Final Report for
The Affordable Multifamily Retrofit Initiative

Prime Contractor Name: San Francisco Mayor's Office of Housing

Contract Agreement Number: 400-09-019

Contract Term (reporting period): June 30, 2010 to March 31, 2012

Project Manager: Daniel Adams

Commission Agreement Manager: Adrian Ownby

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EXECUTIVE SUMMARY

Program Background and Approach

There is a tremendous need to increase energy efficiency and preserve affordability for thousands of units of multifamily housing serving low-income tenants throughout the Bay Area. This sector has been very difficult to reach with traditional rebate and subsidy programs based on single-family building types, and given the complex funding structure of most affordable multifamily buildings, tax-lien financing for energy improvements is virtually impossible. Recognizing this need, the San Francisco Mayor's Office of Housing (MOH), Enterprise Community Partners (Enterprise), and the Low Income Investment Fund (LIIF) established the **Affordable Multifamily Retrofit Initiative** ("the Initiative") to provide technical support and make green retrofit loans to existing multifamily building owners to help pay for the upfront costs of energy and water efficiency improvements. The cash flow generated from reduced utility expenses pays the principal and interest on the green retrofit loans.

Project Organization

The Affordable Multifamily Retrofit Initiative addressed the need for energy improvements in multifamily housing in two ways: first, by providing technical support to affordable housing owners to assess building energy needs and deficiencies; and second, by assembling financing to address those needs, increase energy efficiency, improve resident comfort and lower utility costs.

Technical Assistance

Technical support was provided to multifamily housing owners and managers throughout the assessment and retrofit process. This included:

- A whole-building analysis of capital needs, including an investment-grade energy audit;
- Assistance collecting energy/water data;
- Establishing the energy efficiency scope of work;
- Construction management;
- Quality assurance and verification of installed measures;
- Data and performance monitoring; and
- Development and delivery of training materials for property maintenance staff and tenants

Financing

In addition to providing technical assistance, the Initiative created a green retrofit loan fund. In order to attract private capital, SEP funds were used to create a "top loss" component within the revolving fund. This top loss served two key roles: 1) it lowered the overall cost of the capital loaned to the projects, and 2) it enabled loans to be offered on a non-secured basis which is the only viable mechanism due to the highly leveraged financing structure in most affordable housing in the Bay Area. Both of these roles are crucial in leveraging private capital

by lowering the investor risk and by making the debt more affordable to the end user enhancing the likelihood of full repayment. Thus, the composition of the loan fund is twofold: 50% SEP funds that serve as a top loss, and 50% private capital. In order to reduce risk to the borrower even further, LIIF and Enterprise acquired additional grants to credit enhance the private capital. This allowed the project sponsors to offer to borrowers a "risk-free" loan.

The Initiative sponsors also worked closely with building owners and local jurisdictions to identify and leverage other resources to fund a comprehensive "whole-building" retrofit. Those resources included ARRA Weatherization Assistance Program (WAP) funds, utility rebates, Solar America Cities subsidies for solar domestic hot water, and local housing funds such as HOME and CDBG to cover the costs of complementary measures. The ability to assemble a package of sources to address a diverse and comprehensive set of energy improvements and related needs was critical to inducing participation from building owners.

Organizational Structure

Prime Contractor: San Francisco Mayor's Office of Housing

The San Francisco Mayor's Office of Housing was the Prime Contractor for the Initiative and was responsible for contract administration and program oversight to ensure that the goals of the Initiative were met.

Sub-Contractors: Enterprise and the Low Income Investment Fund

Enterprise and the Low Income Investment Fund (LIIF) were responsible for program implementation including raising private capital for the loan fund, marketing and outreach, originating loans, and providing technical support to the affordable housing providers.

Municipal Partner: City of Oakland

Both San Francisco and Oakland were selected as local providers of WAP funds for the stimulus period. Not only did weatherization provide important leverage to the SEP funds, but the intake and review process used by both cities served as the primary outreach and intake mechanism for the SEP program. The energy audit protocol, program delivery model, quality assurance methodology and tenant education curriculum were all designed to work for both WAP and SEP programs, resulting in better program efficiencies and less program navigation for the borrowers.

GOALS

The original goal of this program was to increase energy efficiency and preserve affordability for multifamily housing serving low-income tenants throughout the Bay Area, as summarized in the table below:

Original Goals and Objectives	Actual Accomplishments
Provide technical support to affordable housing owners to assess building energy needs and deficiencies.	The BAM Fund provided technical support to 13 affordable housing owners to assess energy needs and deficiencies of 29 properties. Investment Grade audits were completed for 18 of the 29 BAM Fund properties. A total of 51 properties received energy audits under the integrated San Francisco and Oakland SEP/WAP programs.
Assemble financing that can address those needs, increase energy efficiency, improve resident comfort and lower utility costs.	Assembled financing for 6 properties (3 Borrowers) to increase energy efficiency, improve resident comfort and lower utility costs.
Take advantage of available subsidies and rebates.	Leveraged BAM Fund financing with Weatherization Program funds, CA Solar Thermal Rebate Program, utility rebates, SFPUC toilet replacement incentives, and other local housing funds.
Create a revolving loan fund that will provide capital for energy and water improvements with verifiable near and mid-term payback periods.	While a loan fund was successfully established, because very few loans were made through this program, it has been determined that it is not cost effective to revolve funds for future building improvements.

Barriers to Achieving Program Goals

- **Lack of Data**
  Multifamily housing owners are wary of hard debt based on unproven cash flow streams from energy savings. Despite efforts to mitigate risk with the SEP top loss and additional credit enhancement, savings skepticism inhibited the demand for financing.

- **Capacity Challenges**
  Borrowers often lack the staff capacity to fully engage/participate in the complexities of a whole-building energy efficiency retrofit process involving multiple federal sources and rebate programs. The extent of the program requirements proved to be burdensome for both borrowers, and the Initiative sponsors. Often, building ownership entities had complicated ownership agreements and structures that required permission from multiple lenders before taking on additional debt.

- **Small Loan Sizes not Scalable**
  Correlating loan size directly to projected savings over a 10 year term results in small loans (with average loan sizes < $100,000). This is in part due to the Bay Area's modest climate and consumption. While small loans represent a commensurate small risk to the borrower, the size of the loan relative to the complexity of analysis, underwriting, and project implementation, resulted in a majority of potential borrowers and interested applicants opting not to pursue the loan.

- **Complex relationship between Functionality and Efficiency**
  Many borrowers hope to correct dysfunction in energy systems (such as broken windows, nonfunctioning heaters, or nonexistent HVAC registers) as much as efficiency. In our savings-based underwriting, new functionality does not usually have the greatest savings, even while it is a critical feature for our borrowers. Thus addressing functionality (e.g. replacing windows) as opposed to efficiency (e.g. installing motion sensors) does not leverage a high degree of savings that can be applied to a property taking on retrofit financing.

- **Split Incentive**
  Some multifamily housing properties have units that are individually metered for gas and electricity and common areas that are master metered (lobbies, corridors, community rooms). Some owners of these properties are challenged to take on additional debt when the benefits accrue directly to tenants because the increase in debt service is not offset by a direct decrease in operating expenses. Therefore, the BAM Fund focused on master metered buildings, which limited the energy efficiency measures to common areas, consequently reducing the number of eligible properties in our marketing and outreach efforts. In addition, decreasing operating expenses due to energy efficiency can have an net-negative impact on rental subsidies when subsidy sizing is adjusted on operating budgets or expenses (such as in budget based Section 8 rent adjustments).

ACCOMPLISHMENTS

Activities Undertaken

In February 2010, the City of San Francisco Mayor's Office of Housing and its subcontractors, Enterprise Community Partners and the Low Income Investment Fund (LIIF) were awarded funding under the State of California Energy Commission's State Energy Program (SEP) for its Affordable Multifamily Retrofit Initiative. The Initiative sought to facilitate the energy and water efficiency retrofitting of existing Bay Area affordable multifamily housing.

The Affordable Multifamily Retrofit Initiative, later re-named the Bay Area Multifamily Fund, or BAM Fund, was designed to work in conjunction with the ARRA WAP programs of the Cities of Oakland and San Francisco[1]. The Energy Audit Protocol developed by LIIF and Enterprise, with input from a number of energy experts and stakeholders, was designed to satisfy the requirements of both the SEP program, as well as those of WAP. The sharing of audit protocols was essential to the leveraging strategy inherent in the program design. The availability of WAP funds, and the decision by the Cities of Oakland and San Francisco to direct that funding to multifamily affordable housing, was the impetus for developing the BAM Fund, and served as a critical subsidy and complement to the SEP loan funding.

Because of the close correlation between SEP and WAP, an important accomplishment of the Initiative sponsors was to establish the state's first multifamily performance-based energy efficiency program leveraging WAP funds with other resources such as the BAM Fund, rebates, and local housing dollars. Through program collaboration we were able to establish an effective program infrastructure, including application, intake, and building review procedures; a multifamily energy audit protocol; quality assurance and verification standards; and tenant and building staff training materials. Through these efforts, and with support from LIIF and Enterprise, both cities were able to establish a robust pipeline of projects.

Program administrators required that program applicants have an energy audit conducted in accordance with the Energy Audit Protocol (see Exhibit C) developed by Enterprise and LIIF. This protocol was written so that it could be used by loan underwriters to determine if energy and water conservation measures could be put in place to save enough money to pay for debt service that finances all, or some portion of, the improvements. It was imperative that the audit be of investment grade caliber, which meant that its data and analysis were deemed sufficiently reliable to take on the risk of lending money to the project. In addition to identifying ways to save energy and water, the audit also required an evaluation of the integrity of the building to identify any deficiencies that could result in health and safety hazards to tenants, code violations, and/or deterioration of major building systems that jeopardize the long term viability of the building over a minimum ten year horizon.

[1] The City of Berkeley was originally a municipal partner but dropped out once they opted out of managing their ARRA WAP program.

The program also required that one to two post retrofit inspections be carried out in accordance with the Quality Assurance and Verification Protocol, to ensure implemented measures were operating properly.

With the Audit Protocols established, Enterprise and LIIF developed a marketing and outreach strategy targeting strong borrowers and properties in the Bay Area. Once this list of borrowers was vetted by partners, Enterprise and LIIF began to conduct in-person meetings to present the BAM Fund and identify properties within borrower's portfolios that may be good candidates for energy efficiency retrofits. Upon identify interested borrowers and properties, LIIF and Enterprise followed the following process to assess and vet energy efficiency and financing opportunities:

- Diagnostic Phase
  - Completed preliminary assessments and provided technical assistance to 29 multifamily housing properties in the Bay Area to determine if there were enough significant energy efficiency opportunities to justify moving forward with an Investment Grade audit
  - Conducted due diligence on 18 properties to assess the financial strength of the borrower and property by reviewing three years of audits, year-to-date financial statements, and a statement of replacement reserves balance
- Building Analysis Phase
  - Through a competitive RFQ process a short list of qualified energy consultants were identified to carry out the requirements of the Comprehensive (Investment Grade) Multifamily Housing Audit Protocol
  - Assisted building owners and managers with securing energy consultants, communication with tenants about the audit process, and scheduling audits of their properties
  - Provided guidance and technical support to building owners and energy consultants throughout the building assessment/audit process, including clarification of audit findings and establishing scopes of work
- Outreach and Marketing
  - Using BAM Fund marketing materials developed by LIIF and Enterprise , we continued to market the BAM Fund through strategic outreach and public presentations throughout the programs contract term Held monthly Collaboration meetings with ARRA WAP programs in San Francisco and Oakland to coordinating outreach and marketing
- Implemented Retrofits (see below for totals)
  - Provided technical assistance and construction management services related to specifications and quality assurance of implemented retrofit measures
- Post Retrofit Activities
  - Conducted Quality Assurance and Verification assessments once retrofit work was completed
  - Developed Data Collection and Monitoring methods to track savings for the duration of the 10 year loan term

- Developed and delivered Tenant/Client Education materials to retrofitted properties
- Completed Retrofits funded with BAM Fund proceeds: 6 properties / 529 units
- Total completed retrofits under integrated SEP/WAP program
  - Total for San Francisco: 24 properties / 1,240 units
  - Total for Oakland: 13 properties 780 units

The Bay Area Multifamily (BAM) Fund

Enterprise and the Low Income Investment Fund administered a $400,000 loan fund (originally targeted to be a $4 million loan fund). The Fund consists of $200,000 in State Energy Program funding which served as top loss capital, plus $200,000 in private senior capital assembled by Enterprise and LIIF to finance the cost of energy and water efficiency improvements in older affordable multifamily rental housing in the Bay Area; the private capital is fully credit enhanced with grant funds raised by LIIF and Enterprise. The BAM Fund~~)~~ has the following terms (see Attachment/Exhibit for complete term sheet and loan agreement language):

Interest Rate	5%, amortized
Term	10 years
DSCR	1.15 – 1.25
Collateral	Loan is unsecured by real estate; flexible guaranty

The loans are repaid with the utility savings projected to be achieved as a result of the energy and water efficiency improvements being made, in accordance with an investment grade energy audit. The BAM Fund program pays for the cost of the energy audit, which is an extensive analysis of existing building conditions, utility usage and utility costs, accompanied by recommendations for an optimal package of energy and water efficiency improvements ("green retrofit package"). The audit provided a cost estimate for the recommended improvements along with projected energy savings, both in terms of energy and water consumption and financial savings.

Key Program Outcomes

- Established a Comprehensive Multifamily Audit Protocol;
- Developed a blended capital pool to seed the revolving loan fund and created loan terms and repayment mechanisms;
- Identified key barriers to underwriting savings to support debt within the multifamily affordable housing sector (see below);
- Through collaboration with and between the cities of San Francisco and Oakland, established the state's first multifamily performance-based energy efficiency program leveraging WAP funds with other resources such as the BAM Fund, rebates, and local housing dollars;
  - Achieved program efficiency through alignment of program criteria and assessment tools to diminish consumer confusion

- Provided critical technical assistance to borrows with HCD and HUD funded properties – advised on how to carve out operating cash flow to pay for green retrofit loan debt service;
- The BAM Fund was a useful supplement to federal weatherization and/or Community Development Block Grants (CDBG) – tying the loan amount to energy savings rather than to specific upgrades allowed for more flexibility in overall scope of work.

- Knowledge Sharing and Capacity Building
  - Provided extensive technical support to Borrowers increasing awareness and capacity in the multifamily housing sector
- Audit Findings - Reduction in energy costs over existing conditions:
  - Utility savings (gas, electric & water) in master metered buildings ranged from a low of 6% to a high of 26%; the average was 15%
  - Per unit savings averaged at $130 per unit per year
- Efficiency Measures that resulted in the highest Savings to Investment Ratio:
  - Domestic Hot Water
  - Interior Lighting
  - Thermostats
  - Exit Lights
  - Low Flow Toilets
  - Heating boiler
  - Air Handling Units

  Retrofit cost per unit ranged from a low of $605/unit to a high of $11,500/unit; the average cost was $3,145/unit

  Note: *See Exhibit E-2 for a summary of energy audit findings*

BAM Fund Pipeline

The BAM Fund has successfully supported the green retrofit of six properties, totaling 529 units of affordable and supportive housing, in the cities of San Francisco and Oakland. The average rehabilitation cost, including green retrofits, was $373,454 and average energy savings per building are estimated at $10,912 annually or an average annual reduction in utility cost of 15% per building. With $393,446 in SEP and private dollars the BAM fund was able to leverage an additional $1,847,280 in outside financing; total BAM Fund contributions were equal to 18% of total rehab costs. See Exhibit F for SOW summary of the 6 BAM Fund properties.

Summary of Bay Area Multifamily Fund Buildings				
Property	**# of Units**	**BAM Funds**	**Total Retrofit/ Rehab Cost**	**Estimated Utility Savings**
Dalt Hotel	179	$44,077	$270,635	$7,013
Ritz Hotel	88	$109,536	$387,063	$17,427
Yosemite Apartments	32	$48,762	$37,393	$7,758
San Cristina	58	$59,699	$666,869	$9,948
Iroquois	74	$53,774	$147,548	$10,978
Madison Park Apartments	98	$77,598	$666,411	$12,346
Total	**529**	**$393,446**	**$2,240,726**	**$65,469**

TNDC Projects: Dalt Hotel, Ritz Hotel and Yosemite Apartments

The Dalt, Ritz and Yosemite are located in the Tenderloin Neighborhood of San Francisco and were funded as a single BAM loan to maximize the retrofit funds available to the borrower. This grouped finance approach reduced overhead burden to the borrower and lender as well as allowed for cross subsidization.

The Dalt Hotel is a 179 unit Single Room Occupancy (SRO) apartment that was built in 1919. The building had a supportable BAM loan of $44,077 and a total retrofit cost of $270,635 with an annual estimated utility savings of $7,013. Retrofits undertaken at the building include replacing the existing boiler as well as installing occupancy sensors and a solar domestic hot water array.

The Ritz Hotel consists of 88 SRO units and received a BAM loan of $109,536; total retrofit costs were $387,063. Green measures adopted at the Ritz include replacing the boiler, exit lights and common area lighting with energy efficient models; insulating the roof and domestic hot water tank storage unit; replacing all toilets and shower heads with low flow fixtures as well as installing thermostats and a solar domestic hot water system on the roof. Total estimated annual utility savings are $17,427.

Yosemite Apartments was built in 1924 and comprises 32 studio and one-bedroom units. The retrofit scope of work included replacing exit lighting and other lighting fixtures with energy efficient ones, installing automatic lighting controls, insulating hot water piping and the domestic hot water tank storage unit as well as replacing toilets and showerhead with low flow fixtures. Based on these retrofits and a projected annual utility saving of $7,758 the Yosemite supported a BAM debt of $48,762. Total retrofit costs for the property came in at $37,393 with the excess supportable BAM debt being applied to the Ritz and Dalt Hotels; the grouped loan approach allowed for the BAM fund to subsidize the retrofits of properties that had a gap in their retrofit budgets with the projected energy savings of other buildings that could support a higher BAM loan amount than needed.

CHP Projects: San Cristina and Iroquois Residences

The San Cristina and Iroquois Residences are located in San Francisco and were built in 1913 and 1915, respectively. The owner of these two buildings decided to take two separate BAM loans instead of a single, multi-building loan because they did not need to cross subsidize and wanted to keep both building retrofit processes, including debt servicing, separate.

The San Cristina Residence is a 58 unit building that adopted the following retrofit measures: upgrade indoor lights and exit lights with energy efficient fixtures; install thermostatic radiator valves, roof insulation, an efficient boiler and condensing hot water tanks as well as replace the existing pump motor with an efficient model. Based on the adoption of these retrofits it was determined that the property could save $9,948 annually which translates to a supportable BAM debt of $59,699. The total rehabilitation cost for the San Cristina, which included significant non-green structural work that was funded by other sources, totaled $666,869.

The Iroquois Residences consists of 58 individual adult units and supported a BAM debt of $53,774. The green retrofit measures that were adopted at the property included repair of the existing boiler as well as installation of a natural gas-fired condensing domestic hot water tank, occupancy sensors in common areas, non-electric thermostatic radiator valves, LED exit lights and energy efficient light fixtures in the garage, basement and apartment units. Projected energy savings from the adoption of these retrofits equaled $10,978 and total retrofit cost were $147,548.

EBALDC Project: Madison Park Apartments

Madison Park is a 98 unit building located in Oakland and built in the 1900's. The property underwent a refinance and rehabilitation event which included green retrofits that were partially funded by BAM. Madison Park upgraded the boiler, domestic hot water boiler, exit signs, and common area refrigerator with energy efficient models; installed new doors and windows to provide for a better building envelope; installed a new high efficiency pump and solar domestic hot water array as well as converted a number of their existing toilets to duel flush capabilities. The projected energy savings from the adoption of these measures are

estimated at $12,346 annually which would support a BAM debt of $77,598; total rehabilitation costs, including non-energy efficient measures, were estimated at $666,411.

Additional Properties

The data listed above is representative of the four BAM Fund loans that closed. However, it is important to reiterate that the BAM Fund started with a robust pipeline of 29 potential properties, and LIIF and Enterprise moved forward with investment grade audits for 18 of those properties. As we moved forward with the various phases of the retrofit process 12 additional properties fell out of the pipeline. This fall-out largely occurred for the following reasons:

- Many of our potential borrowers, if not all, were wary of hard debt based on unproven cash flow streams from energy savings. Some borrowers had underlying financing, such as New Market Tax Credits, that prohibit hard debt, further inhibiting demand for a BAM Fund loan.

- Consideration of other resources – A few potential borrowers, either independently or at the insistence of an existing lender, opted to use a property's replacement reserves to cover the rehab costs that would have been covered by a BAM Fund loan. This is reflective of the small loan sizes we saw throughout the BAM Fund pipeline. The administrative efforts of both the lenders and the borrowers far outweighed the loan amounts, significantly lowering the cost effectiveness of the loan.

- One potential borrower opted out of both WAP and the BAM Fund due to concerns about Davis Bacon Wage requirements and the potential claim that the larger rehab scheduled to begin in the spring of 2012 would be subject to prevailing wages.

- Marketing and Outreach - LIIF and Enterprise modified the BAM Fund loan structure a number of times to reduce borrower risk, and increase demand. Midway through the program LIIF and Enterprise added capital to increase credit enhancement and allowed loan terms to be unsecured and nonrecourse (helping reduce concerns that savings would not materialize). The BAM Fund had to evolve extremely favorable terms for borrowers and investors to accept the risks associated with projecting energy savings. Unfortunately, there was not sufficient time to market the revised loan to achieve the scale necessary to deplete the funds. In addition, the numerous changes to the fund structure caused borrowers to have less trust in the product, and therefore resulted in fewer properties moving forward with a loan.

Quantitative results

Number of retrofits completed:

- Completed Retrofits funded with BAM Fund proceeds: 6 properties/529 units
- Total completed retrofits under integrated SEP/WAP program
  - Total for San Francisco: 24 properties/1,240 units
  - Total for Oakland: 13 properties/780 units

Average retrofit project cost to the property owner: $276,176

Average energy savings: 16%

Number of workers trained and jobs created: Perm are the on-site full-time jobs created, ancillary are the jobs created as a result of the baseline construction activity:

Sponsors	WAP	CDBG	SEP	TDC
TNDC	$ 125,233.00	$ 424,303.00	$ 202,375.00	$ 759,898.00
CHP	$ 200,335.00	$ 400,608.00	$ 113,473.00	$ 814,417.00
EBALDC	$ 53,878.00	$ 534,935.00	$ 77,598.00	$ 666,411.00
	$ 379,446.00	**$ 1,359,846.00**	**$ 393,446.00**	**$ 2,240,726.00**
permanent jobs	**3.79446**	**13.59846**	**3.93446**	**22.40726**
ancillary jobs	**5.69169**	**20.39769**	**5.90169**	**33.61089**

Number of audits/assessments completed (separate test-in and test-out)

- Audits funded with BAM Fund proceeds: 18 Audits
- Total completed audits under integrated SEP/WAP program
  - San Francisco WAP: 27 Audits
  - Oakland WAP: 24 Audits

Number of loans originated, including average loan amount: In total the BAM Fund originated four loans for six buildings to three separate borrowers. The average loan amount was $100,000 (ARRA funds plus private capital).

CONCLUSIONS

Major Findings and Lessons Learned

1. Linking debt to savings in the Bay Area results in very small loans. The small scale of the loans, while reducing risk, also make them less attractive given the administrative, oversight, and reporting burdens, and the challenges inherent in alignment with other funding sources.

2. Leveraging across programs allows for deeper retrofits but creates a complexity to program implementation that exceeds the capacity of borrowers. A critical component of the program was to explore the possibilities of leveraging diverse resources to provide deep whole-building retrofits. This program model is in contrast to more common single-source "direct-install" energy efficiency programs that can streamline implementation but which often result in very shallow energy savings, especially in a multifamily context. Unfortunately, while leveraging allows for more comprehensive scopes of work, coordinating across publically-funded programs whose requirements are still tailored for a single-family context, results in a program complexity that slows implementation and can test the capacity of the borrower. In order to make a leveraging model work in the future, alternative implementation models should be explored. In addition, housing agencies that support multifamily development should continue to work with energy agencies to develop and refine building assessment, training, contracting, and administrative protocols that support the particular needs and opportunities of multifamily affordable housing.

3. Timeframe to develop programmatic documents and protocols, market the program, assess properties, and implement and monitor retrofits was under estimated. It took a long time to convince borrowers to consider a BAM loan due lack of a guaranty that energy savings would be achieved. In addition, the audit process averaged three to four months from pre-site visit meetings to a final audit reports and scopes of work.

4. Investment Grade Energy Audits provide a wealth of information, but borrowers and lenders struggled to understand the long and extensive reports. An extensive amount of time was required for lenders, borrowers, contractors, energy consultants, and other project partners to assess and understand the content of the investment grade audits. Future programs should continue to analyze and synthesize what information is most pertinent to lenders and borrowers, and partner with energy auditors to develop a universal format for reporting energy savings and energy cost savings data. The executive summaries of every report should include clear "snapshots" of annual energy savings and cost savings in both dollar amounts and percentages. This will enable better efficiencies in collecting and analyzing quantitative data across properties.

5. Administrative tasks associated with Energy Efficiency loans are extremely onerous given the small size of the loans that have been made. LIIF and Enterprise provided extensive pro-bono project management and technical assistance services to potential borrowers, increasing demand and borrower energy financial literacy.

Best Practices

We have learned that the most effective and efficient way to deliver capital to promote energy efficiency is not through small, stand-alone products, but to integrate "green" capital into larger financings that fund new construction or support holistic renovations of existing properties. Moving forward, this "overlay" approach is key to promoting energy efficiency and sustainable practices in community development, while making the proposition more economic for financial institutions, resulting in the potential for greater scalability. Lenders should focus energy efficiency retrofit marketing and outreach, along with loan product innovations, on "triggers" of action already occurring – for example in larger scale rehabilitation projects, or properties undergoing refinancing and/or re-syndication. In this way, small loan sizes can be embedded in a much larger loan, potentially at reduced interest rates. This will present a good opportunity for borrowers interested in energy-related renovations whose payback horizon exceeded loan term.

In addition, we have the following recommendations for best practices moving forward:

- Leveraging funds and resources through local and regional partnerships and collaboration will yield better results.
- Continuing to understand true need and demand is critical to developing and implementing successful energy efficiency finance programs. We must evaluate what the true energy efficiency and financing needs are for multifamily properties, and determine early on if borrowers are willing to take on debt to implement energy efficiency retrofits.
- Finance programs should focus on high capacity borrowers until we have more data and information to clearly demonstrate the returns on the investment.
- Scaling debt product up from an individual building approach to a multi-building or portfolio approach can produce efficiencies and cost savings in terms of staff time involved in project management and loan administration.
- All parties should continue to work towards continuity of multifamily housing retrofit protocols and data collection systems and standards nationally.
- Knowledge sharing and alignment with other data collection and green financing efforts domestically and internationally may enhance prospects for success.
- Continue to train and educate property owners, asset managers, maintenance staff, and tenants on the implementation, management, energy and cost savings, and health and safety benefits of energy efficiency retrofits.

TECHNOLOGY

BAM Fund publications, conference papers or other public release of results:

- Introduced the BAM Fund at a Brown Bag Presentation hosted by the Non-Profit Housing Association of Northern California
- Presented the BAM Fund at the Opportunity Finance Network Conference
- Presented the BAM Fund at a Stopwaste.org program presentation for Alameda County property owners
- Presented the BAM Fund as part of a panel workshop at the Housing California Conference
- Presented the BAM Fund as part of Affordable Housing Week

Networks or collaborations fostered

- Collaboration between Enterprise, LIIF, San Francisco Mayor's Office of Housing and the City of Oakland

Technologies and techniques developed:

- Developed and distributed a Multifamily Energy Audit Protocol
- Conducted a Multifamily Auditor Orientation and Training\

Educational aids and curricula – See Exhibit H for full materials

The scope of the BAM Fund resident engagement and education activities entails the preparation of tenant education materials and the delivery of trainings and/or workshops for residents of buildings where an energy and water retrofit project has occurred. The goal of these services is to encourage tenant behavior that advances the ethos of energy efficiency and avoid the potential for tenant actions to detract from the value of the green retrofit improvements.

- Framing the Program Design
- Preparation of training and engagement materials
- Delivery of trainings
- Preparation of documentation required by funders related to trainings held and participants.
- Summary of completed trainings/workshops

BUDGET:

Budget Category or Deliverable	Brief Description	Budget Amount	Actual Expenditure
1.0	Administration	112,466	50,163
	Project Technical Activities		
2.1	Draft Implementation Plan	12,780	39,055
2.2	Monitor Implementation	75,000	76,062
2.3	Identify and select properties	0	8,174
2.4	Conduct audits and needs assessments and establish scopes of work	145,000	141,161
2.5	Assemble funding packages	66,338	42,117
2.6	Close financing	215,599	33,606
2.7	Implement retrofit measures	2,000,000	200,000
2.8	Verify installation of measures	150,000	29,419
2.9	Perform staff and tenant education	50,000	43,421
2.10	Monitor performance	165,845	4,851
	Technical Activities Subtotal	2,880,563	617,867
	TOTAL	**2,993,029**	**668,030**

The number of loans made through this program was approximately73% less than what was originally proposed. This was largely due to borrowers being wary of hard debt based on unproven cash flow streams from energy savings, resulting in a much smaller pipeline or properties for the BAM Fund.