

Strategies for Minimizing Default Risk While Maximizing Energy Efficiency: Lessons Learned from an On-Bill Financing Program for Small Businesses

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ABSTRACT

Financing of initial Energy Efficiency (EE) investments remains one of the most significant obstacles to adoption of robust projects. Utility On-Bill Financing (OBF) programs carry the potential for less credit and default risk due to the bundling of loan payment obligations with electricity and/or gas bill payment obligations.

The objective of the paper is to present design parameters and pre-emptive strategies for managing credit risk in Energy Efficiency (EE) Financing Programs. The paper will report out on an investor-owned utility (IOU)-administered OBF Pilot program which targeted convenience and grocery stores with peak demand less than 500 kW and was implemented between 2007 and 2009. The overall loan pool was approximately \$800,000 with loan funds being provided to more than 70 customers.

The paper will set forth the basic elements of program design for the pilot OBF program along with the program logic and intent. An analysis and evaluation of the aggregated loan portfolio will be provided along multiple parameters: a) Type of technology and end use; b) Estimated energy savings and demand reduction; and c) Write-off, default, payment, and early repayment experience. A gap analysis will be presented comparing intended program logic outcomes with actual program experience. Finally, a more detailed analysis will be set forth identifying root causes for defaults and/or write-offs. Strategies and recommendations will be provided to assist other administrators of EE Project Financing programs in mitigating credit and default risk while sustaining energy savings and demand reduction from the financed projects.

Background: Program Objectives and Design

The California Public Utility Commission (CPUC) has encouraged Investor Owned Utilities (IOU) to explore On-Bill Financing programs as a strategy for overcoming a customer's initial cost hurdle in implementing energy efficiency projects.

In June 2005, Southern California Edison (SCE) proposed a Pilot On-Bill Financing Program as part of its 2006-2008 Energy Efficiency Portfolio Application (SCE 2006-2008 Energy Efficiency Portfolio Application, 2005) to the California Public Utility Commission (CPUC). The value proposition offered to eligible customers included: a) A package of new equipment to reduce customer energy use and customer electricity costs; b) A financing package for the entire installed cost of the equipment consisting of a rebate/incentive component and an installment loan component; and c) The loan component structured such that the residual cost to the customer (total cost less rebate) is recovered through electricity bill savings over a period of up to 5 years.

Table 1 below sets forth the originally proposed program design elements ((SCE 2006-2008 Energy Efficiency Portfolio Application, 2005) along with final program design elements, as authorized by the CPUC (SCE OBF Pilot Program Manual, 2008).

Table 1: SCE Pilot On-Bill Finance Program: Design Elements

Program Design Element	SCE Original Application	CPUC Approved Program
Target Market Segment	Small Commercial Customers	Grocery Stores and Convenience Stores
Size (Peak kW Demand)	>50 KW and < 100 kW	< 500 KW
Eligible Measures	Selected Lighting, Refrigeration and Air Conditioning Measures	Selected Lighting, Refrigeration and Air Conditioning Measures
Resource Program?	Yes	Yes
Interest Rate	Zero Interest	Zero Interest
Relationship to Utility Incentive Program?	OBF Loan Combined with Incentive Program	OBF Loan Combined with Incentive Program
Program Delivery	Direct Install ¹ Vendors	Dedicated 3 rd Party Implementer
Loan Term	N/A	Minimum of two years, Maximum of 5 years, bounded by bill neutrality
Minimum Loan Size	N/A	\$5000
# of Loans Per Customer	Not limited	Limited to One Loan Per Customer
Remedy for Default	Not Stated	Disconnection of Electricity Service
Loan Assignability Provisions	Not Stated	Loans non-assignable, loan amount due in full upon borrower ownership change
Early Termination Provisions	Not Stated	Allowed for at any time upon full repayment of loan
Collateral/Guarantee Provisions	Not Stated	Unsecured/No Personal Guarantee Required
Technical Review Provisions	Same as Direct Install	20% Random Inspection of All Projects and subject to program requirements of utility incentive programs
Initial Authorized Loan and Incentive Pool	Not broken out	\$2,000,000

Source: 1) SCE Original Application Data: SCE 2006-2008 Energy Efficiency Portfolio Application. 2) CPUC Approved Program Data: SCE On-Bill Financing Program Manual and SCE Advice and Tariff Letter.

SCE's Pilot OBF Program became effective on December 30, 2006 and OBF Pilot program applications were accepted from January 1, 2007 through December 31, 2008.

Program Features and Customer Pre-Qualification

The customer facing service features of the Pilot OBF program included the following:

- A no-cost, no-obligation energy audit
- Written report for customers inclusive of electricity usage analysis and recommendations for energy efficiency measures
- Technical Assistance in helping customers identify qualified installation vendors
- No-interest loan and financial incentives to fund energy efficiency measures.

¹The Direct Install program is provided to selected small business customers (<100 kW) focusing upon lighting and refrigeration measures. The program includes a free energy efficiency audit. With a customer's approval, energy efficiency measures are installed at no charge.

Measures from SCE’s core Standard Performance Contract (SPC)² and Express Efficiency Program³ were eligible for the OBF Pilot Program with a particular focus on the following measures: compact fluorescent lighting retrofits, occupancy sensors, LED exit signs, refrigeration controls, high efficiency evaporative fan replacement motors, anti-sweat heater controllers, and HVAC retrofits.

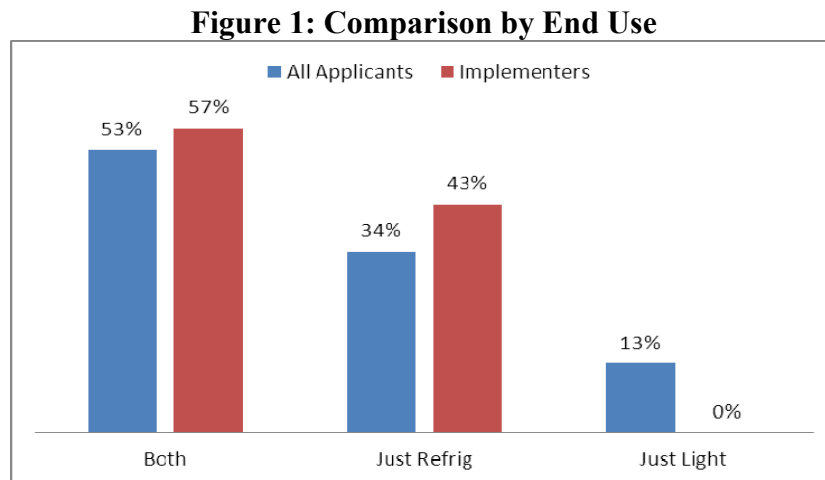
The 3rd Party Contractor implementing the program was provided a list of over 3,000 SCE customers that were eligible for the OBF Pilot Program based upon the criteria approved by the CPUC (see Table 1) and which met the credit eligibility criteria as set forth below:

- Applicant must have at least two years’ utility service at existing business location
- Applicant’s utility service at prior business location will not be counted
- No applicant who was required to make a deposit in order to have service at existing location commenced will qualify
- No disconnect or 48-hour “shut off” notice issued within past 12 months
- No partial payment within the past two years

Analysis of Program Enrollment and Implementation

End Use and Measure Mix Analysis

The Contractor solicited 220 applications from the SCE supplied pre-qualified list, of which 73 implemented projects and entered into OBF loan agreements. Figure 1 below provides a comparison of end use distribution for all applicants compared with the group that ultimately implemented projects and entered into loan agreements.



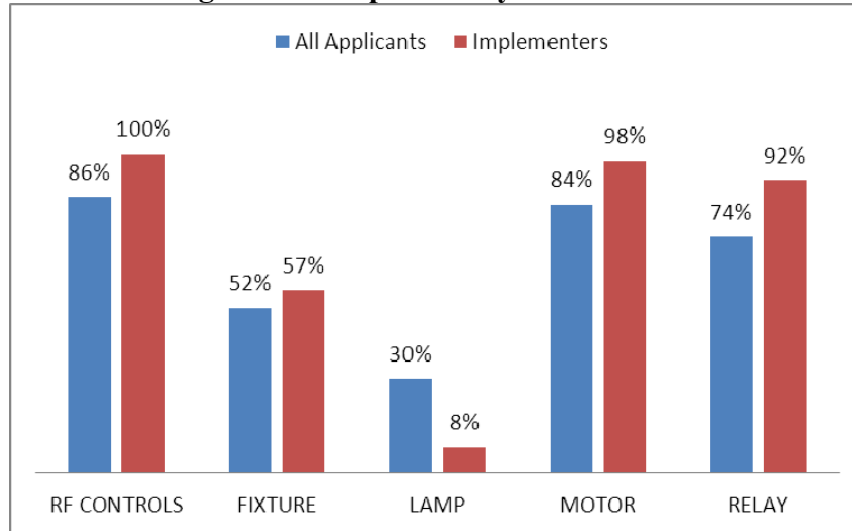
Source: SCE OBF Pilot Program Operations Database

² For SPC, incentives (also known as “calculated” incentives) were based on the type of solutions installed and the kilowatt-hour (kWh) estimated to be saved and the kW estimated to be reduced. Applicants are eligible to receive up to 50% of the total project cost.

³ Express Efficiency programs offered SCE business customers pre-established cash rebates on a measure specific basis with a “deemed” energy savings associated with adopted measures.

Figure 2 provides a comparison of measure mix distribution for all applicants and compares this with the group that ultimately implemented projects and entered into loan agreements.

Figure 2: Comparison by Measure Mix



Source: SCE OBF Pilot Program Operations Database

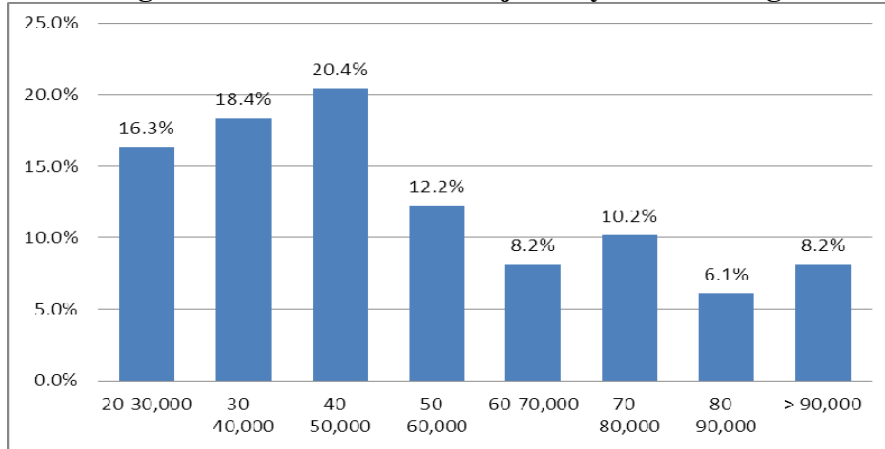
Based upon the above analysis, the only major difference between the “all applicants” group and the “implementers” group relates to lighting. Most of the applicants identified as having lighting energy efficiency potential were not identified as having significant lighting fixture rebate potential. None of these lamp only applicants ultimately participated in the OBF program. Lamp only measure installation may not have been perceived as significantly valuable to compel customers to take on OBF loan adoption. This suggests that for the OBF pilot program, comprehensiveness of end use and measure adoption created greater willingness for customers to take on OBF loan obligations.

Energy Savings and Demand Reduction Analysis

The CPUC approved plan for the OBF Pilot Program targeted a total of 4 Million kWh in energy savings with a combined approved budget of \$2,000,000 for loan proceeds and incentives (SCE OBF Pilot Program Manual, 2008). The ex-ante gross savings projected for the pilot program upon close out is approximately 2.7 Million kWh. Implementation of the program resulted in the distribution of approximately \$950,000 in incentives and \$715,000 in loan proceeds, although the relative proportion of incentives and loan proceeds varied by project.

The average ex-ante annual energy savings per project was 55,000 kWh. Figure 3 below provides a distribution breakout:

Figure 3: Distribution of Projects by kWh Savings



Source: SCE OBF Pilot Program Operations Database

The relative proportion of savings derived from either lighting or refrigeration end uses were not found to correlate with the size of the project.

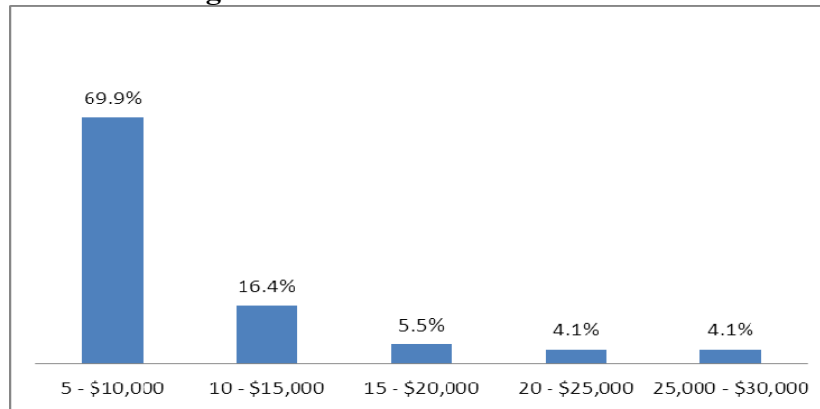
OBF Loan Portfolio Analysis

Loan Profile

A total of 73 projects were implemented under the OBF Pilot Program with funding packages comprising incentives and sales installment loans. The general funding mix for projects was 60% project funding through incentives and 40% project funding through loans. No customer co-payment (i.e. equity payment) was required under this Pilot program. (SCE OBF Pilot Program Operations Database)

Ninety-percent of the loans had terms of 60 months, the maximum allowable under the program. The average loan amount was approximately \$10,000 with an average loan payment of \$170 per month. As can be seen from Figure 4 below the distribution of loans was skewed towards the lower end of the range with 86% of the loans being \$15,000 or less.

Figure 4: Distribution of OBF Loan



Source: SCE OBF Pilot Program Operations Database

Metrics for Measuring Loan Portfolio Performance

Metrics for loan portfolio performance for small businesses are not as standardized or readily available as one might assume. Bank regulators do not compile default rates that segregate small business loans. (Keeley and Henry, 2010) Write-off and/or default analysis for a loan portfolio is generally measured based upon two metrics which are compiled over a fixed period of time. These measures are 1) # of Customers with Loan Write-offs/Defaults divided by total # of Customers in the Loan Portfolio; and 2) \$ Amount of Loan Write-offs/Defaults divided by total \$ amount of Loan Portfolio. The time snap shot for these metrics are generally a calendar year period.

Similarly, benchmarking a selected Loan Portfolio's write-off/default activity against other Loan Portfolios is often challenging since the loan terms and conditions (t's and c's) for different loan portfolios are rarely the same, yet these terms often impact write-off/default activity.

As an example, SBA loan performance history might be seen as a good benchmark against which to measure the Pilot On-Bill Finance Program Loan portfolio. While the loan size and business type of the SBA and OBF Loan portfolio may be somewhat comparable, the OBF loan portfolio borrower population is actually much narrower in scope than the SBA eligible borrower population. The OBF borrower set represents a highly targeted market segment (i.e. grocers and convenience stores) and a narrower business size distribution (i.e. at the smaller end of the overall SBA eligible borrower set).

SBA Loans (particularly those under its core "7A" Loan Program) generally require personal guarantees by the borrower and a pledge of the assets funded by the loan as collateral. In some cases, additional collateral must be pledged by the borrower---collateral which is not being funded by the SBA loan (e.g. equity in borrower's primary residence). Personal guarantees and collateral were not a requirement under the OBF Pilot Loan program. Because of the more stringent SBA loan requirements, any comparison of the SBA loan portfolio would tend to show lower default and write-off rates for the SBA loan portfolio-----all other things being equal.

It is also ambiguous how loan pre-payments in full should be factored into the overall Loan Write-Off Analysis. Pre-payments of loans enhance the overall credit performance of the portfolio, since a pre-paid loan is the most positive credit outcome for an existing loan portfolio. This suggests that loan pre-payments should be factored into any write-off or default analysis.

Pilot OBF Loan Portfolio Performance

Table 2 below provides summary level loan portfolio performance for defaults, write-offs, and early payments for the OBF Pilot Loan Portfolio:

Table 2-Summary Level OBF Loan Portfolio Performance as of 02-01-2011

Loan Set	# of Loans	\$ Value of Loans	% of Total Loans	% of Total Loan Value
Total Loan Portfolio	73	\$715,000	100%	100%
Early Pre-payments (100%)	3	\$20,300	2.8%	4.1%
Default but not Written Off	2	\$32,600	4.6%	2.7%
Write-Offs	5	\$32,800	6.8%	4.6%

Source: SCE OBF Pilot Program Operations Database

The time period over which loans were initiated and funded was from March 2008 through May 2009. This corresponded to a period of time in which the U.S. and California economy were in the midst of one of the largest recessions in U.S. history. Gross Domestic Product (GDP) showed no growth in 2008 and negative growth of 2.7% in 2009. The six quarter time period over which loans were disbursed showed the greatest level of economic contraction since quarterly GDP statistics began to be tabulated in 1947. In short, the time period over which loan proceeds were distributed suffered from the poorest economic conditions in the U.S. since 1947. Annual economic growth has essentially been zero from 2008 through 2010 (US Bureau of Economic Analysis, 2011).

Similarly, unemployment in California has been at historically high levels. Unemployment in the state has grown steadily from 6.1% in March 2008 to 12.4% in January 2011 (Bureau of Labor Statistics, 2011)

Standardized small business loan statistics apart from those in the SBA portfolio are very difficult to obtain. The Federal Reserve Bank, Treasury Department, and Federal Deposit Insurance Corporation (FDIC) do not provide loan default statistics segregating small business loans. Bank of America wrote off 14% of small business loans in the first half of 2010 and JP Morgan/Chase reported small business loan write-offs of 4.7% in the 2nd quarter of 2010. It is unclear, however, what parameters were used by either bank in defining small business loans (Keeley and Henry, 2010).

Small business loan default rates funded through the SBA program rose to 12% for the year ending September 2008, according to the Coleman Report. For the entire 2008 calendar year the SBA estimated a 10% loan write-off rate based upon number of loans and a 5% write-off rate based upon total dollars lent (Maltby, 2009). The loan write-off rate for the SBA's main "7a" loan program was 6.8% year to date through May 2010 (Keeley and Henry, 2010). As previously indicated, however, the lending criteria for SBA loans are far more restrictive than for the OBF Pilot program.

Despite the extremely challenging economic environment under which the Pilot On-Bill Pilot program Loan Portfolio was launched, and the challenge of benchmarking write-off and default metrics, the OBF Pilot program loan portfolio has performed remarkably well -- especially considering the target customer segment and its vulnerability to economic conditions.

In fact, the Pilot OBF Loan Portfolio performance from inception to date seems to provide clear evidence of the intended "credit sweetener" affect that On-Bill Financing provides through the bundling of loan payment obligations with electricity and/or gas bill payment

obligations. The superior OBF loan portfolio performance is evidenced by significantly lower write-off and default experience than would otherwise be expected from a stand-alone loan portfolio.

Root Causes for Loan Write-offs and Defaults

Of the five loans written off to date in the OBF Pilot Loan portfolio, three customers sold their business operation to a new owner and did not honor the loan requirement to pay the loan in full upon a change in ownership of the business. Collection activities were implemented for these customers, but the electricity account at the service location was not cut off since the customer (i.e. the delinquent borrower) no longer operated at the location.

The remaining two write-offs related to deteriorating business conditions resulting in the customer's inability to meet both its electricity payment obligation and its loan payment obligation. The electrical service for these two customers was disconnected in addition to collection activity being implemented (SCE OBF Pilot Program Operations Database).

Two additional customers have defaulted on their loan, per the terms of the loan agreement; however, negotiations are underway to enter into a settlement agreement for modified terms for loan repayment. In these two cases, the customer defaults were driven by deteriorating business conditions which resulted in the customer's inability to repay the OBF loan. In one of these cases, the electricity account has been closed, but the customer has expressed a willingness to enter into a modified loan settlement agreement (SCE OBF Pilot Program Operations Database).

Lessons Learned: Pre-Emptive Strategies for Managing Credit Risk in Business or Government Energy Efficiency On-Bill Financing Programs

Fundamental Tensions Between Policy Objectives and Profit Maximization

As evidenced by the previous analysis, the Pilot OBF Program has performed quite well based upon write-off experience to date; however, SCE has identified strategies for enhancement and improvement.

First, it is important to have clear program objectives that are consistent with regulatory and policy guidelines. From a policy standpoint OBF programs are generally promoted as a means for triggering a higher level of energy efficiency project adoption than would have occurred without available loan funding. Financial institutions are generally in the commercial lending business to earn a profit from the interest payments associated with loans. High rates of loan defaults and write-offs significantly dilute the profit potential of a loan portfolio. Thus, financial institutions view lending for energy efficiency projects quite differently than energy efficiency policy makers, generally having much more stringent eligibility and lending requirements.

Utility based OBF programs, inclusive of SCE's Pilot OBF program, generally provide for ratepayer funding of both original loan proceeds *and* loan write-offs. This "backstop" for Utility based OBF programs inherently results in the potential for greater emphasis on energy efficiency program adoption and less emphasis on the credit quality of the OBF loan portfolio.

This fundamental tension between profit and policy objectives must be acknowledged and recognized by stakeholders, otherwise program outcomes may not reflect the original intent of these stakeholders in participating in OBF programs.

Overarching Guiding Principles to Minimize Write-Offs and Defaults

The most important milestone in the life of an OBF Project is the original distribution of loan proceeds for the funding of the project. This event triggers the ultimate repayment obligation of the customer and builds out the loan portfolio. Utility Program Administrators of OBF programs may believe that implementing the complex mechanics for changing the customer bill to accommodate loan repayments is the most critical element of the program. Alternatively, they may presume that the ongoing day-to-day monitoring, tracking, and portfolio management of the OBF Loan Portfolio set is the most operational and resource intensive aspect of the program.

Based upon SCE's experience with this Pilot OBF program and a newly implemented Business and Government/Institutions OBF program, it is the initial enrollment, fund allocation, sequencing, documentation, and distribution of loan proceeds which is most challenging and most resource intensive.

Utility administered energy efficiency incentive programs are often characterized as having limited funding and strict eligibility criteria. Thus, when new EE programs are introduced and implemented there is often a time-bracketed spike in enrollment demand as potential applicants want to be assured that they will be able to participate in the program. This, in turn, often results in a significant amount of program applications that are incomplete or do not meet program guidelines, as applicants rush to secure limited funds.

OBF programs bundled with incentive programs are inherently more complex than stand-alone EE incentive or rebate programs given the additional loan element and the complicated interdependency between the loan element and the incentive/rebate element. Program administrators should be deliberate in their initial evaluation and distribution of loan proceeds and consider incorporating a metering mechanism for available funds that allows for mid-course enhancements.

Another guiding principle is Utility Program administrator clarity as to "what business they are in" with respect to the Utility's role in working with its customers to encourage participation in energy efficiency programs. The business objective is to work with customers in their adoption of robust, feasible, and cost-effective long-term energy efficiency projects through the provision of technical assistance and financial incentives. There may be a perception by customers and other stakeholders that the business objective is the issuance of rebate checks for energy efficiency projects. This perception places disproportionate emphasis on the initial equipment cost buy down transaction for the relevant energy efficiency investment. In so doing, the perception dilutes the importance of the jointly owned responsibility by the Utility and customer to assure 1) that the customer fully understands the scope of the proposed project, 2) that the project, once adopted performs as planned, and 3) that the full benefits of the project are realized through technology performance and energy cost savings. This principle is even *more* important for OBF programs given the long term economic transaction that exists between the customer/borrower and the lender/utility.

Specific Strategies and Recommendations for Managing Credit Risk and Write-off Risk

SCE’s experience with its Pilot OBF program has resulted in granular “lessons learned” with respect to program design elements, program administration strategies, and program operations strategies. In Table 3, these “lessons learned” are translated into conceptual recommendations for an OBF program planner to consider when planning and designing a future On-Bill financing program.

Table 3: Specific Recommendations for Minimizing OBF Loan Write-offs

Recommendation	Potential Benefit
Utility Incentive Programs should be integrated closely with OBF offerings	Leverages program infrastructure, enhances credit quality, and helps assure project feasibility and implementation success
Customer Co-Payment or Down Payment should be considered as a requirement as part of the funding for OBF EE projects	Enhances credit quality, gains customer engagement early in project life-cycle, ensures customer’s commitment to realization of project benefits
Use vendor and authorized agent network in program delivery, but provide training and qualification protocols for interested vendors and authorized agents	Leverages broad existing network and provides expedited access to marketplace and projects. Training and qualification of participating vendors and authorized agents assures alignment of program objectives
Provide standardized credit qualification criteria with tiered credit reviews reflecting risk levels	Simplified and standardized criteria for smaller loans facilitates seamless program delivery. More detailed credit analysis and cash flow analysis should be considered for larger loans reflecting greater portfolio risk.
Encourage and promote pre-payment of OBF loans	Pre-payment of loans are uniquely consistent with OBF policy objectives, providing additional potential funding for new projects and reducing OBF loan portfolio write-off potential
Avoid overreliance on one or two 3 rd Party Implementers	Concentration of program delivery among few 3 rd Party implementers may result in misalignment between program objectives (e.g. highest quality projects) and implementer objectives (meet enrollment goals as quickly as possible)
Develop “Early Warning” monitoring of Borrower change in ownership	May allow Utility program administrator to meet with Borrower and assure that loan is paid in full or convince New Owner to assume loan
Under Change of Ownership conditions, consider incorporating provision into OBF Loan Agreement requiring assumption of Loan by new Buyer if Loan is not paid in full by Borrower	Provides additional protection against write-offs under change of ownership and aligns EE project benefit to new owner financial obligation to fund this benefit
Leverage Utility Credit Organization and its Policies and Procedures	Provides Standardization and alignment between electricity credit and collection practices and OBF loan credit and collection practices. Provides broader customer touch critical to OBF program success.
Incorporate Disconnect provisions upon OBF loan repayment obligations	Provides necessary credit protection and is central to the unique “credit sweetener” inherent in OBF Program Design
Strategically differentiate the OBF program from any existing Direct Install (i.e. 100% incentive funding of EE projects) programs	Linkage of OBF program to Direct Install program dilutes the OBF program value proposition and creates customer expectation that OBF program is a “free program”, potentially reducing customer understanding of long-term OBF loan repayment obligation

Program Interest from Industrial Customers

Industrial customers have and continue to express considerable interest in energy efficiency On-Bill Financing offerings.

Oftentimes, industrial projects are complex, large and process or system related. In the past economic downturn, many requests for OBF funding for industrial customers came from the customers themselves and vendor agents (authorized agents) representing industrial customers. These requests were oftentimes driven by “capital blackouts”, where blanket capital investment freezes had been imposed upon operating divisions by their corporate senior management. Operating managers oftentimes saw opportunities to adopt short payback energy efficiency projects (2-3 years) and received little if any internal resistance to running debt repayments for these projects through their business unit electricity bill.

Unfortunately, these types of projects were not eligible for the Pilot OBF program, nor do they fit neatly into more “traditional” OBF programs that have been implemented. It is oftentimes perceived that entities which have access to capital, or potential access to capital, should not be large consumers of OBF money-----particularly ratepayer funded OBF money. Additionally, industrial energy efficiency projects are generally quite large compared with commercial or agricultural market sectors. A few industrial projects can quickly consume a large pool of OBF funds.

OBF and Third Party debt funding of larger scale industrial energy efficiency projects remains an important area for future research.

Conclusion

SCE’s experience to date with its Pilot OBF program targeting grocers and convenience stores has shown On-Bill financing to be an effective and important financial tool for funding Energy Efficiency projects without posing undue financial risk. It is important that the inherent tension between maximizing energy efficiency savings while minimizing loan write-offs is fully considered in any future OBF Program planning and design. It is also critical to manage and operate an OBF program somewhat differently than a traditional utility administered incentive program with commitment to deliberate program enrollment and consideration of a metering of funds over an extended period of time. Finally, specific program design and operations strategies can be implemented that may have an important impact on the long-term success of any OBF program. Detailed consideration of the pre-emptive strategies proposed in this paper in OBF program planning is an excellent investment of time and resources that will yield important and significant benefits when the OBF program is fully implemented.

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