

## **Commercial Energy Efficiency Loans: What Role do they play in the Efficiency Toolbox?**

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### **ABSTRACT**

Since the late 1970s many in the energy efficiency community have believed that loans for energy efficiency projects offer a way to overcome barriers related to lack of financing or access to capital. Recent efforts include a loan program offered in the California Bay Area during 2004 and 2005, which the authors recently evaluated. The program was unsuccessful in meeting its goals: lenders were trained but no loans were made over the two year period. Why did the program fail? What factors drive participation in loan programs across the country? This paper reviews the expected and actual barriers to commercial energy efficiency loan programs based on our research on loan programs in California, New York and in the Pacific Northwest. We also describe the critical choices for implementers considering loan programs and suggest ways in which a loan program can serve as an addition to the energy efficiency toolbox.

### **INTRODUCTION**

This paper is based on recently completed work by the authors, including: a Logic Model and Program Theory Analysis and a Market Characterization and Causality Analysis for the **New York Energy Smart<sup>SM</sup>** Loan Fund Program,<sup>2,10</sup> an evaluation of the California Energy Efficiency Loan Fund program implemented in 2004-05,<sup>6</sup> and an evaluation of the Residential Loan Fund program implemented by the Bonneville Power Administration.<sup>4</sup> As part of the California Energy Efficiency Loan Fund evaluation, the research team identified similar programs and contacted representatives of those programs to identify lessons learned and best practices applicable in energy efficiency loan programs targeting commercial borrowers. This paper discusses some of the important lessons learned from this research.

#### **Historical View of the Need for Financing**

In the 1996 Scoping Study Eto, Pahl and Schlegel cite lack of financing and access to capital as an important barrier to energy efficiency investment among commercial customers.<sup>1</sup> In considering strategies for overcoming barriers to installing the highest efficiency equipment, the barriers associated with lack of financing or lack of access to capital appear to have a ready solution: create opportunities for borrowers to obtain favorable loan terms and the financing they require—provided they choose the highest efficiency equipment.

Many programs that have focused on financing have worked to quantify the economic benefits of the energy efficiency improvements and communicate them to the borrower; some even consider the financial return in calculating borrower income. Some programs have worked directly with private lenders in an attempt to move them toward considering these same financial returns when processing loans. The logic behind efforts to work directly with lenders is that if lending officers took into account the savings from energy efficiency projects, certainly these calculations could

help get more efficiency implemented. In particular, efforts with residential mortgages have taken this approach through the development of the Energy Efficient Mortgage described in more detail below.

In spurring energy efficiency investment Eric Hirst<sup>5</sup> described financial institutions as an important component. “(S)uccess in achieving energy efficiency often depends on the ability of building owners and users to put up the necessary funds or to link up with an outside party that provides financing.... Sources of capital for energy efficiency investments in buildings include internal funds, banks and other conventional lending sources, utility loan programs, government financing programs and third-party financing.” (pp.139)

The Scoping Study described the market barriers associated with access to financing from several main points:

- “Difficulties associated with the lending industry’s historic inability to account for the unique features of loans for energy savings projects (*i.e.* that future reductions in utility bills increase the borrower’s ability to repay a loan) as distinct from the other factors affecting the evaluation of a borrower’s credit-worthiness. In principle, accounting for energy efficiency improvements funded by loans ought to result in lower borrowing costs.
- “Lenders’ uncertainty regarding the reliability of future savings and reflecting the additional costs associated with formally recognizing this feature of energy savings projects...” affects how these savings are considered by lenders.
- “The absence of secondary financial institutions such as those established in other markets to allow investors to ‘lay-off’ separately the unique risks associated with the future performance of energy efficiency investments.”

## **Development of Energy Efficiency Loan Programs**

Efforts to develop financing programs have occurred in the residential and commercial markets. In addition, some efforts have focused on appraisers. The following discusses some of these efforts.

### **Residential Loans**

In 1979, President Carter directed federal lenders to offer consumers incentives for energy efficient loans through an executive order that resulted in Energy Efficient Mortgages (EEMs). Over the years these programs have evolved to a set of ratings that provide a standard measurement of a home’s energy efficiency. The Home Energy Rating System (HERS) has slowly become a standard part of the residential mortgage industry. While the EEM is only applied to a fraction of the residential mortgage loan market, by 1999, following completion of a successful pilot effort with the Federal Home Loan Mortgage Corporation (Freddie Mac), the Federal national Mortgage Association (Fannie Mae), finalized underwriting guidelines for these loans that created favorable terms for borrowers at a national level. In the home mortgage market EEMs and associated HERS provide tools for appraisers that allow them to include energy efficiency in mortgage lending, and allow lenders to extend the debt-to-income ratio for these

borrowers. The National Association of State Energy Officials and Energy Rated Homes of America founded the Residential Energy Services Network (RESNET) to develop a national market for home energy rating systems and energy efficient mortgages. RESNET provides the resources that support the EEM activities.<sup>9</sup>

## **Commercial Loans**

The commercial loan market has not developed similar capabilities as the residential loan market. There are fewer strategies for assessing the energy use of a building compared to comparable buildings and certainly nothing as recognized or widely implemented as HERS. Commercial loan programs tend to follow two basic models for providing interest rate benefits to borrowers. The most common approach qualifies borrowers for loans through a standard application processes, obtaining the interest rate reduction only after having qualified for the conventional loan through a private lender. In the second approach, a utility elects to implement a loan program using their capital and underwriting capacity.

The utility approach seems to be more common among public utilities and less common among investor owned utilities. The expertise at the utility allows implementers to explicitly call out the savings expected from the energy efficiency investment and add them to the customer's income estimates—something traditional banks are unable to do. Utilities are also able to use the customer's bill payment history as part of their credit score, which can indicate a qualified borrower despite limited income. Offering loans to one's customers also provides an additional customer-oriented service on the part of the utility. At the same time, offering loans has challenges in regards to loan servicing and credit approval. In a review of low-cost energy efficiency program options conducted for the Regulatory Assistance Project in 1996, the authors described variability among utilities regarding how well suited they were to administer debt. Some utilities had problems with inflexible billing systems and lack of expertise in risk assessment or underwriting and did not ultimately find the debt burden acceptable.<sup>3</sup>

On the other hand, programs that work through the standard application process through private lenders face other challenges. These programs must recruit lenders who agree to participate in a program that could slow their underwriting time frame, and that insert another third-party approval process into already complicated process of loan approval, origination etc. Additionally, loan officers are not energy efficiency experts and it may be unreasonable to expect them to want to be—their expertise is in underwriting and risk assessment, training them to assess engineering choices and/or keep abreast of the highest efficiency standards would likely reduce the number of officers willing to participate. There are two variants on this approach; one uses a network of lenders the other finds a single lender to work with. The use of a single lender has been most common because a single lender can be more easily recruited and trained to meet the needs of a utility program. This can create a barrier to borrowers who prefer to use their own lender rather than the one working with the utility. The solution is to develop a network of lenders so borrowers can just use their normal lender for an energy efficiency loan. The two programs which are the focus of this paper both sought to develop a lender network.

## **Educating Appraisers**

Other efforts have targeted appraisers directly to encourage the consideration of energy costs as a factor affecting a building's asset value. The Institute for Market Transformation (IMT) delivered a "Project on Energy Efficiency and Property Valuation" sponsored by NYSERDA, which focused on educating appraisers about how energy efficiency can directly lead to increased asset values and result in improved cash flow for owners. In a 2002 presentation, IMT staff reported that appraisers dismiss the importance of energy in appraising a building, instead using averages or "rules of thumb" to determine energy costs and in many cases ignoring the influence of energy on the net operating income for building owners.<sup>6</sup> The project targeted appraisers because of their critical role in lending decisions, because they are a known constituency, requiring licensing and continuing education.

The IMT project identified an overall need for information (e.g. energy-related databases, benchmarking tools, printed and online guidance material, and continuing education classes) that could improve appraiser confidence in assessing energy costs and their effect on net operating income. Benchmarking and other tools would ideally result in a rating that appraisers recognize and trust; something similar to the HERS rating in the residential sector. In the commercial sector, software exists that can normalize energy consumption and generate a rating score, however, it is not widely used to indicate a certain level of energy savings, nor are buildings automatically given more favorable loan and financing terms by virtue of achieving a certain rating.<sup>2</sup>

## **FINDINGS FROM CURRENT PROGRAMS**

The authors have been involved in three recent studies that examined two loan programs targeting the commercial sector. Both programs followed a similar program theory and have had different results. The findings from these studies provide valuable lessons for those considering offering loans to customers for the implementation of energy efficiency measures.

The California Energy Efficiency Loan Fund (California Loan Fund) was not successful. It failed to close a single loan in the nearly 18 months the program was available in the Bay Area. The **New York Energy Smart<sup>SM</sup>** Loan Fund (New York Loan Fund), conversely has been moderately successful in its over six years of operation. The California program was modeled the New York program. In both programs participating lending officers refer borrowers with potentially qualifying projects to the program for a reduction on the interest rate of their project loan.

There are some differences between the two programs, however, and these proved to be important. First, the New York program allows customers to participate in other NYSERDA incentive programs, removing the either/or choice and increasing the likelihood that contractors and representatives from other programs will refer the customer to the New York Loan Fund. Secondly, the New York Loan Fund is actively marketed with the entire portfolio of **New York Energy Smart Program<sup>SM</sup>** opportunities – benefiting from the credibility of NYSERDA sponsorship, and the assumption that the program opportunity will remain in place for the foreseeable future. In the California Loan Fund, lenders were expected to market the program directly to qualified borrowers by asking about remodeling or equipment replacement and

referring customers with these activities in their projects to a third party program implementer for project assessment and information about incentives or financing. The New York Loan Fund is implemented virtually statewide, reducing the need for lending officers to screen potential borrowers by county or utility, while the California Loan Fund was limited to five Bay Area counties. Additionally, the California Loan Fund had a clear end date, December 2005, with no basis for assuming the program would continue after that time. Though the New York Loan Fund has time limited application periods, the overall funding has been renewed three times and provides some measure of stability to the program.

These differences created immediate barriers for implementers in California who found few borrowers interested in loans for their projects and few lenders effectively marketing a program with a rapidly approaching end date. Additionally, the market assumptions that informed the program design and were used to establish goals for the California program also proved to be flawed; leading to extremely optimistic expectations for loan volume for a new loan program.

### **The Program Theory of Developing Lender Networks**

The New York Loan Fund successfully provided financing to 420 commercial customers between 2000-2005, and staff are understandably proud of their program accomplishments. However, the assumptions behind their success and the overarching goal of the program were revised following program theory/logic model research that was finalized in May of 2006. Previously, program staff had envisioned their program as a strategy for transforming the lending market for energy efficiency projects by exposing lending officers to the cash flow benefits resulting from efficiency improvements. The underlying logic is: as lenders gain experience with the program and qualifying projects, they will be more likely to consider the improved cash flow resulting from the energy efficiency projects and factor that into the loan terms ultimately resulting in better terms for borrowers choosing to pursue energy efficient projects.

Thinking through the program logic regarding the New York Loan Fund the following questions emerge regarding the logic of the program from the perspective of the end user:

- Do end users lack access to capital and/or attractive financing options for energy efficiency or renewable energy projects?
- Will access to capital or financing overcome resistance to the higher first cost associated with energy efficiency and renewable energy projects?

Barriers on the lender side of the equation primarily occur in the Loan Fund programs because they target lenders. The ones that are directly considered by the program theory revolve around lack of experience or exposure to the economic benefits of energy efficiency and the resulting uncertainty associated with the financial benefits that accrue after energy efficiency investment. However, a variety of barriers exist for lenders participation in loan programs:

- Do lenders undervalue energy efficiency and renewable energy due to lack of awareness, knowledge, and understanding?
- Do lenders perceive more risk associated with these projects and are thus less willing to loan money for energy efficiency and renewable energy?

- Are lending organizations hesitant because of uncertainty about how to process loans with energy efficiency or renewable energy features?
- Are lending organizations able to include project impacts in their cash flow analysis?

### Barriers to Financing Energy Efficiency Projects

These questions are at the heart of determining the role of access to financing as a lever to higher investment in energy efficiency on the part of commercial customers. In the Program Implementation Plan submitted to the California Public Utility Commission (CPUC) in support of the California Energy Efficiency Loan Fund, the program contractor described five barriers associated with end-users and the program activities expected to serve as levers for overcoming those barriers.(Table 1) <sup>7</sup>

**Table 1: Barriers and Levers**

BARRIER	PROGRAM ACTIVITY/LEVER
<b>Lack of Access to Capital/ High First Costs</b>	Loan funds are used to structure project financing in which monthly energy savings exceed monthly loan payments.
<b>Information or Search Costs</b>	Banks serve as an important channel for informing small business owners of the availability of energy efficiency programs when their customers seek to finance renovations or remodeling.
<b>Hassle or Transaction Costs</b>	Program offers additional financing and project management resources at no extra cost; these can be used in conjunction with other programs providing audit services; the program has a simple application process.
<b>Performance Uncertainty</b>	All applications are reviewed to assure they meet technical requirements.
<b>Access to External Financing</b>	In theory, financing energy-efficient improvements should improve cash-flow and creditworthiness by reducing net occupancy costs; however, given other lender considerations, the program sought to make lenders more comfortable with loans to energy efficiency projects—ultimately building marketing channels for other energy efficiency products and services.

**Do borrowers lack access to capital?** In practice, it turns out that borrowers in all programs must qualify for their loans independent of the program—through standard loan applications and credit screening. For those who qualify for credit, the loan program provides a way to obtain more favorable terms, but for those who do not qualify for conventional financing, the energy efficiency component of the project typically will not tip them into approval.

**Will energy efficiency improve the credit worthiness of a loan?** In practice the cash flow benefits are not formally calculated by most lenders so are not considered when the loan application is reviewed. Additionally, lenders had no idea how to evaluate efficiency. Without a rating system or formal accounting of the financial benefits expected from the energy efficiency investment, the energy efficiency component is unlikely to change the debt-to-income ratio or creditworthiness of an applicant.

**Can a loan program overcome information and search costs?** The evaluation found that using lending officers as a channel for informing small business owners of the program opportunity

was not an effective strategy to overcome barriers related to information and search costs. Banks did not refer their customers to the program contractor, and in interviews with participating and nonparticipating lenders, both noted that customers undertaking retrofit projects “already have their plans in hand and know their costs... there is less opportunity to have input.”

**Can a loan program overcome the barriers of hassle and transaction costs?** In practice the New York Loan Fund program does overcome these barriers as many participants in the loan program were also participants in a **New York Energy Smart<sup>SM</sup>** incentive program and therefore had technical expertise to help in identifying and executing projects. The Loan Fund provided an additional resource to implement the project. Conversely, the California Loan Fund did not fully overcome these barriers as borrowers only qualified when efficiency investments did not receive incentives from other public benefits funded programs. However, the program would have provided substantial project support had such projects been implemented.

**Do lenders perceive energy efficiency or renewable energy technologies as more risky?** Lenders are uncertain that new renewable energy technology or efficiency projects will be profitable or contribute to the economic health of the borrower. Lenders are typically unaware of the benefits of energy efficiency, and lack the knowledge by which to urge borrowers towards more efficient choices that may improve their cash flow. In the course of evaluating the California Loan Fund and in completing the logic model analysis of the New York Loan Fund, the authors have found little, if any, evidence that lending officers are reluctant to finance energy efficiency projects. Regardless of the lack of experience or understanding of energy efficiency on the part of the lenders, financing is readily available to those who qualify. Recent years have brought record lows in interest rates and lines of credit or equity loans have proliferated throughout the economy. If lenders are reluctant to provide financing for an energy efficiency project, it is due to the poor credit, lack of assets, and lack of a banking relationship of the borrower—none of which are addressed by loan programs.

### **Program Features That Affect Loan Program Success**

In a literature review of loan programs and evaluations of recent energy efficiency programs with loan components, the authors found that the most powerful barriers to energy efficiency financing remain on the end user side of the transaction, not the lender side.<sup>2</sup> Lenders are willing to provide financing to qualified borrowers for virtually any project, provided the credit risk is acceptable. Programs trying to tie attractive financing to selection of the highest efficiency equipment or design find that their primary problem is actually having to compete with the variety of other financing options available to customers; options that include equity loans, credit cards, lines of credit, and financing through ESCOs. Not surprisingly, customers have been found to prefer cash incentives to loans when forced to choose.<sup>3</sup>

The features of loan programs themselves seem to affect the success of loan programs as well.

*Project Timing.* Like many energy efficiency programs, the sooner a program connects with a project the better. In interviews with lenders participating in the California Loan Fund, contacts described being unable to refer many projects to the program because small commercial borrowers often do not seek loans until the project is well developed – making borrowers reluctant to change plans or slow a project for a reduced interest rate on the energy related costs

of a project. Reviewing other programs found that those programs that include a loan component contractors can offer to customers at the time of project discussion, tend to overcome this barrier more effectively.

*Overall Time Horizon.* Projects in the commercial sector can take months or years to evolve because of design choices, permitting, organizational budgeting, financial or time constraints, business uncertainty, and competing priorities. Operating on a short time cycle (for example, a one or two year program implementation cycle) reduces the likelihood that information about a program will reach market actors involved in these projects in time for them to apply and ultimately complete the project before the program ceases. The three borrowers that had considered the California Loan Fund had projects still under consideration nearly 13 months after their first discussions. The New York Loan Fund only funded 35 commercial loans in the first two years and averages 70 commercial loans per year after six years. A program must appear stable and likely to be in existence at project completion to gain the attention of borrowers, their contractors, and their lenders.

*Review and Application Processing Time:* Another common barrier is the perception that participating in a loan program (with the added forms and review process) will slow a project down or create more hurdles for a project. In this case, the program's processes are a key determinate for how profound this barrier becomes. Using a one page application, an automatic referral process, or simple screening questions can minimize the perception of hassle associated with the process. A list of prequalified measures can also streamline the process, and may allow loan officers to complete the project application immediately, without referral to a third party. The New York Loan Fund has successfully achieved several of these factors, but lenders and borrowers typically seek simplicity.

*Tapping into the volume at large banks.* Attracting larger statewide or national banks can be difficult for energy efficiency loan programs. In the case of the California Loan Fund this was particularly the case since the program was only offered in five Bay Area counties. The larger banks typically were unable or unwilling to integrate a loan program for so few branches. However, the New York Loan Fund also has difficulty attracting larger statewide and national banks because it is typically more difficult for larger banks to integrate the loan program into their structure.

*Role for Lenders.* Lenders are an unlikely conduit for identification of energy efficiency projects and marketing of energy efficiency loans.<sup>8</sup> Lenders reported being busy with their own work, having competing priorities for their time and finding it a challenge to remember to promote the program to potentially qualified borrowers. Lenders specifically suggested that additional marketing to commercial customers and their contractors, architects and engineers is required to create awareness and demand for the program before the borrower arrives at the bank. The New York Loan Fund, while designed so the lender will provide referrals to the program, in practice relies more on program experience. A recent evaluation found that lenders had referred 21% of the commercial borrowers since 2000 while the remaining 79% had been referred by a contractor, vendor, NYSERDA marketing and website, or another NYSERDA program.<sup>10</sup>

*Setting loan volume expectations.* Many loan programs report a low overall volume of projects and a slow ramp up for new programs. Among the six programs reviewed in a recent program

comparison, only two funded more than 25 loans per year, and both of these programs allow customers to utilize incentives and participate in the loan program with the same project. In establishing the expected loan volume, program planners will need to consider the total population, the maturity of the program, the level of marketing planned, and whether the program will compete with incentives or complement incentives.

*Determining the appropriate organization to implement a loan program.* Loan programs benefit from the overall marketing efforts and credibility of the implementing organization. Institutional implementers like utilities, state government agencies, or federal loan programs offer credibility and stability, factors that are important in lender recruitment. Institutional implementers are also more likely to be able to allow a loan program to exist as a minor part of an overall energy efficiency portfolio—capturing the few customers each year for which the loan subsidy makes a project happen.

*Identifying Projects.* It is fairly clear from the research conducted by the authors, that the best way to identify projects is through energy efficiency and renewable energy experts, not lenders. These experts might be program implementation staff, contractors or trade allies associated with programs or public agency experts. The frequent turnover in lending organization staff and the need for those staffs to know a different business than energy efficiency or renewable energy means that lenders are not going to be effective at identifying projects.

*Including project costs in the loan.* One of the attractive features of many loan programs is that other costs associated with the installation of the energy efficiency equipment can be incorporated into the overall project cost and qualified for financing. Implementers will want to consider the average cost of commercial remodeling or renovation projects when setting the loan subsidy caps. In some jurisdictions there are concerns about taking funds from multiple public sources to fund a single project, often called double-dipping. Some jurisdictions balance loans and rebates to enable projects to proceed, other jurisdictions use a revolving loan fund so that funds become available for others as payments are made. The goal is to provide funding for projects that otherwise cannot go forward.

## CONCLUSION

Representatives contacted in a recent comparison<sup>6</sup> viewed their loan programs as another valuable service that their organizations provide to their customers, regardless of the ultimate loan volume. It may be that the loan option attracts 10 or 20 loans a year, but having the option is still considered important.

Regardless of overall volume, a loan option may prove to be the factor that tips a number of projects forward, because a borrower either requires more attractive financing or is opposed to rebates for philosophical reasons. These programs are designed to overcome many of the barriers to installing energy efficiency projects. However, the market barriers that continue to work against decisions for energy efficiency are often outside the purview of loan programs and include: lack of end user interest in energy efficiency, competing needs for resources, vendors who do not advocate for efficient options, an overall lack of understanding of life-cycle costs in choices about equipment, and overall uncertainty about the future price of energy. End-users who experience barriers to financing do so most often because of poor credit, lack of assets,

business history, and lack of a banking relationship—all of which are outside the purview of typical loan programs.

The value and attractiveness of loan programs is dependent on prevailing interest rates, the level of rate buy-down, the availability of financing or capital generally, and the term of the loan. Reduced interest loans may not substantially lower the cost of the efficiency projects costs, but the reductions do make financing an energy efficiency project more attractive than financing a non-qualifying project. Consequently, loan programs may facilitate more overall investment in energy efficiency than would have occurred otherwise.

## REFERENCES

1. Eto, J., R. Prael and J. Schlegel. Scoping Study on Energy-Efficiency Market Transformation by California Utility DSM Programs. Ernest Orlando Lawrence Berkeley National Laboratory. July 1996
2. GDS Associates. Logic Model Development for the New York Energy SmartSM Loan Fund. May 11, 2006.
3. Gordon, F. L. Tumidaj, G. Smith, E. Holt. Low Cost Energy Efficiency Programs. The Regulatory Assistance Project: Gardiner, ME. 1996. 36-38
4. Grover, S. J. Holz, P. Graven. Residential Loan Program Process Evaluation. Prepared for the Bonneville Power Administration. August 2005.
5. Hirst, H. J. Clinton, H. Geller, W. Kroner. Energy Efficiency in Buildings: Progress and Promise. American Council for an Energy Efficient Economy. 1986.
6. Institute for Market Transformation. Recognition and Use by Appraisers of Energy-Performance Benchmarking Tools for Commercial Buildings. Institute for Market Transformation. February 2003. pp2.
7. KEMA/Xenergy. Program Implementation Plan, Program #1213-04. Prepared for California Public Utilities Commission. August 1, 2005. Section I.B.2.
8. Peters, J., D. Moran, R. Scholl. Draft Evaluation Report. California Energy Efficiency Loan Fund. August 1, 2006.
9. Residential Energy Services Network of the National Association of State Energy Officials and Energy Rated Homes of America.  
<http://www.natresnet.org/resources/lender/default.htm>.
10. Schare, S. B. Barkett, J. Hummer, D. Violette. Loan Fund Program: Market Characterization, Market Assessment and Causality Evaluation. Final Report. Prepared for the New York State Energy Research and Development Authority. May 2006.