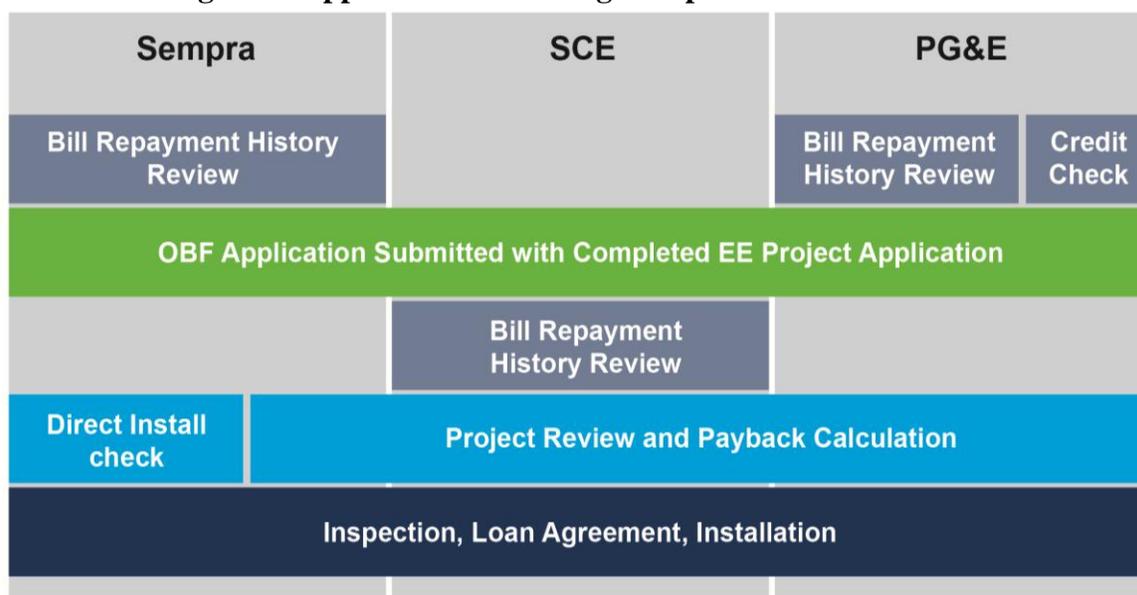
SCE trains vendors on how to fill out OBF applications, meets with vendors to discuss ongoing project pipelines and loan calculation methodologies, and has covered OBF-specific issues in ongoing contractor Webinars. SCE did not require OBF-specific vendor training when the OBF program started, but staff reported to Cadmus during its fall 2011 interviews that the utility will soon make it mandatory. SCE has been working to improve its vendor training to ensure that vendors understand how loans are calculated, and also that vendors' expectations for OBF projects are aligned realistically with SCE's process. After hearing that some vendors have misrepresented OBF to customers, SCE decided to require an OBF vendor agreement.¹⁸ PG&E started training vendors in November 2011, and had no plans in fall 2011 to require vendors to sign an agreement.

Nearly two-thirds of vendors surveyed said that OBF training from the utilities was somewhat to very helpful. Only two vendors said the training was not helpful because they did not get all their questions answered; the rest of the vendors gave no response.

Application Processing

Application processing steps are shown in Figure 2. Projects can be disqualified at two points in the application process: when customer creditworthiness and eligibility are assessed and when the utility determines whether the project qualifies under OBF program requirements. Sometimes, vendors who submit applications on behalf of their customers will resubmit an application with lower costs so that it qualifies for OBF.

¹⁸ In April 2012, SCE informed Cadmus that the utility had implemented Authorized Participant guidelines, which require vendors to agree to abide with IOU incentive and OBF program guidelines.

Figure 2. Application Processing Comparison between IOUs

All four IOUs examine applicants' billing repayment histories for any negative indicators (e.g., deposits on hand,¹⁹ disconnect notices, broken payment arrangements). SCE evaluates customers' credit worthiness after they submit a completed project application, while SEu and PG&E take requests from vendors to verify potential applicants' eligibility (bill payment history/credit check) prior to receiving a completed application.

PG&E also conducts a commercial credit review, which adds one to six days to the process. If problems arise during this step, PG&E will work with the customer to take a closer look at financial statements, which usually takes two to four weeks to resolve.

After completing the first two steps, all IOUs calculate simple project payback and loan amount, net of any rebates/incentives.

Some small CIA customers may also qualify for the Direct Install (DI) program.²⁰ At this point in the process, SDG&E checks its OBF applications for measures that would qualify for DI; if it finds them, the utility requires customers to sign a waiver before proceeding with OBF. The waiver states that the customers are aware that they could obtain the qualifying measures for free through the DI program, but that they would prefer to use their own vendor and pay for the measures using OBF. SDG&E staff reported that most customers return signed waivers; only two in the past few months have opted to participate in the DI program. SDG&E is the only utility that checks applications for DI eligibility. SCE staff reported that some of its customers have become upset when they learned, after obtaining an OBF loan, that they could have received the same measures at no cost through the DI program.

¹⁹ Having deposits on hand means that a customer has a deposit with the utility, intended to either build or rebuild their credit with the utility. This can occur for new customers or for customers with a poor payment history.

²⁰ DI is an electric-only program, therefore does not apply to SoCalGas. DI is available to customers with usage under 100 kW. Later sections of this report outline how the DI program interacts with OBF in greater depth.

Utilities require pre-inspection²¹ for 100% of OBF projects to ensure that savings can be achieved before the utility approves the project and issues loan agreements.²² Post-installation inspections also are required for all projects, along with a project cost true-up, before the utilities disburse funding. If everything is found to be in compliance, including required paperwork and project documentation, funds are disbursed two to six weeks after the post-installation inspection. The average time varies by utility.

Interaction Between OBF and Other Rebate/Incentive Programs

Because OBF is a financing mechanism rather than a program, it operates in conjunction with each utility's rebate/incentive programs, and any potential OBF projects must also meet the documentation, inspection, and other requirements for the underlying rebate/incentive program. While OBF results in some additional project review and lead time, this effort does not duplicate efforts and works with existing incentive program review and inspection protocols. Figure 3 shows the utility departments engaged with OBF implementation.

Figure 3. OBF and Dependent Departments within the Utility



Application Processing Times

Application processing time depends on the following:

- Underlying efficiency-program requirements and procedures (deemed savings projects usually take less time than custom projects)
- Application re-work
- Delays due to customers' internal approval processes

²¹ PG&E does not require an on-site pre-inspection by PG&E engineers for its third-party programs, as stated in the PIP. PG&E engineers review the audit report created by third-party implementers to ensure program criteria are met.

²² Few projects fail the inspection process, but in one case, PG&E engineers reviewed a public works water project that revealed no energy savings, so the project was withdrawn.

- Issues establishing customer eligibility, such as those that may arise during a credit check

All of these criteria result in significant variation from project to project, so total application processing time alone is not the best metric to compare OBF across utilities. To isolate the impact of OBF on processing time, utilities could track turnaround time beginning when the engineering-approved application reaches the OBF staff and ending when the loan agreement is sent to the customer. Another metric could be the time it takes to issue the OBF check to the customer or vendor after the project passes final inspection. By knowing the total processing time *and* the OBF processing time, utilities can better identify where bottlenecks exist.

Once SDG&E's OBF team receives a completed OBF application, often from a vendor, they will determine within five days whether the application can move on to an engineering review. The engineering staff then has up to 30 days to review the savings workbook and proposed measures, and to cross check customer usage. The engineering staff also schedules an on-site inspection visit during this 30-day review period; no loan can be issued if the equipment is already installed. The SDG&E inspection team that conducts most inspections is not part of the engineering staff, but engineers may be required to review larger custom projects. During these inspections, utility staff looks at the existing equipment to ensure that it meets the requirements of the underlying rebate/incentive program(s). For example, the existing equipment must be operational and present in correct quantities, and the retrofit must be feasible. Some custom projects must also wait an additional 30 days to allow for CPUC review; the Energy Division reviews a random sample. After engineering staff approve the application, the OBF team calculates the loan amount and issues a loan agreement within 30 days.

The application process varies significantly depending on the project at SoCalGas: If the new equipment needs to be custom-built for the facility, it could take several months or even more than a year to complete. If the equipment is not custom and customers do not delay installation for their own business reasons, the process can be completed in six to eight weeks. OBF usually adds two weeks to the underlying energy-efficiency program processing time. Because gas projects tend to be more complicated than electric projects, customers usually take longer to implement them. SEu utility staff members noted that the main bottleneck in the application process is usually on the customer (or vendor's) end. SoCalGas account executives usually identify potential projects and then initiate the application process and conduct the inspections.

SCE's and PG&E's OBF timeline and inspection requirements are also dictated by the efficiency program for which the customer is applying. When the application reaches certain points in the process, actions from the OBF team are triggered. The OBF processing does not take long and does not delay the process; for SCE, the loan agreement usually is ready for customer signature within a week after the application goes to OBF staff. For PG&E, loan agreements for deemed savings projects can be signed in as little as a month after the application is submitted if there are no problems and the customer is responsive. SCE staff inspect projects that qualify for deemed rebates; third-party engineers inspect all custom or calculated solution projects. PG&E also uses third-party engineering reviewers for calculated retrofit program projects, government partnership program engineers for partner projects, and internal engineers for core deemed projects.

Loan Repayment and Default

After OBF loan funds have been disbursed, the utilities' billing system automatically takes over loan servicing. None of the IOUs charges a penalty for early repayment. Program staffs monitor the loans, and one program manager noted that the OBF team tries to identify and work with any customers that seem to be struggling with repayment. Table 10 summarizes program default rates as of the end of September 2011.

Table 10. IOU Default Rates and Commentary

IOU	Default Rate/Commentary
SDG&E	The OBF program has made over 900 loans (\$20 million), and seven loans have defaulted, representing \$99,000. On a per-dollar and on a per-loan basis, less than 1% of loans have been in default. SDG&E originally planned for a 2% default rate (on a dollar basis), which is much lower than default rates associated with more traditional commercial loans, especially in the current economy. Defaults usually have been attributed to customers' going out of business. In one instance, the customer counted on grant money that did not come through, and had to declare bankruptcy and close its account.
SoCalGas	0% in default.
SCE	0% in default; one loan fell behind, but cured on its own.
PG&E	Too early to tell, but 1% expected.

OBF Staffing and Costs

Internal Costs

The OBF program managers all cited labor as being the largest ongoing cost to support OBF (Table 11). The utilities all have a core team dedicated to OBF, and other departments such as billing and engineering also support OBF implementation. Other utility costs include OBF start-up costs, the opportunity cost of the funds lent at 0%, and any bad debt.

Table 11. Number of Full-Time Equivalent OBF Staff

IOU	Number of OBF Full Time Equivalent (FTE) Staff
SDG&E	One manager plus three support staff. Part-time (for OBF) inspection, database, and engineering staff are also included.
SoCalGas	One 0.25 FTE manager, two support staff, and a 0.25 FTE marketing person. Other departments such as IT, billing, credit and collections, and engineering are also involved.
SCE	One manager plus four support staff. Other departments are involved, such as billing and engineering.
PG&E	Currently one, but have plans to hire more staff.

External Costs

Program managers mentioned OBF costs that are external to the utility, the greatest of which is vendors' floating project costs from the time equipment is installed until OBF and rebate/incentive payments are disbursed.²³ As shown in Table 12, a significant number of OBF checks are paid directly to the vendor rather than to the customer. Customers specify the recipient of OBF loan proceeds in the loan agreement.

²³ Rebate/incentive checks and OBF payments are disbursed as separate checks. This issue is discussed further in the section on vendors.

Table 12. Estimated Fraction of OBF Projects Paid Directly to Vendor

IOU	Percent of Loan Proceeds Paid Directly to Vendor
SDG&E	90%
SoCalGas	33%
SCE	60-70%
PG&E	50%

5. PARTICIPATION AND LOAN CHARACTERISTICS

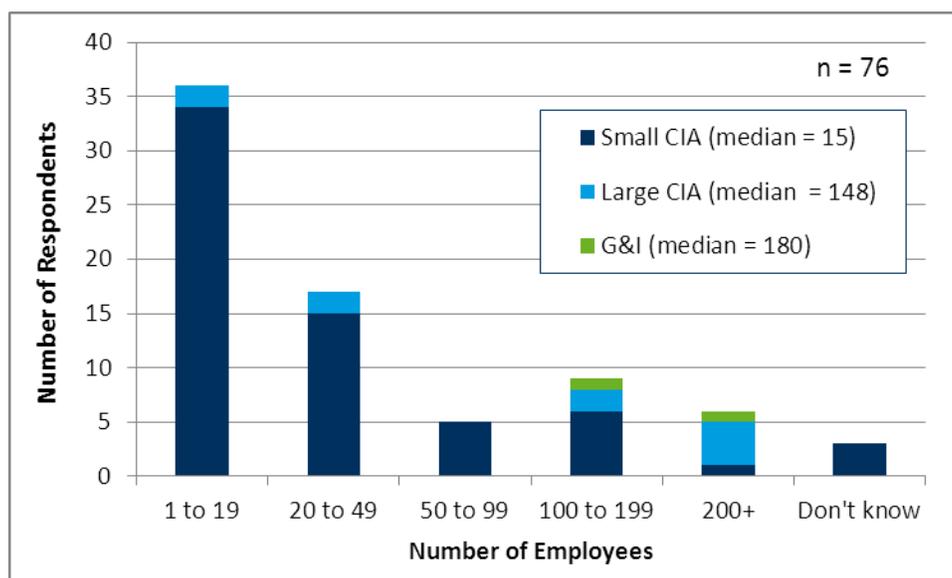
This section summarizes the characteristics of both customers and vendors who have used OBF. Because much of the report discusses customers in terms of their segment, the report first analyzes whether the segmentation approach provides a reasonable approximation by which to divide large and small CIA customers. SB-CAL defines a small business as one that has fewer than 100 employees.

Relationship between Customer Segmentation and Number of Employees

As described in the introduction, the IOUs use kW as a proxy for customer size, with customers having monthly demand of 200 kW or less classified as small. Cadmus investigated the relationship between customers' kW and the number of full-time employees at their location, which is another typical way to gauge business size.

Respondents to the OBF participant survey provided the number of employees on site. Cadmus compared that number to their assigned segment, which was determined based on kW use or taxpayer funded status (Table 1). As Figure 4 shows, kW use is a reasonable proxy for firm size based on number of employees. Respondents were grouped by number of employees and their assigned segments. Although there are outliers, the majority of customers classified as small reported fewer than 100 full-time employees, while customers classified as large tended to report more than 100 employees. The median number of employees for customers classified as small CIA is 15, while that number for large CIA customers is 148. The two G&I survey respondents reported over 100 employees each.

Figure 4. Distribution of OBF Survey Respondents by Number of Employees



Loan Statistics

The numbers reported in this section include only loans closed by September 30, 2011. Table 13 and Table 14 show OBF participation on a per-loan and per-dollar basis by IOU.

Table 13. OBF Participation by Sector on a Per-loan Basis

IOU	Number of Loans				Percent			
	G&I	Large CIA	Small CIA	Total	G&I	Large CIA	Small CIA	Total
SDG&E	47	48	411	506	9%	9%	81%	100%
SoCalGas	0	1	14	15	0%	7%	93%	100%
SCE	7	21	50	78	9%	27%	64%	100%
PG&E ²⁴	0	2	2	4	0%	50%	50%	100%
Statewide	54	72	477	603	9%	12%	79%	100%

Table 14. OBF Participation by Sector on a Per-dollar Basis

IOU	Dollars Loaned				Percent			
	G&I	Large CIA	Small CIA	Total	G&I	Large CIA	Small CIA	Total
SDG&E	\$2,217,776	\$2,773,519	\$8,550,003	\$13,541,298	16%	20%	63%	100%
SoCalGas	\$0	\$77,688	\$381,613	\$459,301	0%	17%	83%	100%
SCE	\$531,941	\$627,087	\$853,689	\$2,012,717	26%	31%	42%	100%
PG&E	\$0	\$175,423	\$34,717	\$210,140	0%	83%	17%	100%
Statewide	\$2,749,717	\$3,653,717	\$9,820,022	\$16,223,456	17%	23%	61%	100%

Cadmus asked program managers to what they attribute the particular mix of customers who have received OBF loans. SDG&E attributes its program's high proportion of small CIA participants to the active vendors who submit most applications. SoCalGas' account executives do not target any particular sector; rather, they carefully screen customers and projects so that most projects submitted are successful. SCE staff indicated that smaller projects have been able to move through the process more quickly than G&I projects, many of which have been allocated funding but are moving slowly.²⁵ Customers' authorized agents,²⁶ most of whom have been lighting vendors, submitted many of SCE's early approved loans. Since PG&E has made only four OBF loans, it is too early for the utility to say how the number of loans it makes will be divided among C&I customer classes.

Figure 5 shows the total number of OBF loans made statewide, along with the total amount loaned to each customer segment. While G&I and large CIA customers have received fewer loans, the size of each loan tends to be larger than those made to small CIA customers.

²⁴ Two loans were issued under PG&E's "off-bill" program. The numbers in the table reflect "on-bill" loans only.

²⁵ If a project seems to be moving more slowly than expected, SCE sends a letter to the customer to ask whether the project will continue to move forward.

²⁶ An authorized agent is a third party that the customer has authorized to act on their behalf, including receiving incentives or payments.

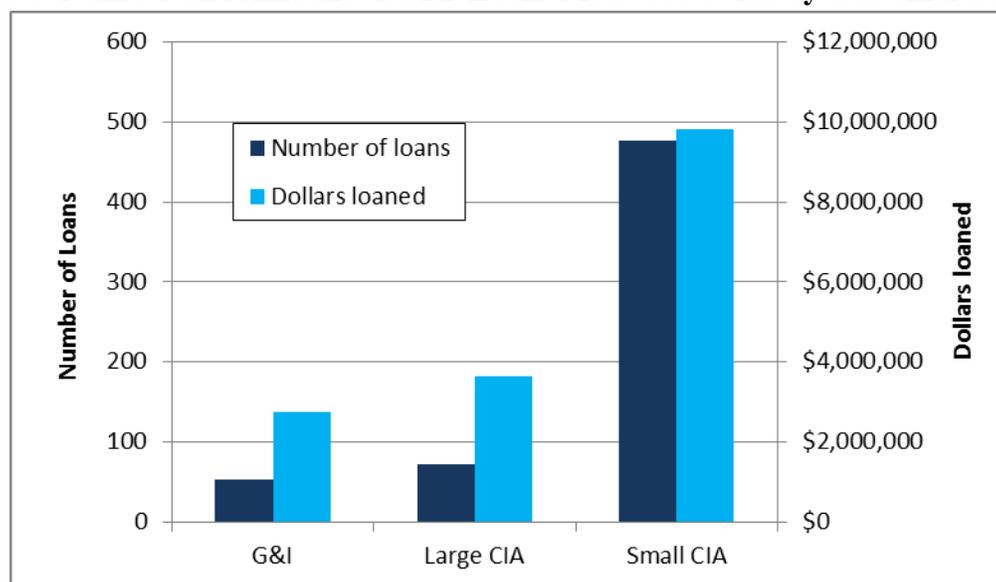
Figure 5. Number and Amount of OBF Loans Made Statewide by Customer Segment

Table 15 shows the average loan size by customer segment for each IOU. On average, smaller customers have smaller loans. Small CIA customers' average loan size is \$20,600 while large CIA and G&I customers' average loan size is nearly \$60,000. SoCalGas, which is a gas-only utility, had the largest average loan amount for small CIA customers. This higher loan figure reflects higher gas project costs. Since SoCalGas had issued only one large CIA project as of September 30, Cadmus could not draw conclusions about average project size for that customer segment.

Table 15. Average Loan Size by Customer Segment

Average Loan Size	G&I	Large CIA	Small CIA
SDG&E (site level)	\$47,187	\$57,782	\$20,803
SoCalGas (meter level)	NA	\$77,688	\$28,140
SCE (meter level)	\$75,992	\$29,861	\$17,074
PG&E (site level)	NA	\$87,711	\$17,358
Statewide	\$50,921	\$50,746	\$20,587

Figure 6 shows the statewide loan size distribution. The majority of loans to date have been under \$50,000.

Figure 6. Loan Size Distribution

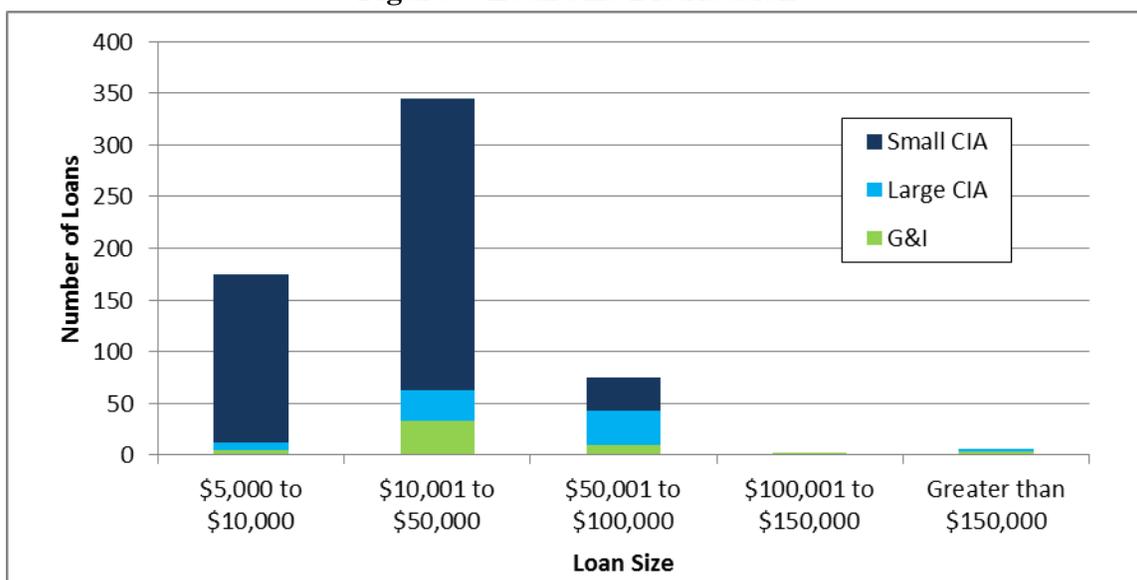


Table 16 shows the number of loans IOUs provided for various industry sectors, as determined by customers’ two-digit North American Industry Classification System (NAICS) codes. The largest proportion of loans (almost one-half) has gone to businesses in the retail trade sector, with real estate, educational services, hospitality, and manufacturing sectors having smaller but notable proportions. The last two sectors in the table lump together more heterogeneous businesses.

Table 16. Number of Loans by NAICS Codes

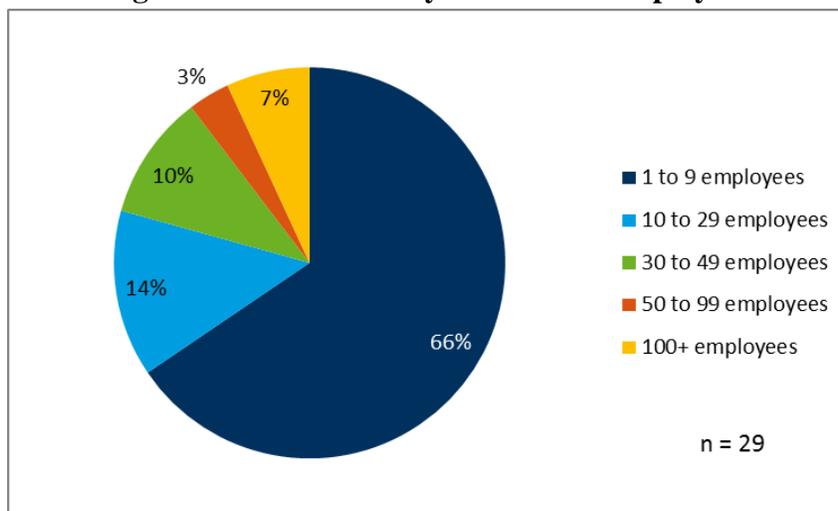
NAICS Sector	Number of Loans (Statewide)
Retail Trade	270
Real Estate	57
Educational Services	47
Accommodation, Food Services	41
Manufacturing	34
Other Services (except Public Admin)*	70
All Other Sectors	84
Total	603

*Establishments engaged in providing services not specifically provided for elsewhere in the classification system, such as equipment and machinery repairing, personal care services, promoting or administering religious activities.

Participating Vendor Characteristics

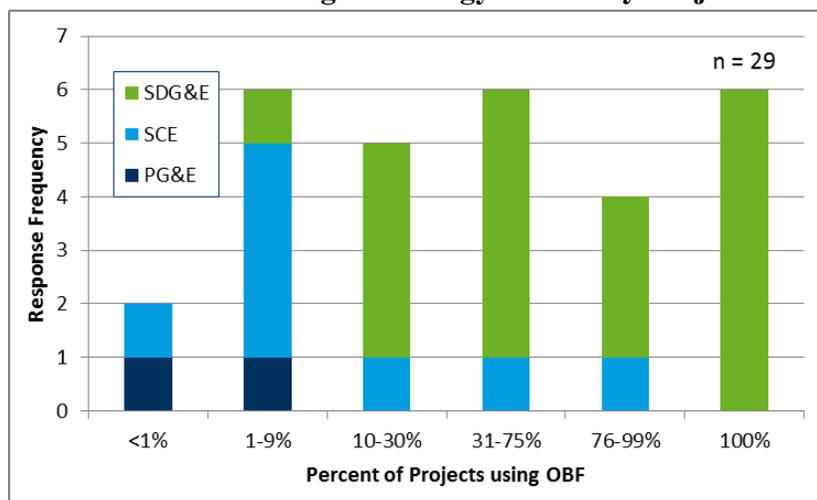
As of September 2011, 79 vendors had completed projects using OBF. Some of these vendors completed projects for more than one IOU. The OBF vendor pool includes a wide range of vendors, from small lighting vendors to vendors that aggregate utility program applications and projects for multiple sub-vendors. Most of the vendors surveyed for this study (N=29) are smaller businesses, as shown in Figure 7.

Figure 7. Vendor Size by Number of Employees



Cadmus asked vendors what percent of their projects included OBF. Figure 8 shows the distribution by utility.²⁷ Both of the PG&E vendors surveyed used OBF on a very small portion (less than 9%) of their energy-efficiency projects. Five of the eight SCE vendors surveyed also said that they used OBF on 9% or less of their projects. The remaining three made more use of OBF. Only SDG&E vendors used OBF on most of their projects. Fourteen of the 19 SDG&E vendors surveyed reported using OBF on 31% or more of their energy-efficiency projects, and six said they use it on 100% of their projects. These results reflect SDG&E’s more mature program.

Figure 8. Vendors’ Percentage of Energy-Efficiency Projects with OBF



Note: Some vendors participate in OBF with multiple utilities.

²⁷ Although some vendors worked with multiple IOUs, we assigned each vendor to a primary IOU for this analysis. The primary IOU was the IOU that listed the vendor in their response to our data request. Where overlap occurred between SCE and SDG&E vendor lists, we assigned the overlapping vendor to SDG&E because SDG&E was the first utility to offer OBF.

6. KEY PROGRAM FINDINGS

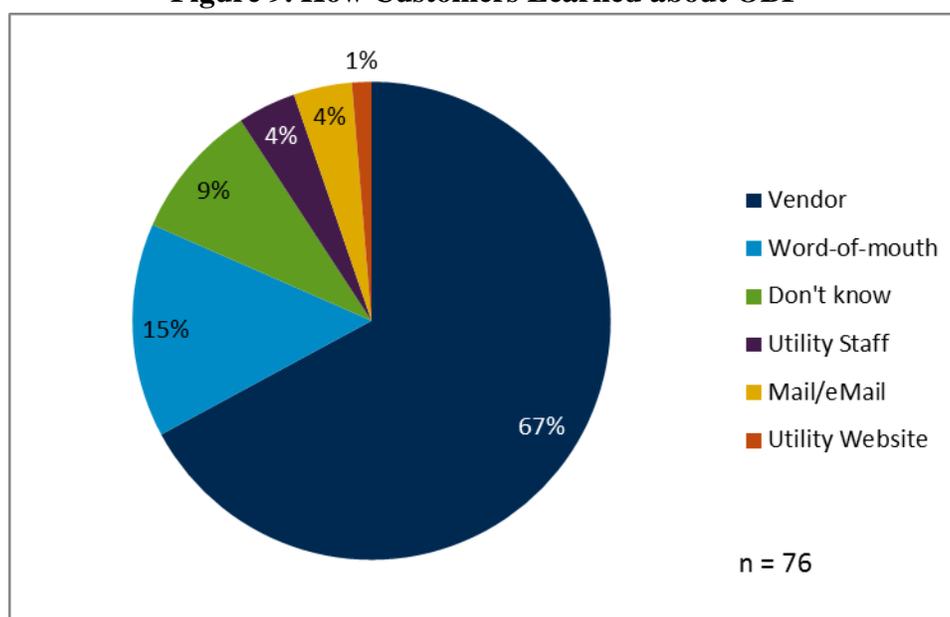
This chapter focuses on findings related to marketing channels, OBF's effectiveness in helping customers overcome the capital cost barrier, and current implementation challenges.

Marketing Channels

Customers

As shown in Figure 9, most participating customers learned about OBF through their vendor (67%) or from word of mouth (15%). While SoCalGas does not formally involve vendors, two SoCalGas customers reported learning about the program from vendors, and the program manager reported that some vendors (agricultural greenhouse, solar pool heater, ozone laundry) have begun to promote OBF.

Figure 9. How Customers Learned about OBF



When asked about the best way to increase awareness of OBF to businesses like theirs, the responses varied, suggesting diverse avenues should be used, with an emphasis on direct, in-person contact (Table 17). The largest proportion of respondents recommended in-person contact at businesses (30%) and another 11% suggested building word-of-mouth in their business communities (7%) and using trade associations (4%). While most respondents who recommended a door-to-door approach said they would welcome a vendor sales call, several specified that they would rather hear from a utility staff person because they do not entirely trust random vendors.

A smaller proportion of respondents (22%) recommended marketing through bill inserts or on the bill, but cautioned this would not be effective for larger businesses where *“the accounts payable people who look at bills are not the ones who make decisions about upgrades.”* Finally, less than 10% of respondents recommended marketing through utility websites and conventional

media. A few respondents said they would like a list of approved vendors, and one said he would like the utility to provide a list of vendors to avoid.

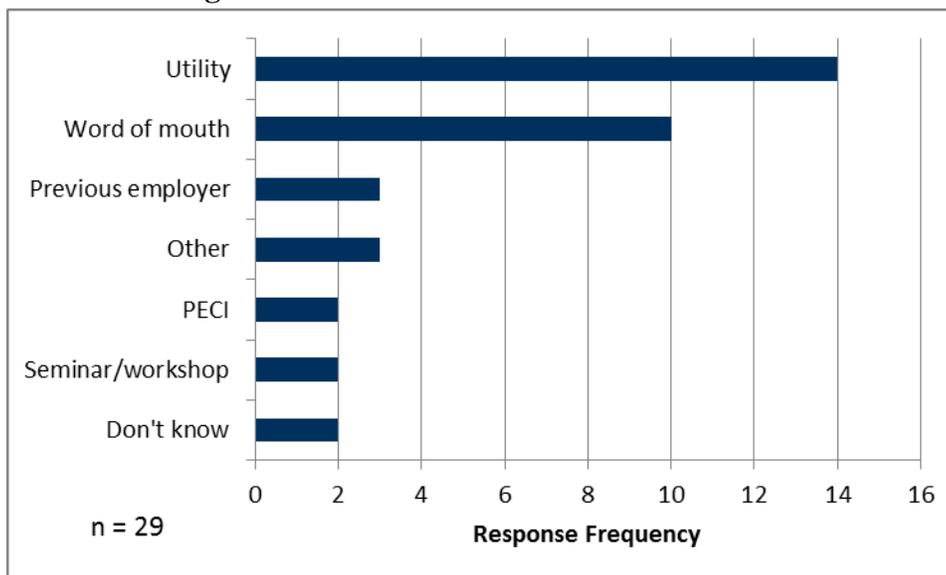
Table 17. How Best to Increase Awareness of OBF

Recommendation	Percent of Respondents
Door to Door	30%
Vendor	20%
Unspecified	5%
Utility	5%
Word of Mouth	7%
Trade Associations	4%
Utility Email/Mail/Phone Call	22%
With the Bill (Insert or On-Bill)	8%
Flyers/Newspaper/Utility Website/Radio/TV	8%
List of Approved Vendors	3%
Other	12%
Don't Know	16%
*Total percent exceeds 100% due to multiple responses	N = 76

Vendors

Half the vendors surveyed learned about OBF through the utility, as shown in Figure 10, either through a contact at the utility, an account executive, or email. A third of vendors also mentioned word of mouth. Three learned about OBF at a previous employer, two learned of it through Portland Energy Conservation Inc. (PECI), and two from a seminar or workshop.

Figure 10. How Vendors Learned about OBF



Vendors reported they promote OBF to a variety of customers, with some vendors targeting large companies and others targeting smaller and medium-sized businesses. A number of vendors said that they look for customers with high energy use and savings potential.

Several vendors reported offering OBF to all eligible customers but a few gave reasons for avoiding certain customer segments. Vendors who avoid large corporations cited difficulty reaching a decision maker and getting through all the “*red tape*.” On the opposite side of the spectrum, vendors who avoid small “*mom and pop*” companies said they do so because they believe these companies will not have projects large enough to qualify for the \$5,000 project minimum.

Vendors reported they usually meet with customers in person to begin discussing projects that might qualify for OBF. Vendors noted that customers may doubt that OBF is legitimate unless the vendor shows them the utility Website or other utility-produced materials. Customers – both OBF participants and the non-participating customers who attended the focus groups – also emphasized the importance of trust, and indicated that they see the utilities as a credible source of information.

Slightly over half of the vendors rated the utility’s OBF marketing materials to be somewhat helpful or very helpful. However, 25% did not find these materials helpful because the brochures, while important for establishing legitimacy, are insufficient to fully convey how the process works.

OBF’s Effectiveness at Increasing Program Participation

Participating customers and vendors agree that OBF effectively removes the upfront cost barrier, increasing energy efficient equipment installation and participation in energy-efficiency programs. OBF program managers and utility account executives also agree that OBF enables some projects that otherwise would not have been implemented.

Likelihood of Implementing Energy Efficiency Without OBF

Because OBF is a financing mechanism rather than a program, freeridership needs to be viewed in a different light compared to conventional utility programs. Still, the mechanism might attract customers who would have installed energy-efficient equipment without financing. The participant survey asked a series of questions to determine *the likelihood program participants would have considered or completed an energy-efficiency project if OBF had not been available*. The analysis allocates respondents into high, moderate, low, and no likelihood categories, depending on their answers to the survey questions (appendix C).

Table 18 summarizes the results of a likelihood analysis conducted by analyzing responses to five participant survey questions, which were adapted from a standard freeridership battery. Most (72%) survey respondents reported no likelihood of proceeding with an energy-efficiency project had OBF not been available; this response is consistent across all customer segments. Five percent of those surveyed said they had a low likelihood of proceeding without OBF, 11% indicated a moderate likelihood, and 12% reported a high likelihood of implementing the same energy efficiency project in the absence of OBF. These results are applicable only to OBF, and do not address any potential freeridership associated with rebates or incentives. It should be noted that SEu requires all participants to sign a loan agreement that contains a clause stating OBF was a “determining factor in [the customer’s] decision to have the work performed.”

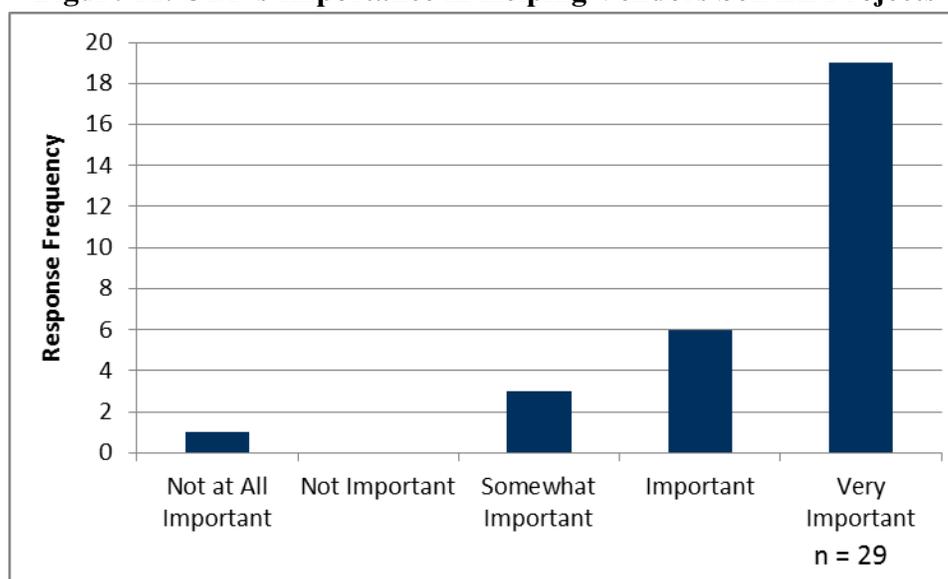
OBF covered all the upfront costs of 95% of surveyed customers. Four customers (two from SDG&E and two from SoCalGas) reported that OBF did not cover all of their costs; costs not covered included installation/labor and wiring issues.

Table 18. Likelihood Analysis Summary

Likelihood of Implementing Energy-Efficiency Project without OBF	Large CIA	Small CIA	G&I	Total	
				Count	Percent
No Likelihood	7	46	2	55	72%
Low Likelihood	0	4	0	4	5%
Moderate Likelihood	2	6	0	8	11%
High Likelihood	1	8	0	9	12%
Total	10	64	2	76	100%

Vendors corroborated the customer results. Eighty-six percent of those surveyed said OBF was important or very important in enabling them to sell energy-efficiency projects (Figure 11). Only one vendor, who already offered 0% financing on his own, was negative about OBF; that vendor reported that OBF was ruining his competitive advantage. Most vendors were quite clear that OBF helps customers pay for energy-efficiency projects they could not otherwise afford.

Figure 11. OBF's Importance in Helping Vendors Sell EE Projects



Utility account executives also said that most customers value OBF highly, particularly in today's financial climate. They say financing allows projects to proceed, which helps the utility and the customer meet their goals. One account executive described OBF as "*the missing link of taking a project from conceptualization stage to an installed project.*" Another said bluntly that "...[projects] wouldn't have happened ... Customers said flat out they wouldn't do an EE project without OBF."

Paying for Energy-Efficiency Projects Without OBF

Participating customers, vendors, and account executives say many OBF projects would not be possible without OBF. But when asked how customers pay for projects without OBF, vendors

most often mentioned customers would use cash to make up the difference between utility program incentives and the full project cost (Figure 12). Similarly, 72% of customers who said they would have implemented a project without OBF say they would rely on cash for upfront costs (Figure 13). Others reported payment options such as leases, payment plans, and bank loans.

Figure 12. Paying for EE Projects without OBF (Vendor Survey)

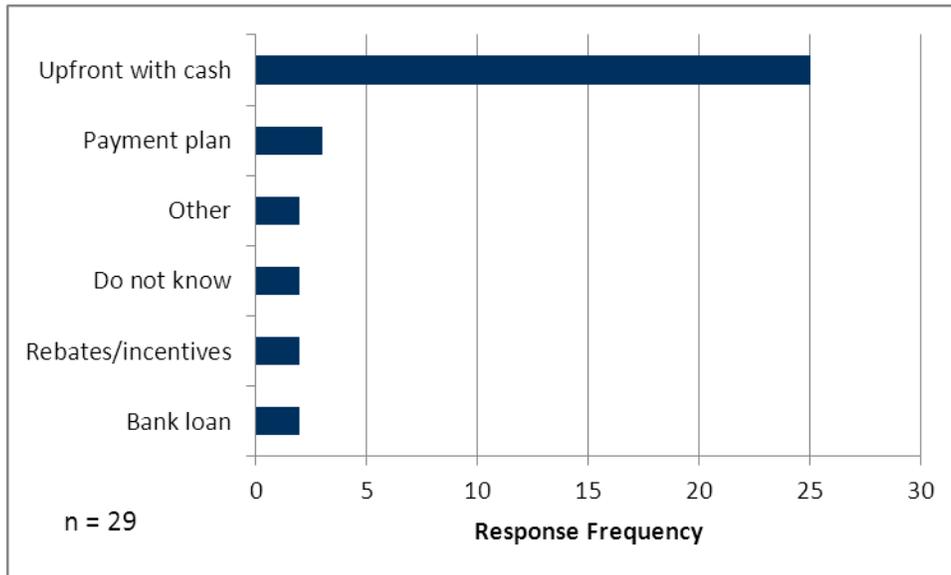
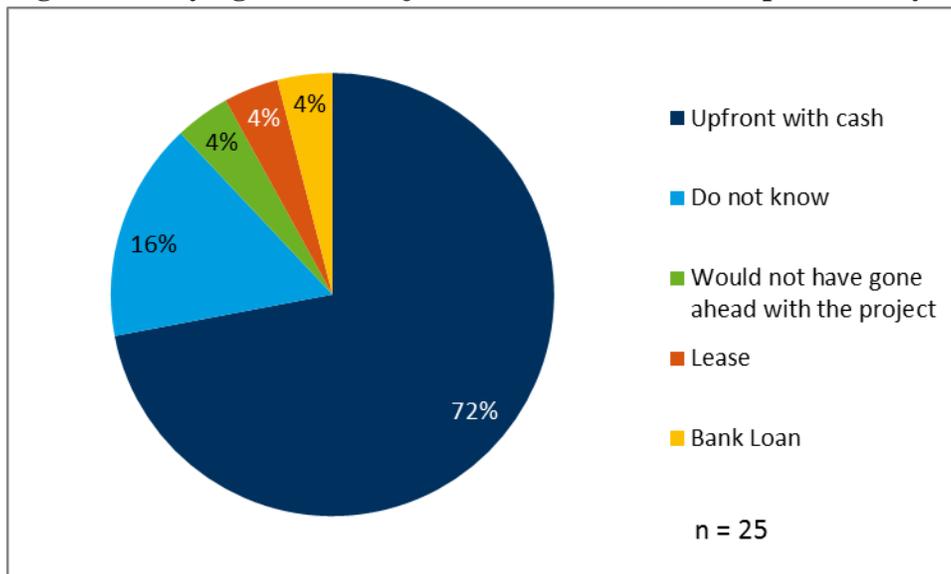


Figure 13. Paying for EE Projects without OBF (Participant Survey)²⁸

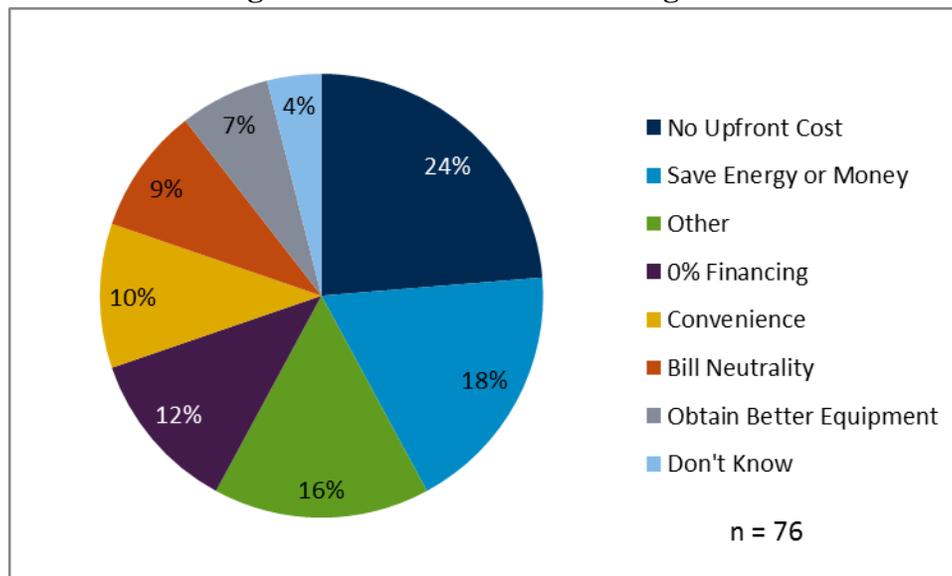


²⁸ N=25 because this question was asked only to customers who still would have completed a project if OBF were not available. One customer who initially said they would have done something without OBF later changed their mind.

Why Participants Chose OBF

One quarter of the OBF participants surveyed said the main reason for using OBF is that it enabled them to upgrade their existing equipment without incurring any upfront costs (Figure 14). Other participants said their main reason to use OBF was to save energy or money (18%), to take advantage of the attractive interest rate (12%), to take advantage of a convenient financing mechanism (10%), and to have bill neutrality (9%).

Figure 14. Main Reason for Using OBF



When asked whether they had researched other financing options, 92% of survey respondents said they had not. Of the three customers who had considered other financing options, one G&I customer recalled looking into a low interest loan from the California Energy Commission, one small CIA customer had investigated a capital finance company, and the last customer did not specify a source. These three customers said they preferred OBF to their other options because it offered the best interest rate, had no associated fees, and offered the convenience of repayment through the utility bill. Almost all survey respondents (91%) indicated that on-bill repayment is a valuable feature.

When asked why customers use OBF, vendors, similar to customers, said OBF removes their upfront costs, is convenient, and does not charge interest on the loan.

OBF program managers, whose views generally aligned with those of customers and vendors, provided reasons why different customer segments use OBF. They noted that small CIA customers tend to have capital constraints and need financing. OBF's bill neutrality and short payback requirements are also important to motivate customers from this segment.

Most program managers thought large CIA customers do not need OBF as much as small CIA customers, because they usually have more options to pay for projects. However, large CIA customers have found that OBF makes projects easier to approve because the project is paid for through a loan installment on their utility bill. Program managers also mentioned that some CIA customers may treat OBF loans as an operating expense instead of as a debt (or liability on the

balance sheet) because the utilities do not report OBF participation to credit agencies, except in cases of default when bad debt goes to collections.

For G&I customers, OBF can also help with project approval, depending on if the customer considers OBF to be a debt or an operating expense. Utility staffs said the ability to treat OBF projects as operating expenses helps G&I customers move the projects more rapidly through their internal approval processes. The California constitution²⁹ does not allow state or local governments to take on debt without voter approval, so IOU staff members reported that G&I customers who consider OBF a debt believe this precludes them from using OBF, while others believe bill neutrality and repayment through the utility bill allow its treatment as an operating expense. In addition, the ability to have the utility disburse loan proceeds directly to vendors/contractors means customers do not need to handle any money, which provides further justification to those customers who treat OBF as an operating expense. CPUC staff expressed concern that the constitutional restriction could limit energy-efficiency in the G&I segment and that the issue needs to be resolved, possibly by redefining energy-efficiency financing as an energy service rather than as a debt.

Best Customer Segment for OBF

One of the study's most important questions is whether OBF should be targeted to a specific customer segment. Opinions on this matter vary widely.

According to utility staff (OBF staff and account executives) from all IOUs, customers who would benefit the most from OBF have the following characteristics and may come from any customer segment:

- Desire and ability to install comprehensive projects that meet project payback requirements
- Good bill payment history (good credit risk)
- Would not implement project without OBF
- Able to agree to loan terms.

Participant survey results show that most participating customers were not likely to proceed with a project without OBF. Vendors also reported that they offer OBF to all types of customers.

A few utility staff members said that some specific customer types tend to be well suited for OBF. Specifically, account executives believe G&I customers are good OBF targets because they are stable and pay their bills on time. Because they are facing tight budgets, OBF provides G&I customers a way to pay for projects. However, some G&I customers do not believe they can agree to the OBF loan terms and conditions because they consider OBF to be debt; others will not agree to the requirement that the customer must continue to pay the loan in the event of a natural disaster (see account executive results in appendix E).

²⁹ Section 18 of Article XVI of the California Constitution

While most utility staff said they believe small to medium CIA customers are a good target for OBF, a minority see this segment as less desirable because they are perceived to be less stable (riskier), their projects may be too small to qualify, and many of these customers are served by the DI program. Utility staff from three different IOUs said that, if OBF focuses on small CIA and G&I customers, it would make sense for the private sector to finance large projects for large CIA customers. An account executive who works with national chains pointed out that franchisees need OBF because they do not have access to corporate money.

Current OBF Implementation Challenges

Integrating Vendors into the OBF Process

Various findings show that vendors are an important OBF delivery channel. Account executives say vendors not only generate project leads, but also help by managing the paperwork and application process, tasks with which customers do not want to bother. Although customers can obtain OBF for a self-installed project, most customers surveyed worked with a vendor.

Vendors make it possible for OBF to remove upfront costs because vendors who agree to be paid by the utility through loan proceeds (instead of by the customer) do not require customers to pay any project costs up front. If customers use vendors who do not agree to payment through OBF loan proceeds, they may need to fund the projects prior to loan disbursement. The lack of upfront cost has been an important OBF selling point, reinforcing vendors' importance to OBF success.

While both utility staff and customers believe vendors can facilitate the OBF process, both groups reported problems with some vendors. Most of the vendors surveyed also reported running into problems with OBF projects, as described in more detail in the following sections.

Application Processing Issues

Both vendors and utility staff from SDG&E and SCE said vendors had trouble filling out applications properly, which resulted in project delays. Because of heavy IOU oversight (account executives), this is less of an issue at PG&E and SoCalGas.

In a typical week, SDG&E staff returns 25% of OBF applications to vendors for revision, usually because of incomplete or faulty paperwork. Ten percent of applications are rejected after an engineering review because the project does not meet OBF payback requirements. Eleven percent of applications do not meet the credit criteria, a number that is decreasing because vendors have started to ask about customer eligibility before they submit a full application. A small proportion (1%) of applications does not meet the rebate/incentive program requirements or fails to meet the project minimum threshold of \$5,000.

SCE staff also said vendors submit forms that were filled incorrectly. Once vendors submit an application, they believe their work is done, leaving SCE staff the task of obtaining missing or corrected information, which increases project processing time.

Vendors agree that they have trouble filling out the program applications correctly; 72% of the vendors surveyed said that a utility has asked them to rework an application. When asked what could be done to reduce the number of applications sent back for rework, many vendors admitted that they had made mistakes on the applications and received help from IOU staff. Vendors have

found the IOU staff to be responsive and helpful with resolving application issues, usually through phone calls or e-mail.

Both vendors and utility staff offered several reasons for ongoing errors in filling out applications:

Poor Understanding of Underlying Efficiency Programs. Many vendors do not understand rebate/incentive program requirements, and make mistakes with that part of the application. OBF is a funding mechanism that overlays the programs, so any application must also meet the relevant efficiency program requirements. Incorrect project savings calculations will affect OBF payback calculations. While an application may be rejected by program or engineering staff, the utilities' OBF teams communicate the news and often are blamed for the rejection.

Savings Calculations. SCE staff report that vendors often make mistakes when calculating custom program savings. Several vendors agreed, and one commented that "*variation in [the way] vendors and IOUs calculate savings [results in] application rework.*" One account executive said that standardizing the way savings are calculated would improve the internal application approval process because utility and third-party engineers can produce different estimates that later need to be reconciled. One vendor who has worked on OBF programs across the country commented that they prefer National Grid's financing program because independent engineers estimate the savings.

Customer/Project Eligibility. Project applications may be rejected because customers do not meet OBF payment history requirements, or because the project would be more appropriate for DI. Although SDG&E allows vendors to save time by checking customer eligibility prior to submitting an application, the process is not perfect. One vendor commented that after being told a customer would be eligible, the application took months to process because the customer made a late payment. Another vendor recalled an application being rejected because the customer changed its company name.

Project Changes. A few vendors said that if a project's cost changes from what was originally submitted, the application automatically needed to be revised. SDG&E/SoCalGas require a true-up of the project prior to funding the loan. One SCE account executive said that SCE seems to be less tolerant of cost changes than SDG&E; SCE is considering changing its requirement to be more consistent with SDG&E's approach.

Online Application Format. One vendor said the online application made things easier, but some vendors do not possess the software skills needed to complete the form.

In contrast to vendors' experience with application processing, 86% of customers surveyed said they had no application problems, likely because their vendors handle the more challenging parts of the application process. Most customers (80%) thought the process worked well and offered no recommendations for improvement. Twenty percent of customers offered ideas for improvement: five recommended faster application processing, three asked for the utility to hold vendors to a higher standard, and seven made other suggestions.

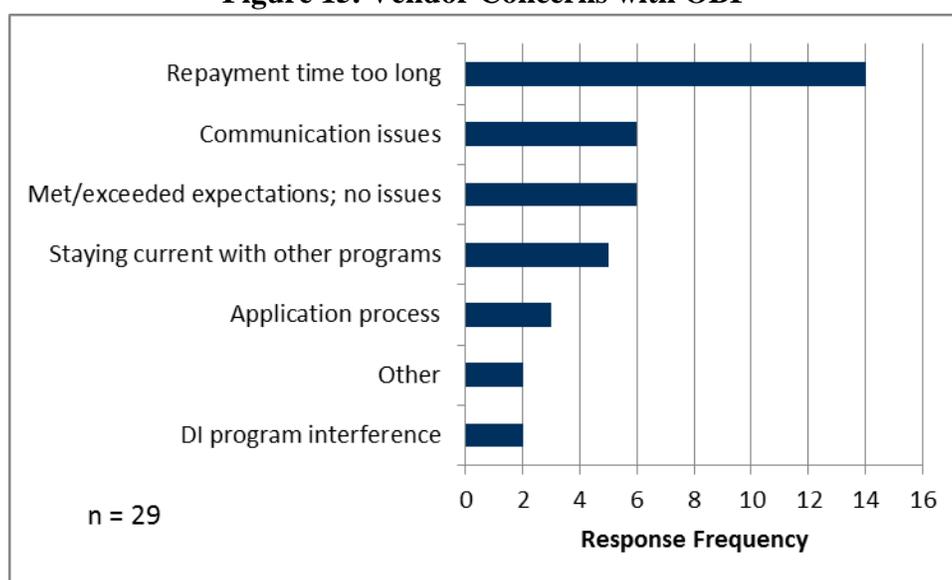
Vendor Concerns

While vendors believe OBF to be an important tool, they mentioned a number of concerns with the way in which the process works (Figure 15). Their main concern is that getting paid through OBF takes longer than they expected. Some vendors have found it hard to communicate with utility staff, and others mentioned complications associated with the underlying energy-efficiency programs. Two vendors said the DI program makes it harder to offer OBF to customers; DI issues are discussed in greater detail in a later section of the report.

Six vendors said OBF met or exceeded their expectations.

Vendors who work with SCE also raised concerns about how quickly SCE's program ran out of money, and about the amount of money allocated for CIA customers (\$2 million out of \$16 million for small CIA). Several vendors would like to see more money for this sector, particularly for small CIA customers.

Figure 15. Vendor Concerns with OBF



Vendor Payment

Nearly half the vendors surveyed said that the length of time they wait for utility payment causes them cash flow issues. A vendor noted that utility delays with one project post-inspection delayed payment for more than seven months after project completion.

Utility account executives also expressed concern about how long it takes to process vendor payments. One account executive noted that “*vendors don't have deep pockets like [the utility] does. We leave them hanging a lot.*”

Utility program managers know that vendors consider the payment process too slow. According to the SDG&E program manager, who carefully tracks each project's status, most payment delays come from vendors submitting noncompliant post-installation paperwork. For SDG&E, approximately 80% of final paperwork packages are in compliance; if all paperwork is compliant, it takes the utility 30 to 35 days after project installation to disburse payment. SoCalGas usually issues the loan check within 30 days after the account executive submits the

post-inspection report and final invoice. If any “true-up” is needed, SEu issues a loan adjustment letter to the customer, and issues a check within four weeks of the customer returning the signed letter.

PG&E and SCE are slower to pay vendors than SDG&E and SoCalGas. PG&E’s program manager is aware of vendor concerns and has tried to speed up the inspection process. Because PG&E’s service territory is so large, utility staff schedule inspection trips in advance, and inspect multiple sites within each area. Customers may have to wait up to 14 days for post-installation inspections, and PG&E disburses payment within two weeks of receiving the completed inspection report.

SCE’s OBF staff reports that more than 50% of post-installation paperwork packages are noncompliant, which causes delays. If the paperwork is in compliance, SCE takes 45 calendar days to issue OBF checks. The process is highly variable, and can take from one to five months. SCE’s OBF staff believes vendor expectations can be unrealistic about how long project processing takes.

SCE’s OBF staff has learned from challenges experienced during program start up that they need to work more intensively with vendors to help them use OBF successfully. SCE staff has had to deal with a number of vendor misunderstandings about the way OBF works, and are working with vendors to establish more realistic expectations. Some of the SCE vendors do not understand what the bill neutrality requirement means for projects. In order to be more flexible, SCE allows customers to “buy down” the project and use OBF to cover only part of a project’s net costs, rather than the full cost. Thus, some vendors have misunderstood that OBF would not necessarily cover a project’s full cost, and SCE staff have spent significant time working with them to resolve the resulting issues. SCE is considering simplifying its program to follow SDG&E’s model, which requires that loans cover the full project cost.

Utility-Vendor Communications Challenges

Vendors communicate with the utilities for various reasons, such as tracking application progress or obtaining clarification on what portions of their paperwork were out of compliance. A number of vendors reported no communications issues, and said the utility staff was responsive and helpful. One-third of the vendors surveyed said communication with OBF utility staff is not timely (Table 19), often because no main point of contact exists for their inquiries or because they need to go back and forth with utility staff via email. Vendors pointed out that a vendor relations liaison (present at SDG&E) or involving account executives can help facilitate communication. Vendors acknowledge that account executives are overstretched, but have found them to be helpful when OBF staff is not available. Account executives said they work well with vendors on OBF projects.

Table 19. Timely Communication with IOU Staff

Response	PG&E Vendors	SCE Vendors	SDG&E Vendors	Total
Communication is timely	0	1	13	14
Sometimes timely	0	2	3	5
Communication not timely	2	5	3	10
Total	2	8	19	29

Note: Some vendors participate in OBF with multiple utilities.

Vendors' Future Plans to Promote OBF

Most of the vendors surveyed (25 of 29 or 86%) said they would continue to promote OBF to their customers (Table 20). In the case of SDG&E, all vendors said they would continue to work with OBF; this vendor group tends to be more satisfied with OBF overall.

Several vendors were tentative about using OBF in the future because of the lengthy approval, communication, and payment processes involved. Vendors hope that OBF can be improved, but many spoke about pursuing other options.

Table 20. Vendors' Plans to Promote OBF for Future EE Projects

Response	PG&E Vendors	SCE Vendors	SDG&E Vendors	Total
Will continue to promote OBF	2	4	19	25
Might continue	0	1	0	1
Will not continue to promote OBF	0	3	0	3
Total	2	8	19	29

*Note: some vendors participate in OBF with multiple utilities

Utility Concerns

Both SDG&E and SCE reported problems with two types of vendors: those who mislead customers into thinking that OBF is not a loan, and those who do not fill out applications properly (discussed previously). PG&E and SoCalGas have had fewer issues with vendors because they have more vendor oversight; account executives, third-party program implementers, or partnership program staffs submit OBF applications at these utilities. Even so, PG&E staff reports that vendor communications and training remain on ongoing issues, so PG&E will increase its vendor outreach in 2012.

SCE and SDG&E staff say vendors are an important delivery channel, especially to reach small CIA customers, and that some are highly qualified and reputable. However, those that do not follow OBF rules create problems. Utility staff members singled out small lighting vendors, many of which are not lighting experts, nor certified as part of utility programs, as a group that may try to take advantage of customers.

According to SDG&E and SCE, some vendors have misled customers by telling them that OBF is free, thus misrepresenting the program's bill-neutrality aspect. One vendor also agreed that the market was "*flooded by un reputable [sic] vendors who were selling OBF as free.*" SDG&E's OBF manager estimates that hundreds of misinformation incidents have occurred, many of them involving small retail owners for whom English is a second language. SDG&E's response to these problems has been to scrutinize applications more closely, and to contact customers directly if there were any potential signs of confusion. Although the utility cannot legally recommend or discourage customers from choosing a particular vendor, SDG&E's OBF team has begun to document vendor problems. SCE has experienced similar issues, which have propelled the utility to move forward with implementing a vendor agreement, which is similar to what SDG&E currently requires.

Another vendor issue is that some vendors claim to represent the utility; they do not. Often, the utility only learns about this misrepresentation when the equipment malfunctions and the customer calls the utility, instead of the vendor, to fix it.

A few of the customers surveyed corroborated that some vendors mislead customers. These customers reported that they had been told the program was “free,” or that vendors asked unauthorized company representatives to sign for the loan.

Interaction with the Direct Install Program

In early 2011, all electric utilities began implementing a DI program for customers whose monthly demand is less than 100 kW. Each of the IOUs has contracts with a limited number of contractors to install DI-qualifying measures free of charge. Because small CIA customers can now receive many measures covered by OBF at no cost through DI, their demand for OBF has decreased. PG&E staff commented that “*customers clearly choose free over paying.*” While SDG&E has had only two customers opt out of OBF to enter the DI program, others may not apply for OBF because they are participating in DI.

One SCE staff member is unsure whether DI takes many customers away from OBF because DI only covers very small commercial customers, but this individual believes OBF may be more cost-effective than DI for the utility because customers repay the loans.

The SB-CAL representative with whom Cadmus spoke believes the DI program is incompatible with OBF for two reasons. First, because DI is free, businesses are not as invested in the success of the measures and may not care whether the projected energy savings actually materialize. In contrast, customers who pay for measures (especially through their savings) will be more conscientious about obtaining and maintaining savings. Second, because the DI program includes measures with short payback periods, such as lighting, implementing DI discourages customers from more comprehensive retrofits later on because fewer short-term payback measures can be bundled with longer payback equipment, such as HVAC.

The Vendor Perspective

OBF vendors reported being extremely frustrated with the DI program. Vendors said that they cannot compete with a program that offers free retrofits through a limited number of chosen contractors. One vendor suggested that DI cannibalizes OBF projects, and that they cannot coexist. Another vendor said that DI compromised customers’ ability to complete comprehensive projects. Still other vendors do not understand the relationship between OBF and DI, and incorrectly commented that customers who qualify for DI will automatically be rejected for OBF.

Project Comprehensiveness

According to an account executive and many other stakeholders, OBF not only increases “*the likelihood of the retrofit project happening; it probably allows for deeper measures, larger retrofits, more expensive – more long-term benefits.*” This section discusses how OBF can support comprehensive projects, as well as barriers to comprehensiveness.

Bundling Electric/Gas

PG&E and SDG&E, as dual-commodity utilities, want to encourage gas savings even though gas projects tend to have longer payback periods, and often fail to meet OBF requirements. Because PG&E wants comprehensive and deeper savings, it allows customers to aggregate electric and gas measures into one OBF project to meet payback criteria. CPUC Decision 09-09-047 and

PG&E's OBF rate schedule allow extension of CIA projects' loan terms beyond five years when credit and risk factors support it, but no projects have yet received such an extension.

As a gas-only utility, SoCalGas has difficulty finding projects that meet OBF program requirements and are cost-effective. It is harder for gas projects to meet a five-year payback period because the equipment is more expensive and the lower price of gas makes them less cost-effective. SoCalGas and SCE have developed an OBF coordination approach that will allow customers to combine gas and electric projects, thus leveraging the more cost-effective electric measures to help the gas measures meet payback criteria. The two utilities have not yet been able to try this approach because of SCE's funding issues and because it has been difficult to find the right candidate. Once they find a candidate, that customer will have two loans, one on each utility bill. SoCalGas will consider the entire cost when assessing the payback period; if the gas measures alone do not pay back within five years for CIA projects, the project still can qualify for OBF as long as the combined measures meet the five-year payback requirement. This same approach applies to the G&I loans at 10 years.

The utility staff believes a coordinated effort will be relatively easy to execute. The two utilities explored the option of making one loan for mixed fuels projects, but SCE staff reported that it cannot be done for several reasons. First, SCE is not set up to collect for and transfer money to SoCalGas. Second, SCE wants to maintain electricity measure bill neutrality to avoid potential customer misunderstandings.

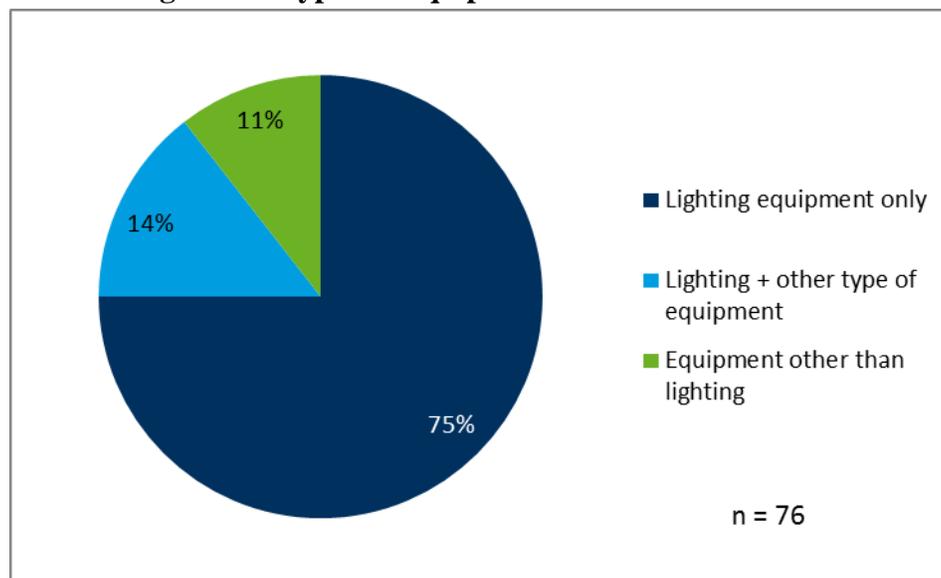
Lighting/Non-Lighting Measures

OBF staff believes OBF can enable comprehensive projects because OBF encourages vendors to look for every eligible measure at customer sites. Larger loans, e.g., those up to \$1 million, must result in significant savings to meet bill neutrality requirements.

Vendors also say OBF helps them to sell non-lighting measures because they can bundle lighting and non-lighting measures so that the overall project meets the OBF requirements.

In 2010, SDG&E began to require all lighting and low-cost measure loans be paid within three years, while more comprehensive CIA projects could repay loans over a five-year period. SDG&E began receiving more OBF applications for comprehensive projects immediately after making the change.

Cadmus reviewed the project databases, which show that about three quarters of OBF projects consist only of lighting measures. The participant survey yielded similar results (Figure 16). Customers from all segments reported financing lighting projects.

Figure 16. Types of Equipment Financed with OBF

Cadmus asked those survey respondents who installed only lighting (N=57) whether they had considered or been offered other types of equipment at the time they participated in OBF. Seven customers (12%) said that they had been offered other equipment; the rest had not. Those seven customers said they considered such equipment as air conditioning, refrigeration, solar, and induction units, but that they either did not need the equipment or the project did not make financial sense.

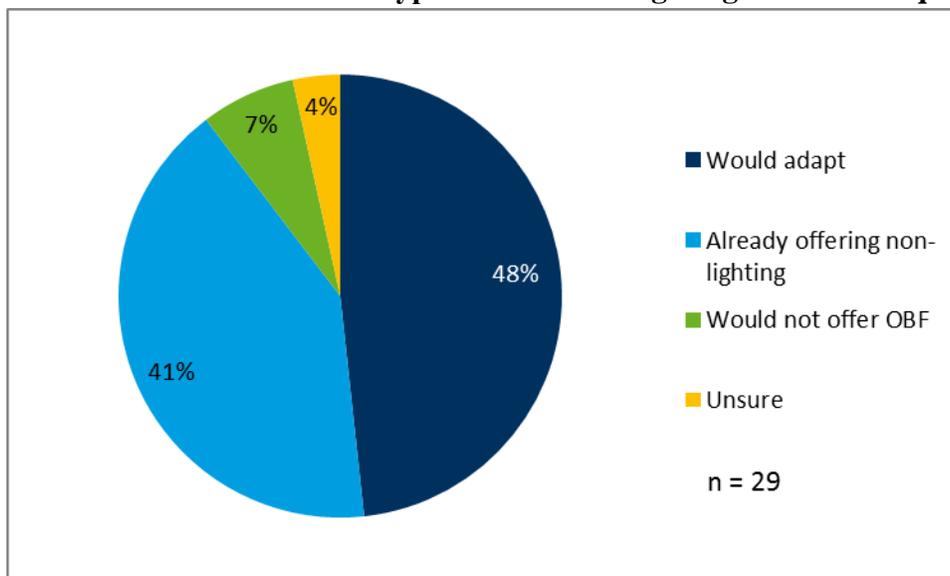
The fact that most customers were not offered equipment other than lighting suggests that the opportunity exists for vendors to offer customers a greater equipment selection. However, many vendors are wary of offering other equipment. Vendors offered several reasons for their hesitancy:

- Because most participating vendors specialize in lighting, they need help identifying other vendors with which to partner, or training on how to install non-lighting equipment.
- Equipment such as HVAC is more expensive, so initial costs are a greater barrier.
- Customers may need non-energy equipment upgrades, for which parts and labor would not be covered by OBF, before they can install non-lighting measures.
- It is easier to explain lighting costs and benefits to customers than it is to explain the costs and benefits of other equipment.
- Other energy-efficiency programs (e.g., other than lighting) are harder for customers to qualify for.

Cadmus asked vendors how they would react if OBF required that projects include non-lighting measures (Figure 17). Most said they would adapt to that requirement, either by adding new products or by teaming with another type of contractor (usually HVAC). A number of vendors

(41%) already offered equipment other than lighting and required no change to meet this hypothetical condition.

Figure 17. Vendors' Reactions to Hypothetical Non-Lighting Measure Requirement

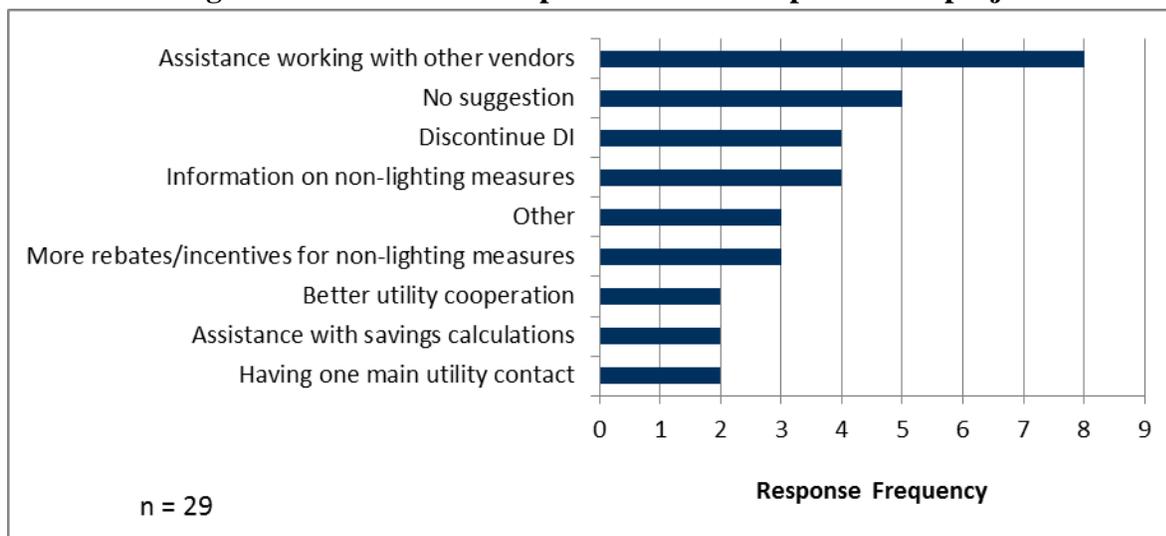


Encouraging Vendors to Sell Comprehensive Projects

SDG&E's program manager acknowledged that the utility needs to help specialized vendors (e.g., lighting vendors) partner with other types of vendors to sell more comprehensive projects. SDG&E hopes to see an increase in the number of aggregator vendors, which are vendors that sell more comprehensive projects to customers and then involve sub-contractors. Aggregator vendors take on all responsibility for customer paperwork and OBF/program compliance. While aggregators add a layer of administration to the OBF and project processes, they also focus on more comprehensive projects.

Cadmus asked vendors what the utilities could do to encourage more comprehensive projects. Figure 18 shows that eight out of the 29 vendors surveyed (32%) would like their utility to help them find other qualified contractors with which to team, primarily HVAC contractors. Seven vendors would like more information about or more rebates/incentives for non-lighting measures. Four vendors said the utilities should discontinue the DI program, because it reduces vendors' ability to aggregate measures with OBF. Six vendors would like assistance with savings calculations.

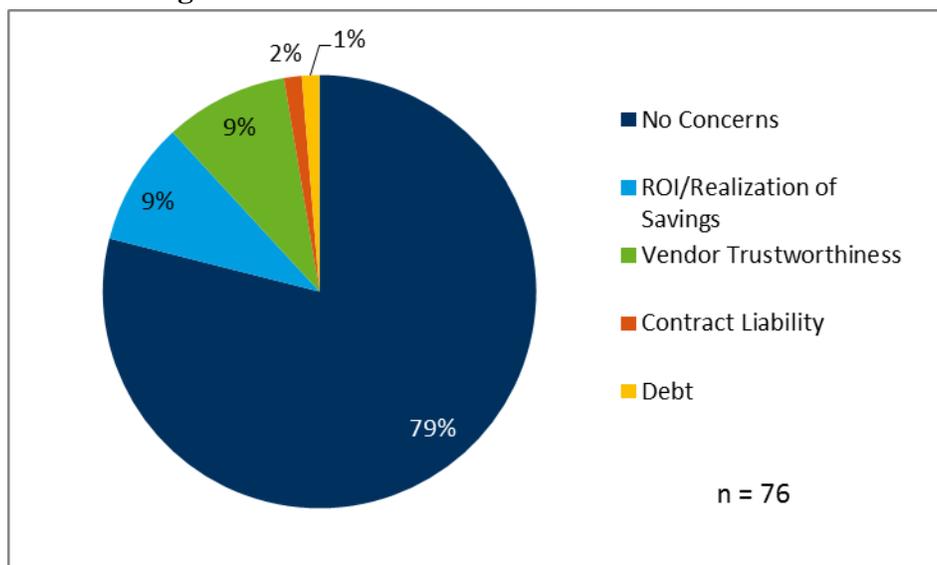
Figure 18. What would help vendors sell comprehensive projects?



Customer Concerns about OBF

Most participating customers surveyed for this evaluation (79%) said they had no concerns about using OBF (Figure 19). The customers who did have concerns worried either about not achieving the estimated energy and cost savings, or that their vendor had charged them too much.

Figure 19. Main Customer Concerns about OBF



The large majority (86%) of customers who used a vendor reported having a good experience with their vendor (Table 21). The remaining 14% had issues with vendor work quality and reliability.

Table 21. Customers' Experience Working with Vendors

Response	PG&E	SCE	SoCalGas	SDG&E	Total	Percent
Did not have difficulties	1	9	3	50	63	86%
Had difficulties	0	3	1	6	10	14%
Total	1	12	4	56	73	100%

A strong proportion of customers surveyed (61%) said that having a utility-approved list of vendors would have made it easier for them to select a vendor. (Table 22)

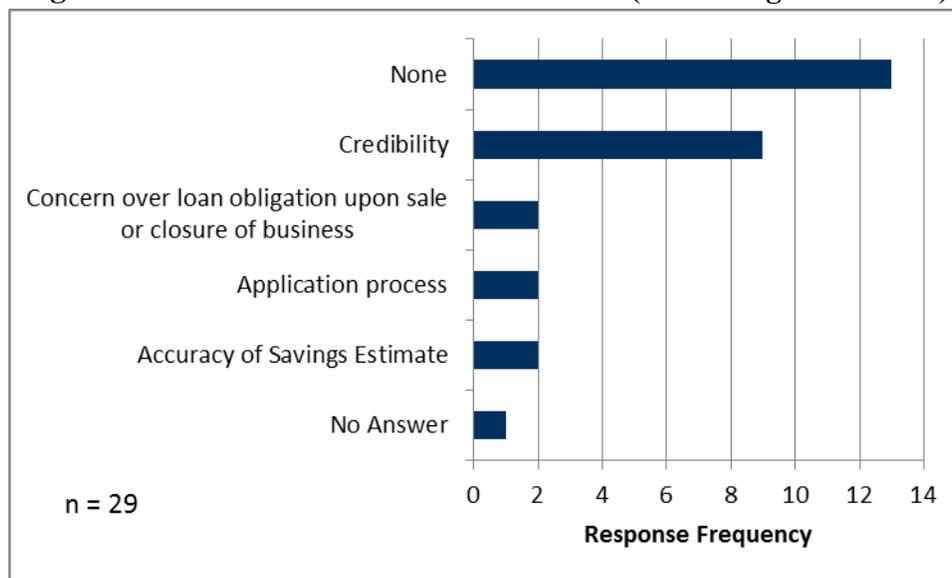
Table 22. Number of Customers Who Want a Utility Approved List of Vendors

Response	PG&E	SCE	SoCalGas	SDG&E	Total	Percent
Would Like	0	7	2	37	46	61%
Would not find useful	0	5	2	18	25	33%
Don't Know	1	0	0	4	5	6%
Total	1	12	4	59	76	100%

After one program manager raised the issue in interviews, Cadmus asked customers whether they would prefer a longer loan repayment period. Most respondents (83%) are happy with the current payback rules. The remaining customers were split between those who would prefer a shorter repayment period and those who would prefer a longer one. Similarly, most survey respondents (74%) are satisfied with the size of their OBF loan. Many of the customers who would prefer smaller loans clarified that what they really would prefer is lower project cost, which would result in a smaller loan.

Vendor Understanding of Customer Concerns

Many of the vendors surveyed said that most customers did not have concerns about how OBF works after it had been explained to them (Figure 20). None of the vendors mentioned customer concerns about either their pricing or their work quality.

Figure 20. Customers' Concerns about OBF (According to Vendors)

Vendors said the most common concern they hear from customers is that the program sounds too good to be true; some vendors have had to convince their customers that OBF is legitimate.

Utility Response to Customer Concerns

Utility staff is familiar with the customer concerns outlined earlier. They try to overcome concerns about project performance risks by explaining clearly the energy savings and payback calculations. Utility staff made it clear that they do not get involved with vendor pricing practices.

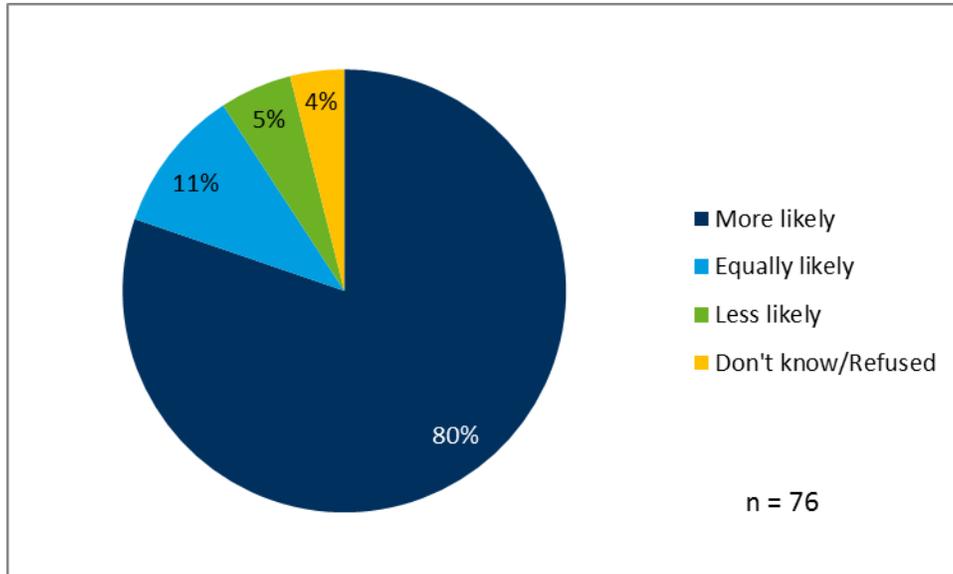
None of the OBF managers mentioned hearing about customer concerns related to the disconnect provision for partial or non-payments. They did say that customers might not accept a loan if they anticipated moving during the loan period because they would not want to have to pay the loan off when closing their account.³⁰

³⁰ The loan must be paid in full upon account closure.

Influence of OBF on Customers' Future Intentions to Pursue Energy Efficiency

A strong majority of customers surveyed (80%) said they would be more likely to pursue energy efficiency in the future as a result of their experience with OBF (Figure 21).

Figure 21. Likelihood Customer Will Pursue EE in Future



7. FUTURE CONSIDERATIONS

The CPUC is examining how best to increase the financing available for energy efficiency throughout the state. Several of the options under consideration would change the current OBF model. The CPUC is considering whether to introduce third-party capital to increase the funds available for OBF, what interest rates might be needed to attract third-party capital providers, whether the program should be expanded to include residential customers, or whether a tariffed approach might be a better strategy for OBF. Many of the elements that have made the current OBF program successful are likely to remain, including the utilities' eligibility requirements for customers and projects, and charging loan installments on the utility bill. Cadmus' study included several tasks designed to inform the CPUC's decision-making process.

To inform CPUC of issues related to barriers to energy-efficiency investments and financing, Cadmus conducted six focus groups with decision makers at large and small businesses that had received utility-sponsored energy facility energy audits either on-site or online. This section contains key focus group findings related to business decision making about efficiency and financing; the detailed focus group findings are in Appendix E. This section also includes findings from other research conducted for this evaluation that address working with third-party lenders; sensitivity to changes in interest rates; customer and vendor preference for loans versus rebates; and how a tariffed financing approach might compare to the current OBF loan program.³¹

How Businesses Decide to Implement EE Projects

Cadmus asked vendors, OBF survey respondents, and focus group participants to identify the key decision makers for energy-efficiency projects within businesses and organizations. All three groups said that owners or upper management generally make the final decisions. The focus groups revealed that in larger organizations several other departments, such as facility staff and accounting, are likely to collaborate with owners and upper management on these decisions.

Most focus group participants said energy efficiency is very important to their business, and described various efficiency improvements they had completed. Businesses that found energy efficiency less important fell into two camps: (1) those that focused exclusively on growing their business and (2) those that do not have the capital or upper management support to invest in energy efficiency. As one large business representative commented, while the "*owner says it's very important, looking at my budget, it doesn't look important.*"

Both large and small businesses at the focus groups agreed that the two biggest barriers to energy-efficiency projects are upfront costs and lack of knowledge, including how to identify the right equipment, how to take advantage of rebates, and how to find a good contractor. Large businesses were more likely to mention project timing as a concern and how business closures would affect their revenue and clients.

³¹ In this section, we refer to focus group participants as large or small businesses, while OBF participants are referred to as customers. Even though focus group participants are technically IOU customers, the purpose of the groups was to understand how businesses in general think and make decisions about energy efficiency, and was not focused on their experience as utility customers.

While all businesses in the focus groups wanted energy efficiency projects to provide them cost savings and a good return on investment (ROI), large businesses were more likely to want proof their ROI criteria would be met. As one focus group participant representing a large company said, *“I need to see the ROI and savings; [and I] have to trust the information.”* Echoing many focus group participants, vendors surveyed for this study most frequently said customers’ main criterion for deciding whether to proceed with an energy-efficiency project was if it met their ROI requirements. Some vendors also said the payback period was an important consideration.

After cost savings, smaller businesses in the focus group and OBF survey respondents said they invest in energy-efficiency projects for their environmental benefits, such as saving energy or going green. Larger businesses participating in the focus groups more often cited operational improvements as a secondary benefit.

Based on the focus groups, large and small businesses tend to approach equipment replacements differently. Most small businesses said they replace equipment on as-needed basis while large businesses plan replacements and upgrades and try to build them into their annual budgets. A few small businesses noted they try to budget for replacements, but often had to shift the budget to meet other business needs during the year. One small business said that planning *“never works because you need the capital and it may not match the schedule.”*

Businesses’ Criteria for Financing EE Projects

When initially asked about their willingness to finance energy-efficiency projects, most focus groups participants said they preferred to use their own capital. But after discussing various topics related to financing energy-efficiency projects, most businesses warmed up to the idea of financing such projects. However, they needed more information about the financing specifics to evaluate whether they would take advantage of it.

For both large and small businesses, low interest rates and ability to maintain bill neutrality were the most important considerations for financing energy-efficiency project. Businesses’ concerns about using financing came from their inadequate knowledge of the nature of the financing and whether they could depend on its being available when needed. They said these barriers can be addressed through building credibility, either through word-of-mouth recommendations or case studies of businesses similar to their own that had successfully participated in a utility-sponsored financing program.

With OBF, participants also needed to be educated (either by the utility or the vendor) about the offering before they felt comfortable using it to remove upfront costs. Like those in the focus groups, the participants surveyed said bill neutrality and the attractive interest rate (0%) were the most important reasons to use OBF. Two other key considerations about whether or not customers use financing are if they need the flexibility to scale the size of the project and whether they have the cash to pay for projects.

Use of a Third-Party Capital Provider

The IOUs acknowledged that they do not have the kind of lending experience a bank, with its loan origination and servicing experience, would have. All utility staff members were interested in using third-party lenders to improve loan origination and servicing efficiency, and to shift

default risks away from the ratepayer. However, they were unsure how to capture lenders' interest and incorporate them into the process.

OBF program managers believe third-party capital has several advantages. First, because OBF funds are limited, bringing in private capital could increase the loan pool without putting pressure on utility rates. Second, private lenders have more experience with lending laws, loan origination, servicing, and collections. Utilities are not completely comfortable performing these functions, and bringing in an expert third party would alleviate many utility concerns about running a financing program.

If banks provide the loan capital, the utilities will no longer need to worry about meeting DoC terms, and could even arrange financing for the residential market using third-party capital. Finally, a third-party arrangement would help shift default risk away from ratepayers. On-bill repayment³² (OBR), where a third party provides the loan capital, would offer the same convenience to the customer as OBF, and the lender would be responsible for handling defaults instead of the IOUs. SoCalGas and PG&E's billing systems are already set up to recover funds (line-item billing) for third-party capital providers.

According to one of SEu's staff, the OBF program has shown the private sector that demand exists for energy-efficiency financing, and that the default risk can be minimized. Working with IOUs can help lenders access a market they have been uncomfortable with or unsuccessful at entering. Lenders are beginning to take an interest in a mechanism like OBF because SEu's programs have continued to grow while experiencing a low default rate. One of the staff interviewed mentioned that lenders are trying to determine how to invest money they retained after not finding good credit risks elsewhere in the market.

SEu staff said lenders do not understand energy efficiency, but they know the utilities do, and they see how SEu has managed the defaults. Lenders know that customers pay their utility bills because they do not want the service to get shut off. Multiple interviewees, however, said that in California if a third party is added to the bill, the utilities do not have the authority to proportionally split the payment between the energy and loan portions when receiving a partial bill payment. Interviewees' current understanding is the third party would be last in the queue to receive money. Furthermore, it is not clear whether the CPUC would authorize shut-offs for customers who default on the loan portions of their bill. In the past SCE had spoken with lenders who wanted to be able to disconnect for nonpayment, but SCE did not think this was a viable option because it is already difficult for utilities to disconnect customers for nonpayment of power bills. The CPUC is investigating how partial payments could be handled for the residential and commercial sectors when a third-party lender is involved.

However, even if the ability to disconnect was not retained under OBR, lenders would not be prevented from receiving other loan repayment reassurances. The IOUs had mixed feelings about the use of credit enhancements, such as interest rate buy-downs or a loan loss reserve fund (LLRF). One OBF program manager thought there may be better way to use the money than

³² In this report, OBF refers to an arrangement where the utility provides the loan funds, whereas OBR refers to an arrangement where a third party provides loan capital. With both OBF and OBR, the loan installment would be a separate line item on the utility bill.

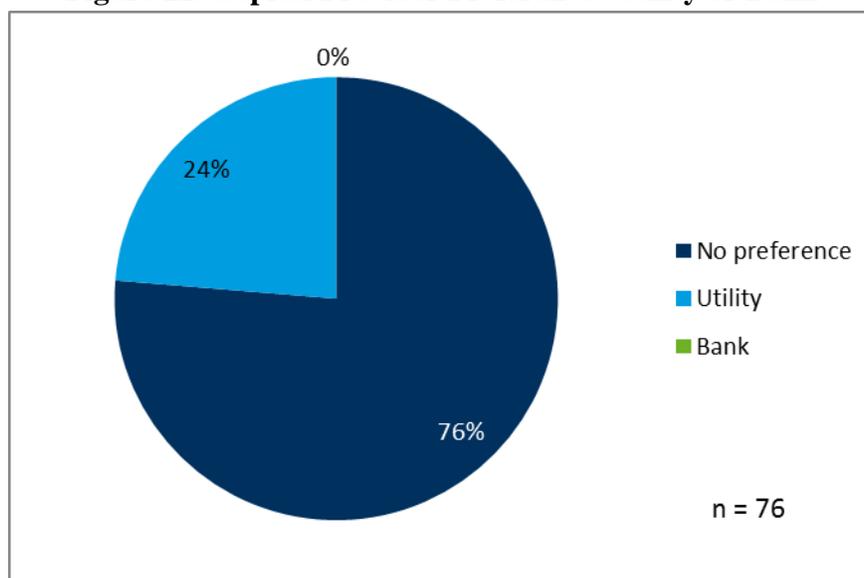
keeping it in an LLRF, while others thought an LLRF might be a solution that allows leverage. SB-CAL was supportive of the idea of LLRF or other loan guarantees. CPUC believes an LLRF could leverage ratepayer or other utility funds tenfold. Additionally, interest rate buy downs can be expensive, as PG&E learned from one of its former pilot programs. Even better than having loan guarantees, according to CPUC and SB-CAL, would be to the ability to demonstrate reliability of savings and show that the default risks of efficiency investments are low, in order to secure lower interest rates.

Another challenge in using third-party capital is that the banking industry and energy-efficiency industry “*do not speak the same language.*” Individuals from these two industries may not understand each other, and it can be difficult to explain what the utility would be doing in a way that makes lenders feel comfortable. PG&E ran a pilot program with lenders, and found it difficult to work with their underwriting criteria. Lenders are very much prescribed by underwriting criteria set in conjunction with their regulators. PG&E’s contractors found promising projects that did not qualify for the pilot because lenders could not lend to certain types of customers.

Most account executives interviewed thought that the integration of third-party capital providers would overcomplicate the process. They were uncomfortable having a lender control part of the process since lenders are looking for profits and are not in it for the savings.

In contrast to the utility perspective, SB-CAL is indifferent to the source of capital as long as it does not pose implementation difficulties and encourages comprehensive energy investments, especially for the small CIA segment.

Cadmus surveyed OBF participants about whether they would prefer loan capital for on-bill approaches to come from the utility or a third-party lender such as a bank, assuming that loan terms and repayment remained the same. As shown in Figure 22, 76% of respondents said they did not prefer one funding source over another, with one customer saying, “*honestly, for all I know it [currently] comes from a bank.*” Of customers with a preference, all preferred utility financing.

Figure 22. Capital Provider Preference: Utility or Bank

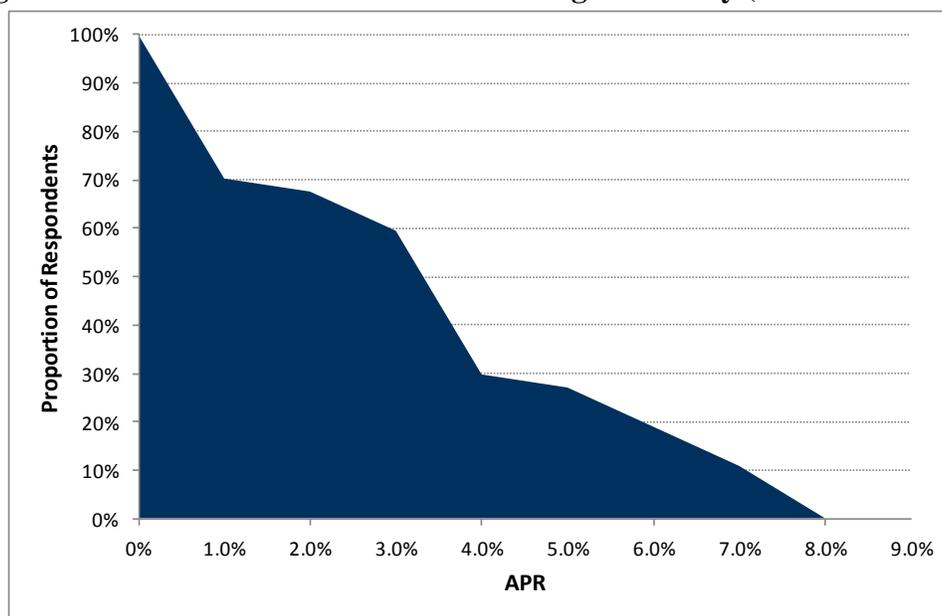
Customers who preferred the utility said it would be easier to avoid going through the application process with a bank. A few also said that having the utility involved would provide some protection against unscrupulous vendors, or that they did not like to borrow money from (and pay interest to) a bank.

Focus group participants were mostly agnostic about the source of the loan capital. These businesses said it was important to be able to trust and speak directly with the lender.

Sensitivity to Interest Rates

Use of third-party capital would likely end 0% financing (unless subsidized by the utility). Cadmus determined survey respondents' willingness to pay (WTP) at various interest rates using a double-bounded dichotomous choice model. The results indicate a mean participant WTP of 3.27% annual percentage rate (APR), with a maximum WTP of 7.4% APR, and a minimum WTP of 0% APR. Using a bootstrap method, we determined the confidence interval to be between 2.87% APR and 4.04% APR with 90% confidence.

The predicted distribution in Figure 23 shows the percentage of survey respondents (N=76) willing to use OBF at various interest rates. The first drop-off (from 100% to 70%) between 0% and 1% is expected, as participants often cited 0% as a large selling point for OBF. The second drop-off occurs in the 3% to 4% range, at which point customer willingness to pay drops to 30%. Note that it is possible that results were anchored by participants' reference to the 0% interest rate they received through OBF.

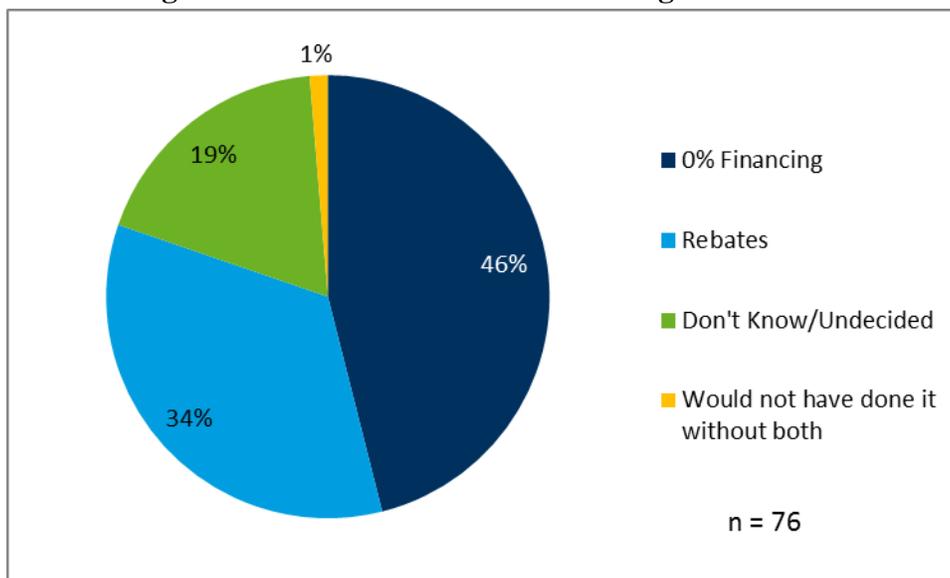
Figure 23. Cumulative Distribution of Willingness to Pay (Predicted Values)

Focus group attendees, who were unsure of going interest rates for unsecured loans, all found 0% interest rates appealing, and many thought 2% to 3% was acceptable for energy-efficiency investments.

More than half the account executives interviewed were adamant that 0% is a significant selling point for customers and thought changing the rate would be harmful. According to one account executive, “[0% is] so huge, such a great selling point. It’d be a real shame to lose it.” Two account executives, however, thought that non-zero interest would not pose a problem if more customers could get financing and if the process were streamlined.

Preference for Loans vs. Rebates

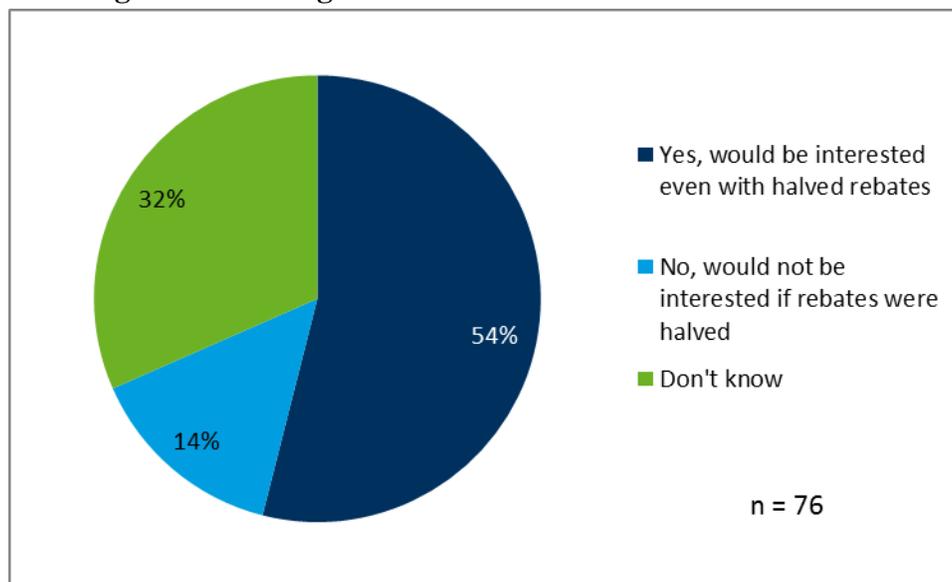
In the survey we asked OBF participants about a hypothetical situation in which they had to choose between rebates and 0% financing. A significant proportion (46%) of respondents preferred 0% financing (Figure 24). Customers who were undecided wanted to know which option was the greater value.

Figure 24. Preference for 0% Financing vs. Rebates

Customers said they preferred 0% financing to rebates because financing would not result in an impact to their cash flow. With rebates, customers still have to come up with funds to pay for the balance. As one customer put it: *“We are in a recession... even if we had a rebate for the cost of the bulbs we still would have had to come up with the cash.”*

A number of customers who preferred rebates said either they had the ability to pay or a bigger percentage of their project cost was covered by the rebate.

Cadmus asked participants if they would still want to use OBF if it meant rebates were cut in half (the interest rate would remain at 0%). Fifty-four percent said they would still be interested in OBF even if rebates were cut in half. Notably, 32% were unable to give an answer on the spot.

Figure 25. Willingness to Use OBF if Rebates Were Halved

Preference for financing versus rebates appears to be determined by multiple factors, including the customers' ability to pay for the project with cash and relative size of the rebates. Utility staff offered differing opinions about which customers are best suited for financing, but agree that any customer might find it useful.

Tariff Model

Having the cost of an energy-efficiency project be a charge (or tariff) at the meter instead of a loan associated with a particular customer could offer two potential benefits. First, it would allow customers to pay for energy-efficiency projects without paying upfront costs or taking on debt.³³ Second, it may encourage customers to make longer-term commitments to energy efficiency because they would no longer have to worry about paying off the loan in full or making sure they obtained a return on investment prior to moving (because the charges would be attached to the meter and not to the customer). Currently, the utilities do not allow OBF loans to be transferred; if an OBF customer must move before they pay off their loan, the customer has to pay off the loan in full upon account closure.

Cadmus asked both utility staff and focus group participants to comment on the idea of a tariff approach to financing efficiency improvements. Utility staff members said they have reservations about a tariffed OBF approach because other implementers that have tried such an approach have no recourse to ensure transferability. While no laws would block this kind of approach, utilities might not legally be able to force new occupants to assume a tariff agreed to by a previous occupant. Moreover, the utilities do not want to be responsible for inspecting property to make sure the energy-efficient equipment covered by the tariff remains on the premises when the tenant moves out. Until transferability can be legally enforced, utilities consider this option to be off the table.

³³ The interpretation of accounting rules may vary. The current loan design could be reflected as debt on the customer's balance sheet because it is a liability to the customer. In contrast, a tariff expense is incurred only as long as the customer is responsible for the utility bill associated with the tariffed meter.

Cadmus presented focus group participants with several potential financing options, including the tariff approach. While most businesses found the tariff to be appealing because it was tied to the meter, businesses that rent facilities like the tariff idea more than those that own them. Owners are concerned that a tariff might impede transactions related to buying/selling the property or renting it out. Focus group participants raised several questions:

- Could one move the purchased energy-efficient equipment off the property, e.g., grocery store owner sells the property and wants to take the refrigerators to the new location?
- What would happen if the property was sold and the new owner or tenant consumed much less or more energy than the original, e.g., if a manufacturing business that consumes a lot of energy sells the property to a warehouse business that consumes much less energy? Would the warehouse owner/tenant be responsible to pay the same amount as the manufacturing business?
- How long would the tariff be in place?
- How would the savings be determined? How can they be guaranteed?

Scalability of Operations

The extent to which OBF can be scaled up to meet customer demand for financing is an ongoing concern for both utilities and the CPUC. Cadmus interviewed utility OBF staff, who mentioned that since both SCE and PG&E have limited funds available for OBF, their programs cannot be scaled up at this time. While SEu does not place a limit on its OBF lending, SEu staff also reported that the utility cannot make unlimited sums of money available for OBF.

The CPUC recognizes there are limited loan funds under OBF, and sees the need to find loan funds from the private sector. A CPUC interviewee said larger lenders require larger volumes (\$100 million/year nationally) to invest in energy efficiency, so program processes must be scalable. Lenders no longer buy and hold debt (e.g., mortgage markets); rather, they profit from transactions. Therefore, loans should be sufficiently uniform for lenders to package and sell them on the secondary market.

Under the current OBF program, each utility has well-defined internal processes, with systems and staffing scalable to loan volume. SDG&E estimates that a tenfold increase in loan volume would require twice the current number of OBF staff to maintain current processing times. SCE staff said that a large increase in OBF lending would not cause problems for its underlying energy efficiency programs, but that OBF staff could not handle the increase with its current systems. And all the utilities are concerned about potential upward rate pressure if OBF expansion relies on ratepayer funded sources.

8. CONCLUSIONS AND RECOMMENDATIONS

This section synthesizes the findings presented in the body of the report into conclusions and recommendations for each of the nine main research topics described in the study objectives. These nine areas are:

Current Processes

1. Identify key program and participant characteristics that drive success with the current offering.
2. Understand methods used to disburse limited loan funds.
3. Determine OBF's effectiveness in increasing energy efficiency program participation.
4. Understand how OBF interacts with other utility programs.
5. Examine strengths and weaknesses of current OBF delivery channels.
6. Identify ways that OBF can support comprehensive retrofits.

Future Considerations

7. Understand how financing and other utility support can help customers overcome barriers to capital investments in energy-efficiency.
8. Examine current OBF infrastructure and processes needed to support participation scale-up.
9. Explore reactions to changes in loan terms, rebates, capital provider, and debt vs. non-debt approaches to OBF.

Current Processes

The following topics are related to current OBF offering and processes.

1. **Identify key program and participant characteristics that drive success with the current offering.**

Conclusions:

Key program characteristics that make OBF successful include both design and implementation elements. Customers, vendors, and utility staff members all commented that OBF enables customers to complete energy-efficiency projects by removing upfront costs, but having 0% interest, the loan installment on the bill, and bill neutrality also contribute to OBF's success at attracting customers.

While it is too soon to tell whether PG&E and SCE will have the same success as SEu, the latter's programs have had few customers default because of its stringent eligibility requirements, requirements the other utilities have adopted. SDG&E also requires private sector clients to repay their loans within three years for lighting projects and five years for more

comprehensive projects. Not all vendors are happy with SEu's customer and project requirements, but utility staff reports many fewer defaults than they had budgeted.

Other factors that drive SEu's OBF success include its strong management support, well defined processes coordinating the application process between the myriad of stakeholders (internal and external) necessary to deliver this service well, high internal standards for OBF project processing time, and the strict customer and project eligibility requirements described in the report. Because SEu has offered OBF three years more than the other utilities, it has had time to refine its program and processes, particularly the interaction between OBF and the rebate and incentive programs it supports.

Both PG&E and SCE have had issues with starting up the OBF program; both are working to address those issues, many of which are the same issues SEu experienced three years earlier. Two significant issues have been coordination between OBF and the underlying efficiency program staff, and dealing with incorrect or incomplete applications. (While SDG&E has made progress on the latter, it remains an ongoing issue there, as well.) SCE also has struggled to manage customer expectations because it hit its loan ceiling so quickly. In spite of their start-up issues, both PG&E and SCE have created the necessary OBF infrastructure, linking OBF to their internal billing and payment systems.

There are two potential definitions of a "successful" OBF participant: one that qualifies for and is able to develop a project that would not otherwise have been done; and one that has completed the process and repaid the loan in full. For the former, OBF has drawn customers from all eligible segments, including G&I, small CIA, and large CIA. No utility reported that OBF is meant to target one customer group over others, nor did Cadmus' research indicate that one customer segment would be more suited for OBF than another. Both SCE and PG&E expect to loan most of their 2010-2012 money to G&I customers, while SEu's program started by loaning money to smaller customers and then was expanded to larger customers.

Moving forward, the utilities may want to reconsider their own goals for OBF, and refine the mechanism based on what they would like it to achieve. For example, SDG&E revised its loan criteria to encourage more comprehensive programs (discussed in #6 below). Other changes would be needed to target specific markets, such as hard to reach customers, or those customers with the greatest savings potential.

SEu's program is the only one that has been offered long enough for customers to have repaid their loans, so it is the only one that, at this time, offers examples of that type of "successful" participant. SEu's screening process has resulted in an overwhelming majority of customers that pay back their loans; thus a successful participant might be described as one that meets SEu's eligibility criteria, no matter what their customer segment.

Recommendations:

- **Both PG&E and SCE should borrow from SEu’s experience as they work to streamline their own program implementation.** SEu has had time to work out the internal coordination issues between its energy efficiency program and OBF staff, and it may be useful for SCE and PG&E to consider adopting practices that SEu has already proven effective, such as targets for OBF project processing time and internal coordination protocols between OBF and other utility staff. SCE also faces vendor issues similar to those with which SEu continues to deal, as discussed in more detail under topic #5. While each utility will need to develop its own solutions, SEu provides a strong example for the others to use as they improve OBF implementation.
- **The utilities should continue to offer OBF in its current form for at least the next program cycle.** Both customers and vendors report that the existing program offering of 0% financing and bill neutrality are what have “sold” the program; account executives and utility staff agree. All four IOUs utilities need to concentrate on resolving the current offering’s implementation issues before they can consider making significant design changes. As discussed under other topic areas, Cadmus offers a number of recommendations for research that could feed into a revised program.
- **If the CPUC would like to strategically target 0% interest OBF to customers who would not have done a project without OBF and to encourage more comprehensive projects, they should conduct a detailed segmentation study to determine how best to meet those priorities.** Note that this study should enhance program implementation and is not meant to delay good faith execution.

2. Understand methods used to disburse limited loan funds**Conclusions:**

PG&E and SCE both use energy-efficiency money to fund OBF; those funds are limited, unlike SEu’s two-way balancing funds. Both utilities have large numbers of G&I customers that they expected to be able to mobilize OBF projects quickly and their loan fund allocation reflect that assumption: each utility initially allocated 75% of loan funds to G&I customers. SCE’s expectations about demand have been met; the utility ran out of money for all market segments in January 2011, and recently received approval to transfer unused pre-2010 energy-efficiency program funds into the general OBF loan pool. PG&E’s program is not yet fully subscribed, which may be because it started later and has mainly used account executives to deliver the program, while SCE uses vendors. (This issue is discussed in greater detail under topic #5.)

All four utilities currently disburse loans on a first-come, first-served basis. Cadmus’ research shows that customers from all sectors are interested in and can use OBF funds, and that most of those who have applied for OBF funding would not have implemented an energy efficiency retrofit without it. Because G&I customers are eligible for larger loans and have a longer period (up to 10 years) in which to repay them, they could easily absorb most, if not all, of SCE and PG&E’s loan funds.

SCE’s and PG&E’s loan fund allocations have succeeded in making sure eligible customers from G&I and CIA segments had/have opportunity to access OBF funds. In hindsight, this allocation

was especially important for SCE, which became fully subscribed quickly after it began to offer OBF. Utility staff offered diverse opinions on which customers might be best suited for OBF, but most agreed that customers who could benefit from OBF come from all eligible classes.

Recommendations:

- **All four IOUs should continue to offer OBF to all eligible customers.** This means PG&E and SCE will need to continue to reserve some funds for CIA customers, which prevents G&I customers from absorbing all the limited OBF money. The current approach is meeting the goal of removing the upfront cost barrier for eligible customers and was not designed to target a specific customer segment. If CPUC decides to pursue other policy goals in future program cycles through OBF, then it can consider a more strategic approach to fund allocation.
- **The utilities should continue to offer loans on a first-come, first-served basis absent other directives from CPUC.** The utilities should process qualifying applications in the order received, up to the designated limits (e.g., CIA vs. G&I), as the current goal is to facilitate installation of all energy-saving projects that meet program requirements. It would be unfair to deviate from this practice without strong justification, and doing so could further complicate application processing.

3. Determine OBF's effectiveness in increasing energy efficiency program participation

Conclusions:

OBF has been very effective at increasing energy efficiency program participation. Utility staff, participating customers, and vendors all agree that OBF allows customers that would not otherwise have installed energy efficiency measures to do so. Because OBF removes the first-cost barrier, customers are able to proceed with projects they would not have considered without the mechanism.

Account executives described OBF as a catalyst that moves customers into the energy efficiency programs; nearly three-fourths of surveyed customers (72%) would not have participated in energy-efficiency programs without OBF. More importantly, a significant number of participating customers said financing was more important to their decision to install energy-efficient equipment than were the rebates.

4. Understand how OBF interacts with other utility programs

Conclusions:

OBF processes are built upon existing energy efficiency processes and application requirements, which means processing times and inspection requirements are dictated by the underlying program. Because of this layered approach, customers and vendors may incorrectly perceive any issues with the underlying energy-efficiency program application, such as incorrect energy savings calculations, as originating from OBF.

To get financing from the utility, customers need to apply for both OBF and energy-efficiency program incentives; the incentive program applications are where most problems occur because customers and their vendors may calculate savings incorrectly or provide insufficient

documentation. Incorrectly calculating project savings affects not only the efficiency program application, but also the OBF application because OBF uses these calculations to determine project payback and loan terms. SCE and PG&E, and to a lesser extent SDG&E, have struggled with interaction between OBF and energy-efficiency program staff.

OBF's potential overlap with the utilities' DI program raises a second significant issue discussed in more detail under topic #6.

Recommendations:

- **Increase coordination between OBF and efficiency staff to reduce application processing time and increase customer satisfaction.** The utilities should examine application process flow, and take steps to address any sticking points. Based on SEu's experience, PG&E and SCE may need to increase OBF staff, program staff, or both. They may also need to stipulate communication protocols and more clearly define responsibilities between the two groups.
- **Any OBF vendor training offered should include training on the relevant energy efficiency programs.** Vendors often make mistakes on application forms; they need training on how to fill out the efficiency program forms and on how to calculate savings correctly. (The next section discusses vendor issues in more detail.)

5. Examine strengths and weaknesses of current OBF delivery channels

Conclusions:

The four IOUs use two different OBF delivery channels. SoCalGas and PG&E have assigned account representatives to introduce the mechanism to customers and help them with the application process; SDG&E and SCE rely much more on vendors, but their account representatives also market the mechanism. PG&E has recently begun to work with vendors but most of its applications still come from account representatives.

Account executives are a limited resource that cannot reach all customers; most account executives are dedicated to larger customers, although the IOUs have some who cover unassigned smaller accounts. SDG&E's and SCE's experience shows that vendors can effectively reach smaller CIA customers.

Using vendors to deliver OBF offers the utilities much greater access to eligible customers, but also presents challenges, because:

- **Vendors need training to understand both OBF and the efficiency programs so that they represent them accurately to customers.** Both SDG&E and SCE have run into problems with vendors that provided inaccurate information to customers.
- **Vendors need some level of utility oversight to make sure customers are not being misled.** A small number of vendors have misrepresented themselves as utility representatives or do not make it clear that OBF is a loan, and not a grant. These vendors create problems for the utility staff, who have to explain the program to customers and correct the misunderstandings these vendors have caused.

- **Vendors also need to be told how long it may take for the utilities to approve completed projects and process loan payments.** Some vendors offer to cover a project's cost until the utility issues the loan; many of these have run into cash-flow issues because they underestimated the time required for processing and loan disbursement.

Recommendations:

- **The utilities should continue to use both vendors and account representatives to deliver OBF to the full range of eligible customers.** The account representatives are most effective at reaching the utilities' larger customers, while vendors tend to work more with smaller CIA customers. Using only one or the other delivery mechanism may mean missing eligible customers. SoCalGas should be excepted from this rule; while vendors may market the program to smaller SoCalGas customers, the account executives work with all customers to complete program applications.
- **All four utilities should develop a formal vendor support and monitoring function.** Vendors need training on both OBF and on the underlying efficiency programs, particularly on calculating project energy savings and on the amount of time it may take to approve a project and process the loan. The utilities need to provide regular vendor training for those entering the market, and to explain any program changes. In addition to training, vendors also need a clear point of contact within each utility to whom they can go with questions about OBF, the programs, applications, etc. SDG&E has a formal vendor liaison; both PG&E and SCE should formalize a process for project-specific vendor communication, including how vendors should submit their OBF questions and to whom.
- **Consider implementing a vendor agreement.** All of the utilities, as well as the vendors surveyed, expressed concern at the idea of limiting the number of vendors that market OBF and the efficiency programs. However, the utilities need a way in which to penalize those vendors that misrepresent themselves or the program. The utilities can require that all vendors participate in a training session and sign a formal agreement to work within program rules before they can submit OBF and program applications; SDG&E has this requirement. The utilities also could provide interested customers with a list of all vendors that have completed the training and signed the agreement; because the utilities place no limit on how many vendors can meet this basic requirement, the list would not constitute an endorsement. Any vendor that violates the agreement by misrepresenting the program or utility would then be removed from the list.

6. Identify ways that OBF can support comprehensive retrofits

Conclusions:

Both the CPUC and IOUs would like customers to implement comprehensive energy-efficiency equipment retrofits, rather than focusing on those measures with the most rapid payback, such as lighting. Although OBF can support a wide range of projects, the majority of OBF loans, particularly for smaller customers, has been for lighting retrofits. Two factors seem to be driving this trend. First, most customers reported installing lighting-only projects because that was what they were offered at the time they made the decision to implement a project. Many of the

vendors that market OBF to those customers specialize in lighting, so they sell what they know. Second, both customers and vendors may not understand the OBF benefits from bundling lighting with other retrofits.

SDG&E has changed its program requirements to encourage more comprehensive retrofits. Before 2010, any loan could be extended over a five-year period; now only projects that include non-lighting retrofits can receive five-year loans. Lighting-only project loans must be paid within three years. Staff and vendors agree that it has had the desired effect of promoting more comprehensive projects. Vendors that only sell lighting have begun to team up with those that specialize in other types of equipment, so customers are being offered and agreeing to move forward on more comprehensive retrofit projects. Some vendors are also taking on an aggregator role.

SoCalGas faces a unique challenge; because the commodity price of gas is so low, many gas retrofits do not pay back within the designated loan period. SDG&E and PG&E can bundle gas and electric measures together, but SoCalGas does not have that option. The utility is working with SCE to collaborate on packaging gas and electric projects for their shared customers, with the goal of increasing comprehensive projects for both utilities.

Finally, the DI program can conflict with project comprehensiveness because the measures it installs, free of charge, have the most rapid payback, and thus may make it more difficult for customers to use OBF for other retrofits. DI covers measures, such as lighting, that tend to have a short payback; once a customer completes a DI project, their savings potential has been reduced and they can no longer combine lighting with other equipment that have longer paybacks (e.g. HVAC and refrigeration) to make a package that meets OBF payback requirements. SDG&E tells small CIA customers who apply for OBF about DI if they, and any of the equipment for which they are applying, would be covered under that program. However, customers who participate in DI may not be told that using DI could impact their ability to later use OBF for more comprehensive projects.

Recommendations:

- **If the majority of PG&E and SCE OBF loans are for lighting-only projects, then these IOUs should consider adopting policies to encourage comprehensiveness.** For example, SDG&E offers longer loans for more comprehensive projects, providing an incentive to both customers and vendors to investigate non-lighting options.
- **Vendor training (discussed under #5, above) should include a module on all the energy-efficiency measures for which different customer groups might be eligible.** The training also should include several case studies that show the benefits of pairing lighting retrofits with other equipment retrofits, showing both “with” and “without” savings and OBF loan scenarios.
- **Review requirements for gas equipment loans.** If the price of gas remains low, SoCalGas should examine risks and benefits of allowing longer payback periods for some equipment so that customers can use OBF to finance it. The additional default risk of longer-term loans should be investigated first.

- **The CPUC and IOUs should further investigate DI's impact on comprehensiveness.** If comprehensiveness is the highest priority, then it should be reflected in the IOUs' portfolio makeup. While both OBF and DI are being offered, efforts should be made to make customers eligible for both DI and OBF aware of both options.
- **The CPUC and IOUs should also examine if other rebate and incentive programs working with OBF support comprehensiveness and should make adjustments according to policy goals.**

Future Considerations

The following topics provide information on issues relevant to potential future financing efforts.

7. Understand how financing and other utility support can help customers overcome barriers to capital investments in energy-efficiency

Conclusions:

Focus group customers report two main barriers to their implementing energy-efficiency projects: lack of knowledge about appropriate retrofits and contractors to perform them, and the initial cost of making those retrofits. Upfront cost issues are a much greater barrier than is the lack of knowledge, yet, most focus group participants reported that they had not considered financing energy-efficiency projects. OBF participants liked it because it removed that upfront cost barrier.

All customers interviewed for this project said low interest rates and bill neutrality are important to them, as is convenience. Customers like being able to repay loans through the utility bill.

Focus group participants mentioned two additional issues that may prevent them from participating in energy efficiency programs. First, they find many of the programs to be too complicated and/or hard to understand, and perceive the inconvenience to outweigh potential program benefits. Second, these customers felt they could not rely on IOU programs to be there when they needed them. Whether they plan retrofits in advance or look for programs when replacing broken equipment, these customers have been affected by IOU program changes from one cycle to the next.

Recommendations:

- **The IOUs should do more to publicize OBF's ability to remove the upfront cost barrier.** While not the only barrier, upfront cost is clearly the greatest barrier for many customers, and OBF's biggest selling point.

- **Develop segment-specific case studies on how customers have used OBF to make retrofits (especially comprehensive ones).** Market research across the country repeatedly shows that small CIA, large CIA, and G&I customers consider energy-efficiency program case studies to be an effective marketing tool. While some businesses perceive themselves as innovators, many more prefer not to be the first to try something they perceive to be uncertain. SEu already has developed case studies for OBF; both SCE and PG&E need to follow suit. The IOUs may also want to develop a “reference” list of customers who agree to share their OBF experience with others, and may even want to host events at which those customers present their experience to their peers.
- **Conduct additional customer research on how best to overcome the other barriers mentioned during the focus groups.** If a larger group of customers confirms that CIA and G&I customers perceive the IOU programs to be complicated and/or subject to frequent change, the IOUs should address these issues directly through a targeted marketing effort. The additional customer research should specifically ask customers what would change their perceptions.

8. Examine current OBF infrastructure and processes needed to support participation scale-up

Conclusions:

Scaling up OBF will require all four IOUs to make some changes. SEu has offered OBF since 2006, so has had time to identify and address staffing and energy efficiency coordination issues. PG&E’s and SCE’s programs are relatively new, so both utilities are just beginning to address those issues.

Both SCE and PG&E have ceilings on their loan funds because those funds come from energy efficiency program funding. They will need either to raise their OBF ceilings, with CPUC approval, or to use a two-way balancing account structure, as SEu does. Regardless of the account structure, the current model derives OBF funds from ratepayers in one way or another.

All four IOUs have made a considerable investment in their IT and billing systems³⁴ to allow loans to appear on their bills, and for payments to be credited appropriately. Those systems can support larger OBF programs within existing program parameters.

Any significant increase in OBF will require more staff, both for OBF and for the efficiency programs, to handle the increase in applications and inspections. Because utilities have limited numbers of account executives, scaling up OBF also will require them to make greater use of vendors to market the mechanism.

Recommendations:

The following steps need to be taken prior to any scale-up effort.

³⁴ To minimize IT costs, PG&E’s OBF check issuance and billing process contains some manual steps. Increasing loan volume dramatically would require automating some processes at additional cost.

- **All four utilities need to evaluate their current operations.** SEu has just completed a detailed evaluation of OBF in the context of its nonresidential portfolio; both PG&E and SCE should do the same. Both utilities need to identify and address current OBF issues, as discussed under other topic areas, and also need to identify what changes they would need to make in staffing prior to any OBF expansion.
- **The CPUC needs to work with SCE and PG&E to resolve funding issues.** Both utilities cap OBF funding; scaling the program up will require that the cap be raised or removed.
- **The IOUs need to have strong vendor support programs in place.** Vendors cannot support a larger OBF mechanism without additional support, as outlined in #5, above. Those supports need to be in place before utilities expand OBF

9. Explore reactions to changes in loan terms, rebates, capital provider, and debt vs. non-debt approaches to financing

Conclusions:

Interest Rates

Participating customers cited the 0% interest rate as a strong program selling point. Cadmus explored their willingness to pay a higher interest rate; the analysis indicated a mean of 3.27%, though this was likely anchored by participants' reference to the 0% interest rate they received through OBF. Similarly, focus group participants thought 3% to 5% was acceptable, although these businesses were unsure what the prevailing interest rates were for unsecured business loans.

Charging interest would be challenging for the utilities, since they have no mechanisms in place either to calculate interest or process it. If the utilities charge interest for OBF loans and keep the money earned, they also will lose the current Department of Corporations exemption. Increasing the interest rate will make it more difficult for projects to meet payback requirements, and may also impact customers' ability to implement more comprehensive projects.

While focus group participants noted that interest rate is one of their top considerations when evaluating a financing offer, it should be noted that loan term is also important for determining the monthly installment amount. Focus group participants indicated a loan term preference of three to five years.

Rebates vs. Financing

More than half of the customers surveyed indicated that they prefer current OBF financing to rebates because it does not impact their cash flow. Those that prefer rebates do so because rebates lower project costs overall. The current OBF structure requires customers to participate in a rebate program to receive OBF money, which makes it more difficult to draw a conclusion about the relative importance of each mechanism. However, because most OBF customers said the financing was what drew them to make energy efficiency improvements, financing may be a stronger draw for some customers.

Third-party capital

While an infusion of third-party capital would help resolve the issue of limited loan funds and would potentially open financing to a residential customer base, it also introduces several new problems, the first of which is how utilities would need to change their systems to charge interest and transfer monthly loan payment to lenders. Second, it is not clear whether the utility or the lender would be expected to deal with late loan payments and loan defaults. Third, the utilities and lenders would need to work out a streamlined process for approving projects and disbursing loans.

Most customers interviewed have no preference for what entity provides loan capital. In contrast, account executives generally thought the introduction of a third-party capital provider would make the program complicated.

Tariff Approach

Based on focus group feedback, the tariff approach to financing is more attractive to renters than it is to owners; renters are enthusiastic about it, but owners worry how the tariff would be handled during property sales. Customers also are concerned about what a lien against the meter would do to their property values.

Before utilities consider a tariff approach, they will need a mechanism to ensure full loan payment, even if the property changes owners. There is no need for such assurances under the current structure since OBF loans remain with the customer.

Recommendations:

The recommendations highlight the key areas for additional investigation before any of these options can be implemented.

Interest Rates

- **The CPUC and IOUs need to further analyze the impact non-zero interest rates would have on overall project comprehensiveness and on projects' ability to meet current payback requirements.** The analysis should include a sensitivity analysis to determine the effects of various loan terms and interest rates on commonly installed comprehensive projects.

Rebates vs. Financing

- **Before making changes to rebates and financing offered to customers, consider how those changes will affect project eligibility (especially for gas only or comprehensive projects).**

Third-party capital provider

- **CPUC should continue investigating what would be needed to bring third-party capital into OBF.** Areas for investigation include the types of information and security lenders require to participate in an efficiency finance program, as well as what it would cost for the utilities to implement the necessary changes. Both costs and benefits of this approach need to be assessed.

Tariffed Approach

- **The CPUC and IOUs should consult with the real estate industry to determine how a tariff would affect commercial property transactions.** This approach is not likely to succeed if it has a negative impact on property values. While the utilities may be able to educate both customers and the real estate industry about the advantages of this approach, it is important to understand initial perceptions, as well as to plan for the amount of time any education effort would take.
- **Determine what legal or regulatory actions would be required to support tariff transferability from one owner to the next.** This recommendation should only be considered if the market responds favorably to the tariff idea, as determined from the prior recommendation.