RECOMMENDATIONS FOR

ENERGY EFFICIENCY FINANCE PILOT PROGRAMS

Report to the California Investor-Owned Utilities
Southern California Gas
San Diego Gas & Electric
Pacific Gas and Electric
Southern California Edison

Submitted by Harcourt Brown & Carey
for the California Energy Efficiency Finance Project
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TABLE OF CONTENTS

EXECUTIVE SUMMARY

A key challenge to California residential and business energy consumers adopting energy efficiency improvements in existing buildings and operations is often the lack of available financing to overcome the *first cost barrier* that often stops larger EE projects in their tracks, even when there is a compelling return on investment. Recognizing this barrier, the California Public Utilities Commission has directed the state's investor-owned utilities to propose EE financing options that will be piloted in 2013 and scaled up in 2014, and to hire an expert finance consultant to assist in this.

Under the overarching principals of statewide uniformity, "keep it simple and fast",[1] and leveraging ratepayer funds by bringing in additional private capital, the G*uidance Decision* requested development of EE financing pilot programs to include:

- a credit enhancement strategy for the *single-family residential market*;
- a financing program strategy designed specifically for the *multifamily residential market* that includes both credit enhancement and an on-bill repayment option and/or tariff-based energy efficiency improvement reimbursement mechanism;
- a credit enhancement strategy for the *small business market*; and
- an on-bill repayment strategy for *all non-residential customers* that "shall not require bill neutrality and shall allow for pro-rata allocation of payments between utility bill obligations and loan repayment."[2]

The Harcourt Brown & Carey, Inc.-led California Energy Efficiency Finance Project Team drew from experience with EE finance around the country and the organized input of hundreds of California energy efficiency and finance experts and stakeholders to develop recommendations for pilot programs.

1. APPROACH AND RECOMMENDATIONS

Several important principles emerge from the experience of EE finance and the input of experts and stakeholders:

- Contractors work with energy end users constantly and are central to the uptake of EE
- Increasing EE finance deal flow is a priority
- Two different "worlds" – energy and finance – need to interact productively
- The role of traditional financing tools should not be neglected for EE
- Consistency and compatibility through development of guidelines is very valuable
- These efforts should be developed initially as pilots and not fully scaled programs
- Other EE programs maintain an essential role, and integration with them is necessary

[1] *"Guidance Decision"*, Decision 12-05-015, p. 118.

[2] *Guidance Decision*, Ordering Paragraph 24.

- Infrastructure that can scale and enable the market is needed

2. California EE Financing Hub Pilot Proposal

The proposed "California EE Finance Hub" is designed to increase the flow of capital to energy efficiency projects.

The Hub will accomplish this by providing a simple, streamlined structure through which energy users, financial institutions, energy efficiency providers and utilities can participate in a standardized "open market" that facilitates energy efficiency financing in California. The Hub is designed to act as an enabling institution to allow for the easy flow of information and data among utilities, financial institutions, the CPUC and others. The Hub is also designed to facilitate a transparent process for allocating credit enhancements, managing cash flows for OBR, and in limited cases, promoting development of contractor and customer-facing lease origination processes.

The existence of the Hub and the transparent market it creates, will allow the contracting community to understand the scope and breadth of the energy efficiency opportunity and provide clear guidelines on how to participate. And the resulting increase in project activity, the credit enhancements and the uniformity provided by the Hub will give capital providers the assurances they need that the energy efficiency market has the volume, data and risk management tools they need to invest. Finally, the Hub will enable a streamlined way for utilities to manage capital flows through OBR while also providing mechanisms for appropriate levels of data collection for multiple audiences.

In addition to a description of key Hub functionality, this document lays out options for Hub governance.

3. Single Family EE Financing Pilot Proposal

Energy efficiency financing in the single family sector needs to provide a trusted, one-stop solution with attractive rates and terms for consumers and a simple process with quick payments for contractors. The Project team proposes two "contractor-centric" programs:

A. "Dealer" Loan Program using the Warehouse for EE Loans (WHEEL)

- Contractors provide financing directly to ratepayers
- Contractors are certified and managed by a finance company
- Loans are sold to the WHEEL fund to be securitized for sale to the capital markets
- Utilities provide subordinate capital to support the fund and lower interest rates

B. "Direct" Loan Program, with a loan loss reserve

- Ratepayers seek loans from local lenders or through referral from contractors
- Local lenders originate the loans

- Utilities provides a loan loss reserve to local lenders to reduce interest rates

These two pilots will compare the ability of dealer loans and direct loans to optimize the EE acquisition process and to build volume of EE investments and we recommend both be piloted.

Two additional sub-pilots are recommended: (1) Line item billing (pending resolution of regulatory challenges) and (2) Expanding access to credit in moderate income markets.

4. Multifamily EE Financing Pilot Proposal

Energy efficiency financing in multi-family rental properties is particularly difficult due to complex ownership structures and split incentives between landlords and tenants. On-bill repayment (OBR) will improve the credit quality of EE loans for master-metered properties which will attract new capital with attractive terms. Consequently, we recommend a pilot program targeting the affordable master-metered multifamily segment. This holds great promise as the strategic pathway to offering OBR financing to the entire multifamily market.

The pilot will have the following features:

- OBR mechanism
- 10% Debt Service Coverage Reserve credit enhancement
- Emphasis on flexibility on contracting
- Funding for building audits and ongoing technical assistance

We believe this pilot design will create a compelling value proposition for both energy efficiency contractors and owners of affordable multifamily properties.

5. Non-Residential EE Financing Pilot Proposal

The non-residential sector has long been challenging to serve with financing products. Small, medium and large highlights that occupy commercial buildings are often leveraged with debt, and taking on additional debt is often difficult or impossible. In addition, many businesses are unwilling to take on new debt for activities that are not central to their business.

We propose a series of financial products and structures to take on these challenges through a combination of approaches. These approaches are designed to build the deal flow necessary to test the OBR value proposition, to test the value of OBR, and (through a sub-pilot) to test a new approach to using an efficiency performance insurance product as an alternative to traditional utility M&V. These pilots will test the extent to which structuring on bill repayment overcomes traditional lending barriers and attracts large pools of low-cost and accessible private capital to energy efficiency markets.

We propose the follow pilots:

- An OBR pilot for small, medium and large business, available to fund any energy efficiency retrofit or, in some cases, renewable energy, distributed generation, storage

and similar resources. This pilot will use a credit enhancement to attract financial institutions that, in our view, would not otherwise participate in a new and untried OBR pilot. The pilot also proposes the use of an equipment lease origination structure for the small business sector.

- An insurance pilot designed to use third party performance guarantees as a pilot substitute for utility-based M&V processes.

6. Non Sector/Pilot-Specific Recommendations

These include:

- Retaining existing incentives for customers participating in a financing pilot,
- Marketing, education & outreach specifically for EE Finance targeted to IOU customers, potential financial institution participants, contractors and other key market players is a priority,
- Training for contractors who will use the new financing tools with the goal of using EE financing to close EE upgrade deals, and
- Continuing to use ratepayer funds for EE, while recognizing that many EE upgrades will not proceed without being accompanied by non-EE upgrades.

7. Recommended Budgets For Pilot Program

Pilot/area	Explanation	Elements*	Total*
Single Family	Credit Enhancement Line-item billing Middle Income targeted (determined thru RFP)	24.0 1.0 1.0	26.0
Multi-Family	Credit enhancement Audit/Tech Assistance Legal & Regulatory/Set-up costs	0.9 1.0 1.0	2.9
Non-Residential	Credit enhancement (small bus'n OBR) Credit enhancement (med/large bus'n)	14.0 7.0	21.0
Hub	Hub staffing, legal, IT and related Hub Master Servicer RFP and related	4.0 1.0	5.0
Marketing	Marketing budget for efficiency financing programs is essential, as well as contractor training, and a reasonable budget could range up to $20 million over the two-year period. It is unclear how much of this budget will be borne by ME&O (or WE&T) program	TBD	up to 20.0
Utility IT system upgrades	Utilities estimate their need to be from $4.5-8.5M but depends on final Decision's direction on program design	TBD	TBD
OBF per PD			123.2
RENs/MEA			TBD

These recommendations are submitted to Southern California Gas, on behalf of themselves, San Diego Gas & Electric, Southern California Edison and Pacific Gas and Electric from Harcourt Brown & Carey on behalf of the California Energy Efficiency Finance Project Team.

The views expressed are the authors' own.

CHAPTER 1
OVERVIEW

1. ENERGY EFFICIENCY FINANCING

Energy efficiency delivers a range of public and private benefits, and is nearly always the cheapest, quickest and cleanest energy option for Californians. But one of the key barriers to scaling up acquisition of energy efficiency is its up-front costs.

One key step to enabling this market is to develop broadly accessible and attractive EE financing options for California's electricity and natural gas consumers, as has been recognized by the California Public Utilities Commission (CPUC or Commission) and the state's investor-owned utilities. EE financing overcomes the "first cost" of efficiency upgrades toward the interrelated goals of:

- Increasing the use of energy efficiency products and services,
- Reaching a broader set of customers and market segments, and
- Encouraging investment in projects that will achieve deep energy savings.

The value of EE financing tools varies considerably across EE measures, market segments, and individual customers' financial profile.[3] Experience in California and around the country has demonstrated that innovative initiatives to deliver attractive financing can certainly be effective. But financing has limits and should not be regarded as a "silver bullet" for enabling all cost-effective EE in California.[4] In particular, the success of financing programs can often be more broadly attributed to well-designed packages of financing and incentives, targeted marketing strategies, and a highly trained contractor networks as a primary sales channel.

2. PROJECT BACKGROUND

In recognition of the potential for – and challenges to – delivering attractive EE financing, the CPUC and the investor-owned utilities (IOUs)[5] have pursued several EE finance initiatives over the years. The IOUs and CPUC bring several strengths to this arena, including EE expertise and commitment, an ongoing EE and billing relationship with California consumers, experience with on-bill finance for EE, access to a large quantity of inexpensive capital, and the ability to appropriately internalize benefits of EE (including earning on successful programs) and to distribute costs. The IOUs and CPUC also face limitations, including budgets for EE, limited experience and/or expertise on EE

[3] The customer's financial profile includes, among other things, their current access to capital for home, office or facility investments, their tolerance for new debt, and their credit ratings or scores.

[4] See "The Limits of Financing for Energy Efficiency", Merrian Borgeson, Mark Zimring, Charles Goldman, Lawrence Berkeley National Laboratory. 2012 ACEEE Summer Study on Energy Efficiency in Buildings, available here.

[5] Southern California Gas (SoCalGas), San Diego Gas & Electric (SDG&E), Pacific Gas and Electric (PG&E), and Southern California Edison (SCE).

financing (beyond on-bill financing) and on the amount of credit and other risk they are willing and able to bear.

The CPUC has provided direction to the IOUs on EE finance in various proceedings, but most notably in the course of reviewing the IOUs' Applications for approval of their 2013-2014 EE programs and budgets.[6] On May 18, 2012, the Commission issued Decision 12-05-015,[7] a "Guidance Decision" for the IOUs' 2013-2014 EE program applications that gave the IOUs specific direction regarding EE finance initiatives under the overarching principals of statewide uniformity, "keep it simple and fast",[8] and leveraging ratepayer funds by bringing in additional private capital. The Decision ordered, among other requirements, for the IOUs to:[9]

- Hire an "expert financing consultant" to design new pilot financing programs for 2013-2014 and to convene working groups on the new program design.[10]
- Propose EE Finance programs that include:[11]
    - continuation of on-bill financing programs for non-residential customers;
    - continuation of various federal American Recovery and Reinvestment Act-originated programs; and
    - new financing programs "to be designed in 2012, and then offered consistently on a statewide basis, in pilot form in 2013, and on a larger scale in 2014."
- Propose new financing programs for 2013 piloting and 2014full-scale offering (that will be presented by the expert financing consultant by the end of the third quarter of 2012 in a written program plan and a public workshop) that include:[12]
    - a credit enhancement strategy for the *single-family residential market*;
    - a financing program strategy designed specifically for the *multifamily residential market* that includes both credit enhancement and an on-bill repayment option and/or tariff-based energy efficiency improvement reimbursement mechanism;
    - a credit enhancement strategy for the *small business market*; and
    - a non-bill repayment strategy for *all non-residential customers* that "shall not require bill neutrality and shall allow for pro-rata allocation of payments between utility bill obligations and loan repayment."[13]
- Develop or contribute to a larger-scale database of financing-related data that can be shared publicly after appropriate confidentiality measures are taken.[14]

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[6] Links to the proceedings governing the applications of the four IOUs, and the CPUC's overarching "Order Instituting Rulemaking" for EE programs, can be found at www.caleefinance.com/resources.

[7] "Decision Providing Guidance on 2013-2014 Energy Efficiency Portfolios and 2012 Marketing, Education, and Outreach", Decision 12-05-015, May 10, 2012; available here.

[8] *Guidance Decision*, p. 118.

[9] See Appendix 1 for the complete text of the relevant Orders.

[10] *Guidance Decision*, OP 21.

[11] *Guidance Decision*, OP 22.

[12] *Guidance Decision*, OP 23.

[13] *Guidance Decision*, OP 24.

[14] *Guidance Decision*, OP 25.

On July 2, 2012 the IOUs submitted their EE proposals (the Bay Area and Southern California Regional Energy Networks and Marin Energy Authority filed theirs on July 16, 2012). On August 1, 2012 following a competitive procurement process, SoCalGas, on behalf of themselves and the other three IOUs, contracted with a Harcourt Brown & Carey Inc.-led project team to serve as the CPUC-directed expert financing consultants.

3. Project Activities

In recognition of the aggressive deadlines established by the Commission, the California EE Finance Project Team focused immediately on developing recommendations for the new pilot programs. (The October 2, 2012 deadline for the pilot proposals made it necessary to hold significant action on other important functions – namely contributing to the development of a finance-related database – until afterwards.) Key activities have included:

- Researching and analyzing EE financing activities within and beyond California,[15]
- Working with California EE stakeholders and others with expertise in EE finance and finance in general,
- Working with CPUC and IOU staff,
- Establishing a project website,
- Drafting proposals and other documents for stakeholder review,
- Holding stakeholder webinars to discuss the issues and potential approaches,[16]
- Issuing discussion drafts and pilot proposals; soliciting and receiving stakeholder comments and responses,[17]
- Facilitating the daylong Public Workshop on October 2, 2012,[18] and
- Revising pilot proposals based on input, research and analysis, and issuing final pilot proposals.

4. Upcoming Actions

On October 9, 2012, the Administrative Law Judge for the IOUs' EE applications issued a Proposed Decision on the IOU applications[19] that, in recognition of the timing of this work, proposes the following course of action: (See Appendix 3 for a summary of current and proposed programs.)

[15] Especially Oregon, New York, Michigan, Michigan, Connecticut, and multi-state WHEEL program.

[16] Webinars were held as follows: Non-Residential including Small Business, September 12; Single Family, Sept. 13; and Multi-Family, Sept. 14.

[17] One or more draft proposals for each of Single Family, Multifamily, Non-Residential, Small Business, and a "California EE Financing Hub" were put forward in September and/or early October; comments were submitted by stakeholders.

[18] Approximately 195 individuals participated in the Workshop.

[19] "[Proposed] Decision Approving 2013-2014 Energy Efficiency Programs and Budgets", October 9, 2012, available here. Pursuant to CPUC rules, the Commission will not vote on the *Proposed Decision* (or a revised version of it) before November 8, 2012. See Appendix 2 for the complete text of the relevant Orders.

- Several IOU and REN/MEA EE financing proposals are to be adopted and/or funded, including IOU on-bill financing proposals, ARRA-originated programs and others, while several REN proposals are denied;
- Several REN proposals are left unauthorized until "after the statewide financing consultant proposals are complete and further authorization is granted";[20]
- Approval to proceed with activities related to the EE finance pilot programs "is delegated to the Assigned Commissioner in this proceeding, who shall issue any rulings necessary to approve the final program designs."[21]
- Formal comments on the record will be sought on these recommendations and it is "expect[ed] that once comments are received and analyzed, an Assigned Commissioner's ruling will be issued detailing how pilot activities should proceed and on what timeframe. We expect that the pilots will be able to be launched in the first quarter of 2013."[22]

Simultaneous with the aforementioned activities, the IOUs and consulting Team will undertake the activities necessary to advance a database of financing-related data and information, pursuant to the requirements of the *Guidance Decision*.

[20] *Proposed Decision*, October 9, 2012, pp. 34, 41.

[21] *Proposed Decision*, October 9, 2012, p. 122.

[22] *Proposed Decision*, October 9, 2012, p. 99. Rulings and Decisions from the CPUC can be found on the CPUC website and the Project website.

CHAPTER 2
PROJECT APPROACH AND RECOMMENDATIONS

Summary

Several important principles emerge from our experience with EE Finance around the country and the input of experts and stakeholders:

* Contractors are central for success
* Increasing deal flow is an early priority
* Two different "worlds" need to interact productively
* The role of existing financing tools should not be neglected
* Consistency and compatibility through development of guidelines is very valuable
* These efforts should be developed as pilots and not fully scaled programs
* Other EE programs maintain an essential role, and integration with them is important
* Infrastructure that can scale and enable the market is needed

Detailed recommendations for the EE financing pilots are organized (in subsequent chapters) by market sector; non sector-specific recommendations include:

* Existing Incentives should be retained for customers participating in a financing pilot,
* Marketing, education & outreach specifically for EE Finance targeted to IOU customers, potential financial institution participants, contractors and other key market players is a priority,
* Contractors will need direct training on the new financing tools with the goal of using EE financing to close EE upgrade deals, and
* Use of ratepayer EE funds for EE must be maintained, while recognizing that many EE upgrades will not proceed without being accompanied by non-EE upgrades.

1. PROJECT APPROACH

Based upon the Project Team's experience with EE Finance around the country coupled with the input of other experts and stakeholders, the Project Team has established several important principles and themes.

Contractors are central for success

Energy consumers generally do not actively pursue EE projects and even less frequently seek EE project financing. Energy efficiency is typically "sold" not "bought" and contractors/ESCos do the bulk of the selling. Therefore, it is essential to focus on the role of contractors in developing EE finance projects, and to maximize program design features that will help contractors close a greater number of more comprehensive projects. The CPUC's "make it

simple and fast (and easy)" guidance is reflected in this contractor-centric approach. Some recommended features that embody this principle are:

- Establish a single statewide process platform that is consistent for utilities, contractors and financial institutions across utility (and REN) territories;
- In the single family sector, to the extent possible, allow the contractor to control the loan process and document flow (e.g. carry the paperwork, call on the consumer) so that it assists in their normal sales cycle;
- Provide short turnaround on underwriting "decisions";
- Pay contractors for completed projects quickly (within days, not weeks).

Increasing deal flow is an early priority

The attractiveness of EE financing to financial institutions (FIs) and lenders, contractors and other market participants is based upon numerous factors but none more than an adequate, growing and predictable volume of deals. Rising demand for energy efficiency financing will provide a significant signal for investment into products and services. Thus, EE finance pilot programs should place an emphasis on deal flow during the pilot period. This means that in addition to offering new financing products, program administrators will need to invest smartly into reducing the transaction costs of existing programs, marketing strategies, promotions and infrastructure development that enable multiple market participants to drive demand for energy efficiency products and services that can be unlocked with financing.

Two different "worlds" need to interact productively

By definition, EE financing efforts are the intersection of the EE/utility/regulator world(s), and the finance/consumer lending/business lending world(s). This requires recognition of and response to, very different needs – such as the balance between speed (FIs, contractors, end users) and analytic precision (IOUs, CPUC), or the difference between fixed geographic territories (IOUs, RENs, some FIs) and open-ended geography (most FIs, contractors).

The role of existing financing tools should not be neglected

We believe a range of traditional (i.e. mortgages, consumer loans)and novel financing tools will be critical to serving this arena's diverse needs. Today, there is a major overarching problem: EE's benefits are not systemically or fundamentally being valued through traditional asset valuation and loan underwriting techniques, despite emerging evidence that EE improves a property's value and makes it more resilient.[23] This means that capital is not being efficiently delivered to this space and access is neither broad enough nor targeted enough. Most traditional financial products available to homeowners, businesses and institutions do not recognize the unique values of EE. A lack of predictable data and experience prohibit most financial investors from comfortably valuing the cash flow and property value increases from energy efficiency into their product underwriting and pricing. This results in customers having to leverage capital for financing EE through cash flow from other sources, general credit history, real property and balance sheet equity. This also means that EE must compete with other

[23] See for example, "The Value of Green Labels in the California Housing Market: An Economic Analysis of the Impact of Green Labeling on the Sales Price of a Home", Neils Kok and Matthew E. Kahn, July 2012, available here.

household, business or institution demand for limited capital access and that the price of this capital often discourages consumers from using it at all or from pursuing large, deep efficiency improvements that require low rates and long terms to be attractive, as well as convenience to be consumer-friendly.

Innovation around financing for energy efficiency will target the unique benefits of efficiency as a means to offering tailored financial products. The IOUs have an opportunity to reduce the uncertainty and predictably of these benefits through OBR mechanisms, QA/QC processes, cash credit enhancements and robust statewide and normalized data management.

Consistency and compatibility through development of guidelines is very valuable

Nearly all market players value consistency and the ability to avoid varying procedures and requirements. For example, in an on-bill repayment regime IOUs need participating lenders to provide customer loan data in a consistent and compatible format; similarly lenders do not want to provide loan data differently for each utility (particularly if the OBR spreads beyond the four IOUs). This need is made greater by rules (some of which are not yet developed) concerning data privacy. Reducing the "friction" felt by contractors and lenders that result from program processes varying across utility territories (and now, for some programs, REN territories) is a real opportunity to creating and scaling a robust market for energy efficiency financing.

These efforts will first be pilots

These recommendations strive to describe EE finance programs that will work for Californians – however, as pilots, they have an element of experimentation and innovation to them by design.

- We have identified for each pilot key features and functions, as well as what we are trying to test and learn.
- It is neither feasible nor desirable to describe in this report every element of each pilot program, never mind every step that needs to be taken to get the pilots up and running – many of these details will be a function of the entity(ies) that perform key roles in the pilots.
- Additionally, we note that the pilots may need to be altered to reflect the role of RENs in EE financing after that has been finalized by the CPUC.

An essential role of these pilot programs is to help build the data set needed to demonstrate the EE value proposition (and ultimately to get it reflected in property values and underwriting terms) while also experimenting with novel security that may be particularly effective at both aligning customer financing repayment with receiving the benefits of the improvements and overcome transactions costs around long-lived measures (e.g. property transfer). Over time, we expect that this data set, analysis and successful experiments with alternative security and the integration of financing into existing service delivery (to reduce the number of decisions a customer has to make) will reduce the need for credit enhancement.

Other EE programs maintain an essential role, and integration with them is important

The benefits of energy efficiency are so broad and profound, and the impediments to its use so widespread, that no single policy or programmatic intervention – including EE finance

initiatives – can adequately bring to bear all worthwhile EE. This report recommends a suite of innovative approaches to EE finance that are designed for California's needs and market conditions – but even if they are as successful as can be hoped for, they cannot do the job single handedly. California, the federal government, and many other parties will need to continue to provide other interventions – including financial incentives in recognition of EE's public benefit, technical assistance, codes and standards, research and development, public education and labeling – that are necessary for EE and work hand-in-glove with EE finance.

On a related point, we believe it essential that the pilots be designed to integrate into existing EE programs and capacities to the extent possible. Due to the value of EE-wide (if not DSM-wide) integration and the aggressive timeframe for pilot implementation, the pilots should not start from scratch or build parallel participation and project approval processes.

Infrastructure that can scale and enable the market is needed

Very importantly, we believe there is an excellent opportunity to fulfill many of these principles through the proper construction of centralized infrastructure during the pilot period that can continue to scale the market for energy efficiency finance in 2015 and beyond. This infrastructure can provide standard processes and transparent information needed for any market to emerge and thrive. Furthermore, this infrastructure has the potential to be made available to organizations beyond the IOUs, such as RENs, POUs and others on a fee-for-service basis leading to additional deployment of efficiency and clean energy for California, and a faster recovery of IOU ratepayer capital.

2. Recommendations for Energy Efficiency Financing Pilots

Detailed recommendations for the market-specific pilot programs (as well as a new California EE Financing Hub) are found in the following chapters. A table summarizing these recommendations follows.

Additionally, the Project Team makes several recommendations that apply to all market sectors, including the following:

A. Existing Incentives. While we appreciate that one goal of financing may be to test the extent to which it can better deliver EE than more traditional approaches, we strongly recommend that existing EE incentives not be reduced for customers participating in the financing pilots. A top priority for the pilots is to ramp up EE financing deal flow.[24] After the pilot period, we believe that programs can experiment with the extent to which financing may enable a reduction in direct incentives without significant sacrifices to EE resource acquisition, deal flow or project depth.

B. ME&O and training. Marketing, education and outreach (ME&O) targeted to EE Finance is needed for IOU customers, potential FI participants, and other key market players. While it is important to keep an eye on the fact that we are, ultimately, trying to drive demand for energy

[24] Beyond the core reason of EE acquisition, ramping up deal flow builds a data set, encourages finance institution participation and innovation, and to supports the contractor workforce.

efficiency – not EE financing per se – targeted ME&O to inform stakeholders about the pilots and how to participate in them will be essential given the short time horizon to pilot launch and performance.

In addition, contractors will need direct training on how to integrate EE financing into their service delivery approaches, how the EE Financing pilots will operate, and what steps they need to take to participate. This training is critical, in terms of both generating deal flow and ensuring that contractors are accurately characterizing the financing products available to customers during the pilot period. We recommend that funds be specifically budgeted for this effort, and have allowed for such funding in our marketing budget estimate. The IOUs should advance this work (in coordination with the statewide ME&O and workforce education and training programs).

C. Eligible Measures for EE Financing. The Commission and utilities have in recent years explored opportunities to integrate energy efficiency with other demand-side resources, while seeing that EE funds are used for efficiency. Recognizing the likely perspective of many end users, contractors and financial institutions, the Guidance Decision[25] notes "[F]inancing offerings need not be limited to energy efficiency, and can support all types of demand-side investments, including energy efficiency, demand response, distributed generation, and storage." The recommendations contained herein are designed to maintain the use of EE funds for energy efficiency while recognizing that many EE upgrades will not proceed without being accompanied by non-EE upgrades. In particular, we recommended a very "conservative" approach for financing elements that have significant EE ratepayer funding, e.g. 0% OBF, or OBR with (ratepayer-provided) credit enhancement, and a conservative, but less so, path for those that do not, e.g. OBR without credit enhancement.

[25] Guidance Decision, page 107.

SUMMARY OF RECOMMENDATIONS FOR EE FINANCING PILOT PROGRAMS							
Market Sector	**Program**	**Pilot/ Sub-Pilot**	**Rec'mended Funding Level**	**Description**	**What Pilot is Testing**	**Credit Enhance-ment**	**Credit Enhancement Justification**
Single Family	WHEEL	Pilot	$24 million (total for WHEEL and local lending products)	Unsecured loan product leveraging secondary markets' capital	Attractiveness of mid-interest rate dealer loans, Opening capital markets to residential EE financing	Subordin-ate Debt	Required to offer WHEEL in CA
	Local Lending Products	Pilot		Range of loan products leveraging local capital	Attractiveness of low-interest direct loans, Ability of local lenders to deliver capital across broad geographies	Loan Loss Reserve	Required to continue access to local capital sources
	Line Item Billing	Sub-Pilot	$1 million	OBR without bill-related loan security; funding used for program set-up costs	Attractiveness of repaying loan on bill and its impact on loan performance	N/A	N/A
	Middle Income Targeted	Sub-Pilot	$1 million	Effort to expand access to capital and EE	Extent responsibly expanded access to capital for middle income households increases EE uptake	TBD by RFP	Credit enhancement beyond available for WHEEL/ local prod-ucts may be necessary to bring in private capital providers
Multi-family	On Bill Repayment	Pilot	$2.9 million	OBR w/o shut-off for master-metered affordable housing properties	Attractiveness of EE financing secured by the meter not property to building owners & lenders	DSRF	DSRF protects building owners & tenants from failure to meet debt service payments projected on the basis of energy cost savings
Non-Residen-tial	On Bill Repayment	Pilot	$21 million	OBR for projects not qualifying for OBF	Ability to complement OBF offerings with 3rd party capital & more flexible measure eligibility	Loss Re-serve or Subordin-ate Debt	Need to generate deal flow, given uncertain OBR benefits and performance
	Insurance-based M&V	Sub-Pilot	N/A	Third-party energy savings insurance replaces traditional IOU M&V	Attractiveness & accuracy of insurance in delivering verified energy savings in a more streamlined manner	N/A	N/A

3. BUDGET RECOMMENDATIONS

Recommended funding levels, and their rationale, are found in subsequent chapters on the pilots. A summary follows.

Pilot/area	Explanation	Elements*	Total*
Single Family	Credit Enhancement Line-item billing Middle Income targeted (determined thru RFP)	24.0 1.0 1.0	26.0
Multi-Family	Credit enhancement Audit/Tech Assistance Legal & Regulatory/Set-up costs	0.9 1.0 1.0	2.9
Non-Residential	Credit enhancement (small bus'n OBR) Credit enhancement (med/large bus'n)	14.0 7.0	21.0
Hub	Hub staffing, legal, IT and related Hub Master Servicer RFP and related	4.0 1.0	5.0
Marketing	Marketing budget for efficiency financing programs is essential, as well as contractor training, and a reasonable budget could range up to $20 million over the two-year period. It is unclear how much of this budget will be borne by ME&O (or WE&T) program	TBD	up to 20.0
Utility IT system upgrades	Utilities estimate their need to be from $4.5-8.5M but depends on final Decision's direction on program design	TBD	TBD
OBF per PD			123.2
RENs/MEA			TBD

* $ million over 2013-2014 period

CHAPTER 3
CALIFORNIA EE FINANCING HUB PILOT PROPOSAL

Summary

The proposed "California EE Finance Hub" is designed to increase the flow of capital to energy efficiency projects.

The Hub will accomplish this by providing a simple, streamlined structure through which energy users, financial institutions, energy efficiency providers and utilities can participate in a standardized "open market" that facilitates energy efficiency financing in California. The Hub is designed to act as an enabling institution to allow for the easy flow of information and data among utilities, financial institutions, the CPUC and others. The Hub is also designed to facilitate a transparent process for allocating credit enhancements, managing cash flows for OBR, and in limited cases, promoting development of contractor and customer-facing lease origination processes.

The existence of the Hub and the transparent market it creates, will allow the contracting community to understand the scope and breadth of the energy efficiency opportunity and provide clear guidelines on how to participate. And the resulting increase in project activity, the credit enhancements and the uniformity provided by the Hub will give capital providers the assurances they need that the energy efficiency market has the volume, data and risk management tools they need to invest. Finally, the Hub will enable a streamlined way for utilities to manage capital flows through OBR while also providing mechanisms for appropriate levels of data collection for multiple audiences.

In addition to a description of key Hub functionality, this report lays out options for Hub governance.

Proposed budget: $5 million

1. INTRODUCTION AND GOALS

The Project Team has carefully reviewed the fundamental requirements to develop statewide financing pilots that closely combine utility collections processes, utility ratepayer capital and financial institution capital. This marriage of new functions and capital may change the way that utility ratepayer funds are leveraged to deliver energy efficiency upgrades, and has the potential to bring large amounts of capital to California for energy efficiency projects. However, we recognize that bringing together functions that have not previously been integrated with one another requires a new approach.

Participants in the February 2012 CPUC Financing Workshop made clear that some level of statewide centralization of core functions is essential to the implementation of the financing pilots. The approach that we propose is embodied in the creation of a California Energy Efficiency Finance

Hub. The Hub is an information technology (IT)-driven platform designed to support the core processes and functions that make on bill repayment (OBR) and other means of attracting private capital to energy efficiency possible.[26] The goals and responsibilities of the Hub are to ensure:

1. proper and approved use of utility ratepayer funds
2. compliance with applicable financial regulations
3. robust mechanisms for data transfer
4. reliable and fast mechanisms for cash management
5. clear, consistent and streamlined processes for customers, contractors, utilities and financial institutions
6. a means to make programmatic adjustments in real time and
7. delivery of all of this in a cost effective and streamlined manner.

The Hub will support multiple energy efficiency service delivery models and financial products now, while maintaining the flexibility to support innovative models in the future.

2. HUB FUNCTIONS

We propose that the Hub initially be limited to a series of core functions because we recognize the CPUC's priority on rapid implementation, and believe that certain non-critical complementary functions may have a lead time that make them impossible to launch in the first quarter of 2013.

This section describes these core functions,[27] as well as roles and responsibilities of entities delivering various elements of the Hub.

A. Hub Manager

The Hub Manager will be tasked with a range of critical responsibilities necessary to design and implement the financing pilots including:

1. Competitive solicitation, through the administration of RFPs that may be issued, including for (but not limited to):
    a. A master servicer
    b. A lease originator
    c. An ongoing financial technical assistance/advisory services provider
2. Development of procedures for various Hub responsibilities:
    a. For all financing types:
        i. Approval of forms and protocols for data transfer between utilities and financial institutions, as proposed by master servicer
        ii. Development of service level agreements

[26] Eventually the Hub should be able to serve the needs of not only IOUs and their customers but also California's publically owned utilities and their customers, the Regional Energy Networks and potentially others.

[27] Some of these functions cross each of the major market sectors (residential, multi-family, small non-residential). Others are specific to certain market sectors.

b. For on bill repayment and line item billing if adopted:[28]
    i. Approve placement of financing on the utility bill
    ii. Reconcile utility service disconnection procedures with those of financial institutions
    iii. Manage, with master servicer input, a process for transmitting information about payments, accounts, disconnection between utilities and financial institutions
3. Coordination with multiple stakeholders including the CPUC, investor owned utilities, third party program implementers, contractors and others.
4. Formulation of standards for approving financial institutions for pilot participation and objective evaluation of financial institution qualifications.
    a. We do not propose specific qualification standards in this document, but instead note that we will work with appropriate parties in the coming weeks to establish such qualification standards, based on Fannie Mae, housing authority or other well-established protocols.
5. With master servicer input, promulgation of protocols, in coordination with CPUC and data working group, and based on utility or standard financial industry practice, for collection of energy project, customer energy use, and borrower financial data, and for sharing such data, including protocols for providing third party access to aggregated, anonymous data.
6. Develop reports on pilot progress for program sponsors and stakeholders.
7. Implement and enforce approved changes to policies/rules for pilot programs.
8. Coordinate with existing customer and contractor-facing tools such as Energy Upgrade California.

B. Master Servicer

The master servicer will conduct at least the following major functions:

For all market sectors and functions:

1. Receive notification from participating originators immediately (electronically) upon closing of any financial product.[29]
2. Set up a financial product master file according to criteria provided by the Hub manager. Such criteria will include such elements as borrower name, address, financial product amount, interest rate, maturity, borrower credit information, relevant energy project information.
3. Develop and update financial product servicing data files to be maintained through the life of the financial product.

[28] Line item billing refers to the collection of financing payments through the utility bill. It does not entail either shut-off for failure to pay or pari passu allocation of partial payments. We describe a line item billing sub-pilot for the single family residential market in the single family recommendations, subject to legal and regulatory review.

[29] We use financial product as a general term covering loans, leases, tariffs and other forms of energy improvement financing.

4. Maintain internal procedures to assure integrity and accuracy of data.
5. Manage all data in a secure database.
6. Generate monthly reports on pilot programs and/or financial institutions at direction of Hub manager.
7. Report on financial product data in a uniform manner.
8. Report monthly on status of credit enhancement funds in reserve and disbursed, including any gains or losses.
9. Hold and then conduct disbursement of credit enhancement funds for eligible projects to participating financial institutions.
10. Develop data fields, standardized forms and protocols for data collection and transfer from pilot programs and/or financial institutions.
11. Provide third party access to data (to the extent dictated by Hub Manager protocols).

For on bill repayment and line item billing functions only:

1. Receive data from financial product originator detailing all financial product origination characteristics.
2. Calculate financial product payment, based on such data.
3. Provide financial product amount to be placed on utility bill.
4. Transmit data electronically to utility for placement on utility bill.
5. Receive payments from utility.
6. Remit payments to proper financial institution.
7. Reconcile delinquent payments or defaulted financial products.
8. Notify utility of delinquent financial products in order to coordinate with utility on first-stage utility notification of customer with delinquency.
9. Notify utility of need to begin disconnection procedures, where applicable.
10. Monitor payments received, if any, after disconnection, receive such payments, and distribute to financial institutions.

C. Lease Originators

The Team's recommendations for the non-residential sector include the deployment of a small business-focused equipment lease model specifically designed for energy efficiency.[30] We recommend that up to four lease originators be selected to conduct intake, financial underwriting, servicing and investor management for all qualifying projects during the pilot period. We recommend this approach for the following reasons.

- OBR is an untried collection mechanism, and will require an upfront investment of time from any lease company to figure out how to integrate this new mechanism into its existing processes. We believe that selecting a limited number of lease companies can foster competition and ensure statewide financing availability during the pilot period.

[30] As described in the Non-Residential chapter, this model relies on lease companies to originate leases and sell those leases to investors.

Developing and implementing a credit enhancement structure – also a new concept for many outside investors – will require substantial negotiations.

- Selection of more than a single lease company should also provide a larger and more robust network of contractors and lease investors to participate in the program.
- Selection of a limited number of lease companies should provide a balance of giving these lease companies enough volume to justify responding to the RFP and the infrastructure/investor set up time.
- We believe that beginning the pilot with a limited number of lease companies will also allow for better quality control and will significantly decrease the time required to implement the pilot and simplify the process for operating the initiative.
- As an option for future consideration, but not for initial launch, we recommend consideration of the use of these lease companies' intake infrastructure for all non-residential OBR lease and OBF project applications. The lease originator could collect complete application data, and to forward that application to the utility for project level review. At the conclusion of project level review and allocation of rebate funds by the utility or utilities, the lease originator will conduct financial underwrite.

D. Coordination with ARRA Continuation and REN Programs

We suggest that, subject to Commission approval of the REN programs, the Hub also serve the roles described in this document for those programs. We believe that the coordination that will result from this integrated structure will be valuable in meeting the goals of overall statewide program consistency and data collection.

E. Ongoing Financial Technical Assistance/Advisory Services Provider

We suggest that the Hub manager will require an ongoing technical advisory service to assist in monitoring and development of financial products, to assist in review of financing pilots, and to assist in overall strategic direction.

F. Additional Longer Term Functionality

Once the Hub's core functionality is fully operation, we recommend that complementary functionality be considered. This additional functionality may include (but is not limited to):

Front End Tools. We are entering an era in which contractor and customer access to software platforms and services can revolutionize the way in which energy efficiency is delivered. The Hub may support a range of tools that enable contractors and vendors to better integrate financing into their sales processes. These tools can help to reduce customer and contractor transaction costs (i.e. cognitive overload) by transitioning financing towards an integrated and streamlined purchasing and financing decision like that which has emerged in renewable energy offerings (e.g. solar leases) over the past several years. Rather than developing a single tool, we recommend that the Hub Manager, consider issuance of an RFP for the development of an application programming interface (API) that enables private sector firms to innovate around the best way to leverage the state's financing offerings to complement their evolving service delivery platforms.

Centralization. The Hub may also examine different levels of centralization over time, for instance provision of IT infrastructure to allow customers to select from and connect to different lenders, or other similar customer facing structures.

Contractor Qualification: The Hub may in the future develop functionality to conduct contractor qualification, monitoring and certification (this can be conducted internally or through a sub-contractor).

At this stage in the process, we raise these as options to consider in the future, based on an assessment of needs at the time.

3. HUB MANAGEMENT, GOVERNANCE AND OVERSIGHT

This section covers options for entities to manage the Hub, and the governance and oversight functions to ensure the selected entity responsibly stewards utility ratepayer monies. Rather than recommendations, this section offers a set of potential options. Their feasibility and attractiveness necessitates additional stakeholder feedback and CPUC guidance. We propose that the Hub be launched in two phases: one, an immediate phase to let and award RFPs, and, two, a second phase that incorporates a more permanent governance structure.

A. Phase 1

In order to meet the aggressive timelines laid out by the Commission for launch of the pilots we suggest that a single IOU be tasked with issuing and awarding RFPs that are required to launch the pilot programs. These would include, at a minimum, the Master Servicer RFP and the lease originator RFP.

B. Phase 2

We believe that several types of organizations with statewide coverage (or the capacity to assume statewide coverage) may be positioned to carry out the key functions of the Hub Manager. These include:

- State or quasi-state agencies such as entities managed under the State Treasurer's office acting through CAEATFA
- Utilities
- New or existing not-for-profit organizations
- For-profit entities

There are pros and cons to each of these types of organizations assuming the Hub Manager role – and different governance and oversight structures will be appropriate for each.

The pilot period Hub Manager may or may not represent the ideal long term steward of the energy efficiency financing programs, and contracts should be structured to reflect this. During the pilot period we recommend that the CPUC prioritize the following characteristics in its selection of a Hub Manager:

- Capacity to rapidly implement the pilots and perform all key functions described in Sec. 1;

- Expertise in both energy efficiency and financing across a range of sectors;
- Demonstrated flexibility and tactical decisionmaking in adjusting programs to reflect on-the-ground developments; and
- Transparency as to governance and use of ratepayer funds.

We have explored several avenues for the Hub Manager, particularly in the long term. Additional analysis and negotiation will be necessary to make a final recommendation, but we have determined that CAEATFA may be uniquely positioned to fulfill this role. CAEATFA provides the following features:

- CAEATFA's board includes the CPUC President and the CEC Chair and CAEATFA has knowledge and understanding of energy efficiency lending through its existing credit enhancement program (AB x1 14)
- CAEATFA is a part of the State Treasurer's office, which has significant experience with an knowledge of master servicer functions as well as other financial institution-related issues.
- As a government entity, CAEATFA has a public rulemaking and governance structure, and CAEATFA has a degree of flexibility that is greater than many state government agencies in terms of emergency rulemaking.
- CAEATFA works with not only IOUs but also other utilities in California.
- Based on Treasury's preliminary review, the functions of the Hub fall within CAEATFA's authority.

We also recognize that CAEATFA is not well staffed to support the running of a Hub at the moment, and staffing issues would be important to address. Such issues would need to be addressed through more detailed discussions between the CPUC and Treasury.

Finally, we recognize that the ongoing role of the IOUs in Hub Management needs to be better defined. As described above, we believe that the IOUs should be tasked with letting an RFP in order to establish initial Hub functionality. IOUs, or more likely an IOU, may be an appropriate interim Hub manager if a final Hub Manager is not established at the time of the program launch.

4. BUDGET

As laid out below, the Hub budget is divided largely among a set of RFPs and certain internal Hub functionality.

We believe there are two necessary budget components to building and managing a successful Hub during the 2013 – 2014 pilot period.

- Contracting a private sector 3rd party Master Servicer to build out the critical infrastructure needed to support standardized transactions and managing consistent data across all IOU territories.
- Ongoing administration, management and infrastructure design improvements during the pilot period.

Estimating each of these cost categories is a difficult exercise at this stage in the process, however our review, based on discussions with potential master servicer entities and our experience with similar activities elsewhere is below.

Budget for building the Hub 2013 & 2014 Pilot Period	
Contract for Master Servicer	$ 1,000,000
Bi-annual Administration Budget	$ 4,000,000
Total	$ 5,000,000
Estimated Deal Flow during Pilot Period	$ 250,000,000
HUB Cost as % of Total EE Transactions	2.0%

A smartly built and well functioning Hub infrastructure is essential to meeting program design recommendations and to scaling up energy efficiency across California. It therefore deserves adequate resources to establish it.

Another reference point and benchmark for this budget estimate would be to compare the cost of building and administering the Hub to the overall deal flow anticipated to occur through it. A rough estimate of deal flow based on a conservative average "leverage" ratio of 5:1 across the credit enhancements across all program sectors is approximately $250 million. (This does not include the ~$100 million of OBF projects.) This percentage is offered in the budget table.

We also note that one element of the Hub budget that must be addressed in greater detail is a fee structure for participating financial institutions. We believe that the participating financial institutions should be required to pay a fee to cover a part of the Hub costs, including access to the utility billing systems. (This fee would presumably be recovered by the financial institutions through a spread that they may charge their customers.) We recommend deferring detailed decisions on this fee structure until immediately after a CPUC authorization of the Hub.

CHAPTER 4
SINGLE FAMILY EE FINANCING PILOT PROPOSAL

Summary

Energy efficiency financing in the single family sector needs to provide a trusted, one-stop solution with attractive rates and terms for consumers and a simple process with quick payments for contractors. The Project team proposes two "contractor-centric" programs:

1. A "Dealer" Loan Program using the Warehouse for EE Loans (WHEEL)
   * Contractors provide financing directly to ratepayers
   * Contractors are certified and managed by a finance company
   * Loans are sold to the WHEEL fund to be securitized for sale to the capital markets
   * Utilities provide subordinate capital to support the fund and lower interest rates
2. A "Direct" Loan Program, with a loan loss reserve
   * Ratepayers seek loans from local lenders or through referral from contractors
   * Local lenders originate the loans
   * Utilities provides a loan loss reserve to local lenders to reduce interest rates

These two pilots will compare the ability of dealer loans and direct loans to optimize the EE acquisition process and to build volume of EE investments and we recommend both be piloted.

Two additional sub-pilots are recommended: (1) Line item billing (pending resolution of regulatory challenges) and (2) Expanding access to credit in moderate income markets.

Proposed budget: $26 million over two years.

1. SUMMARY OF RECOMMENDATIONS

For the single family residential sector, we recommend two financing pilots that we believe can be rapidly implemented – and available statewide – during the first quarter of 2013. Specifically, these are:

1. WHEEL loans supported by utility ratepayer subordinated debt
2. Local lending products supported by utility ratepayer loan loss reserve

We recommend that both pilots be funded, and believe that this two pilot approach will support a competitive marketplace in which multiple financial products using both local and national capital are leveraged to deliver contractors and customers attractive and accessible financing tools. Each program differs from the other in important ways – capital provider, loan type (i.e. dealer versus direct), interest rate and term. In the end, contractors and customers will indicate through their uptake of the different loan products which of these structures is best suited to scaling up the energy efficiency finance marketplace. Our recommendation sets certain baseline requirements

and infrastructure without pre-selecting a financing tool as a pre-determined "best" approach for California.

We recommend that two additional sub-pilots be implemented at more limited scale (and with limited ratepayer funding) during the 2013-2014 program cycle:

1. Line Item Billing (pending resolution of regulatory challenges)
2. Middle Income Targeted

These sub-pilots will test important program approaches and elements, and we recommend with equal priority that they both be funded. We anticipate each will require more set up time, be implemented at more limited scale, and require smaller budget allocation than is required for the larger pilots. We recommend that they be implemented at the local or regional level with likely launch in the second half of 2013.

SINGLE FAMILY RESIDENTIAL PILOT RECOMMENDATIONS				
Program	**WHEEL**	**Local Lending Products**	**Line Item Billing**	**Middle Income Targeted**
Pilot/Sub-Pilot	Pilot	Pilot	Sub-Pilot	Sub-Pilot
Recommended Funding Level	$24 million*		$1 million	$1 million
Description	Unsecured dealer loan product leveraging secondary markets capital	Range of loan products leveraging local capital	On-utility bill loan repayment; no bill-related loan security	Effort to expand access to capital and energy efficiency
What Pilot is Testing	Attractiveness of mid-interest rate dealer loans, Opening capital markets to residential EE financing	Attractiveness of low-interest rate direct loans, Ability of local lenders to deliver capital across broad geographies	Attractiveness of repaying loan on bill and its impact on loan performance	Extent to which responsibly expanded access to capital for middle income households increases EE uptake
Credit Enhancement	Subordinate Debt	Loan Loss Reserve	N/A	$1 million
Credit Enhancement Justification	Required if to offer WHEEL in CA	CPUC guidance	N/A	Credit enhancement beyond what is available for WHEEL/local products may be necessary to bring in private capital providers

*We recommend $24 million be made available to support WHEEL and local lending products in total. For more details on our recommendation for the distribution of this credit enhancement, see Section 6: Credit Enhancement below.

2. INTRODUCTION

A. Guidance Decision & Policy Context

The CPUC's May 2012 Guidance Decision (D. 12-05-015) on 2013-2014 energy efficiency portfolios provides direction on the criteria that successful financing pilots should meet. This guidance instructs the utilities and their consultant to design, pilot and scale a credit enhancement strategy for the single family market in 2013 and 2014 to entice financial institutions to reduce interest rates for qualified borrowers and/or extend credit to lower credit score applicants.[31]The CPUC decision expresses timing concerns about an on-bill repayment (OBR) pilot. While the guidance does not prohibit utilities from implementing OBR in the single family market, it does not require OBR. Today, legal and regulatory challenges prevent us from recommending that OBR be advanced at any large scale in the single family market.

B. Single Family Market Sizing

California has approximately 8 million single-family residences that constitute the universe of potential participants in an energy efficiency finance pilot. We divide the single family market in two major segments, the reactive and proactive markets (See Table 1). Existing reactive programs have had limited success incorporating additional efficiency measures into reactive programs,[32] but we believe that program incentives coupled with making these projects eligible for the below market-rate financing available through the pilots will serve two goals:

- Increasing the volume of energy efficiency financing to attract capital providers and new market participants;
- Providing a new pathway to energy efficiency for customers and contractors that is aligned with existing streams of commerce.

We estimate that the likely annual reactive and proactive financing need that could be met by program-sponsored financing tools in California once the pilots are operating at full capacity is between $20 and $80 million (see below).

[31]The CPUC included illustrative program features: interest rates around 7% for most borrowers with credit scores of 600 or more and terms up to 15 years for major energy efficiency actions (possibly longer for solar). The CPUC also mentioned that one possibility would be for California Alternative Energy and Alternative Transportation Finance Authority (CAEATFA) to administer a credit enhancement program.

[32] In Pennsylvania's Keystone HELP program, for example, just 10% of projects involve multiple energy efficiency measures.

Customer Type	Description	Annual Financing Need[33]
Reactive Equipment Replacement (including at least three qualifying EE measures)	Households seeking to replace major equipment (e.g. hot water heater, furnace, HVAC) that has failed or is at the end of its useful life.	~$15-$35 million annually
Proactive Equipment Replacement and Multi-Measure Energy Improvement	Households without an immediate replacement need seeking home energy improvements to achieve a range of goals.	~$5-45 million annually
Total Likely Financing Need		~$40-$160 million over 2 year pilot period

Estimate of Annual California Single Family Residential Financing Need by Customer Type

3. What We Are Testing

These programs are designed to test several key questions, including:

- ✓ How responsive are consumers to interest rate differences, and how do interest rates, as opposed to streamlined process or more contractor-centric delivery models affect consumer demand?
- ✓ What lenders, investors and financial institutions are in the best position to serve the single family market with consumer loan products at scale?
- ✓ Does financing enable deeper retrofits of homes?
- ✓ Does responsibly expanded access to capital for middle income households increase EE uptake?
- ✓ If a line item billing pilot is pursued, how attractiveness is it to customers and how does it impact loan repayment trends?

4. Pilot 1 Recommendation: Warehouse for Energy Efficiency Loans (WHEEL)

We recommend that ratepayer funds be used as subordinate debt[34] to make the Warehouse for Energy Efficiency Loans (WHEEL) model available in California during the pilot period.[35] WHEEL is

[33]We have included, for Commission staff, with this report the model and assumptions we used to generate this estimate.

[34]Subordinate debt is a form of credit enhancement. Unlike the more common loan loss reserve in which funds sit in an escrow account and are tapped in the event that loans default, subordinate debt funds part of a loan (or, more commonly, part of a loan pool) and simply absorbs first losses in the event of defaults in the pool. Advantages/disadvantages of subordinate debt are discussed later in this section.

a new structure being developed by a consortium of public, private and non-profit organizations with the goal of developing a robust secondary capital market for unsecured residential energy efficiency loans. WHEEL features:

- Capital available from a national capital provider across broad geographies through one or more centralized originators and servicers;
- Dealer loans offered, a feature that minimizes financing transaction costs and has been proven to generate loan volume;
- No customer fees and no additional program administrator costs beyond credit enhancement.

One or more finance companies[36] would participate in the program. They would certify and authorize contractors to originate retail installment contracts ("dealer loans") at the borrower's home, for assignment back to the finance company. The contractors, participating in various efficiency programs such as EUC, would be contractually obligated to work to installation and process guidelines and to indemnify the finance company. The finance company would underwrite applicants and take assignment of loans, which in turn would be sold to WHEEL, with servicing retained by the finance company. The finance company would comply with origination and servicing guidelines provided by WHEEL and indemnify WHEEL. WHEEL's senior capital provider is a money center bank (Citibank) and the subordinated debt stake is funded with ratepayer monies. The goal of WHEEL is to re-fund this warehouse facility by selling pooled loans as a rated security to capital market investors.

The various risks are mitigated by contracts among the three parties that set out obligations and establish representations, warranties and remedies. Arguably, the dealer loan process is lower risk as the contractors are contractually obligated to and managed by the finance company. The contractor is not managed or contractually obligated to the lender in direct lending, conversely, if a relationship exists between the lender and the contractor, in direct lending, the lender is not protected by the "Holder Rule" which preserves the right of the borrower, upon asserting a claim of defense, to stop payment on the loan.

The WHEEL/dealer loan model is illustrated below.

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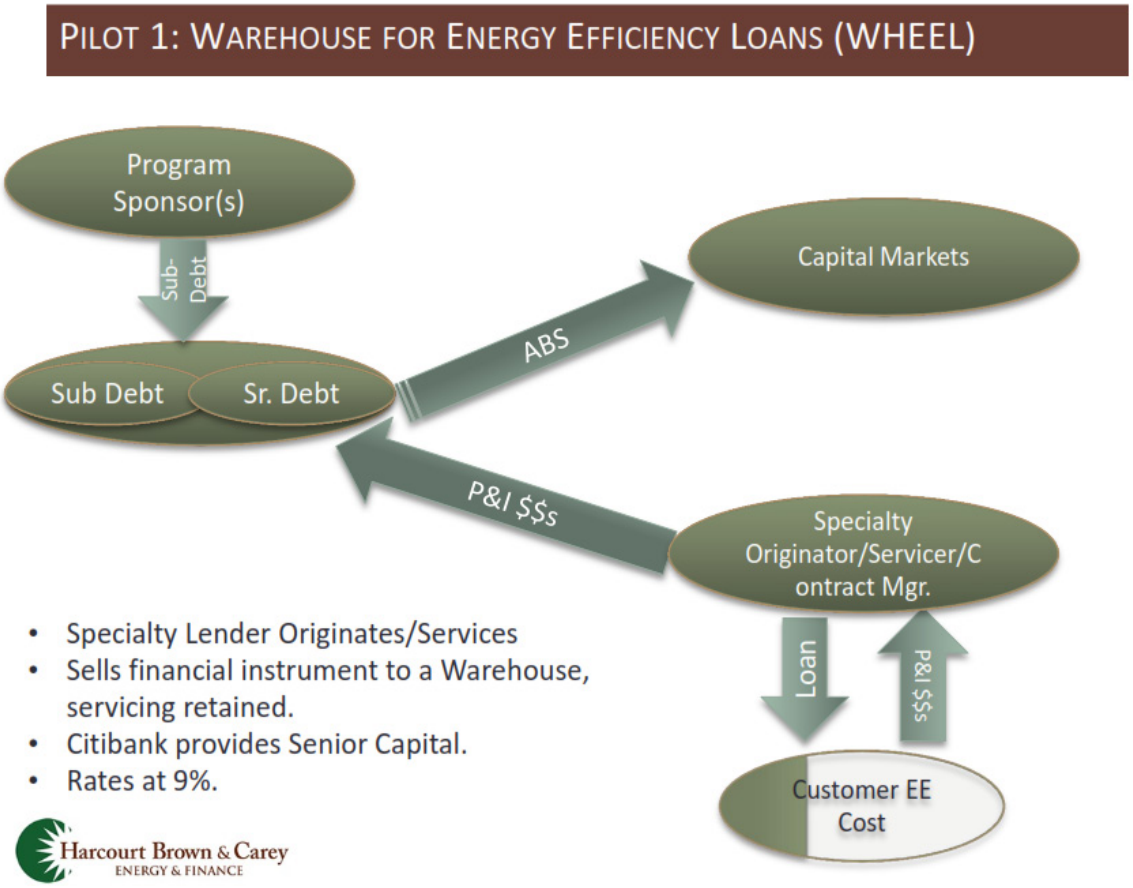
[35]WHEEL has been approved by the participating entities and is in the final stages of documentation. However, California has experienced higher than average losses on consumer-based credit products over the past several years. The WHEEL team would need to perform additional analysis to address those unique performance issues prior to final commitment and/or terms. It is anticipated that this review would take approximately two months.

[36] Finance Companies are financial institutions that extend credit to businesses and individuals but unlike banks finance companies do not take deposits from clients but rather raise funds by selling loans the originate at a premium and or earning fees for origination and servicing.



Illustrative Overview of the WHEEL Model

We anticipate that offering WHEEL in California will necessitate the delivery of a subordinate debt credit enhancement of about 20 percent.[37] While this up front credit enhancement is higher than the 5-10 percent loan loss reserve credit enhancements common in California, there is an important difference between the two – a subordinate debt credit enhancement is invested in the customer loan pool and earns a return. If the loan pool performs in line with long term historical trends, a 20 percent subordinate debt stake would offer a zero net-subsidy option because interest earnings would be the same or larger than losses on customer loan defaults. For the same loan pool performance, a loan loss reserve would be significantly depleted.[38,39]

[37] WHEEL terms have not yet been finalized. Ultimately, credit ratings agencies will determine the credit enhancement level necessary for a secondary markets offering to be granted an investment grade rating. Without an investment grade rating, it would be virtually impossible to access capital markets.

[38] See Appendix for more information on WHEEL, including a scenario analysis of the performance of a 20% subordinate debt stake versus a 5% and 10% loan loss reserve over a range of loan pool default rate trends.

[39] One stakeholder argued that LLR monies should be permitted to earn a return rather than be escrowed. We recommend against this suggestion because investing LLR monies would potentially subject them to investment risks that are not appropriate for ratepayer monies targeted at delivering energy efficiency improvements.

Note that while we strongly recommend that WHEEL be piloted, we think it is important that the CPUC understand the model's advantages and disadvantages:

WHEEL Advantages:

- WHEEL offers dealer loans and simple, standardized origination and servicing developed to be highly contractor-friendly. Our belief is that this contractor-friendly approach will be critical in building volume, and with it, additional EE investments.
- WHEEL is engaging national, institutional investors. Rather than hoping that loan performance data from existing loan programs proves sufficient to deliver low-cost secondary markets capital in the future, the WHEEL structure will leverage utility ratepayer funds to deliver this capital immediately.
- WHEEL is not constrained by the balance sheet and regulatory restrictions faced by credit unions and other portfolio lenders. WHEEL's forthcoming access to the U.S. investment grade bond market provides a capital source much more than deep enough to meet the most optimistic long-term projections for residential energy efficiency financing needs in California.
- If loans perform in line with long term historical California performance, WHEEL is a zero net subsidy option. The WHEEL model necessitates a subordinate capital investment by program sponsors. This subordinate capital acts as a credit enhancement and reduces the risk to capital markets investors. This credit enhancement earns a rate of return – this rate of return is high enough that if the loan portfolio performs in-line with long term historical California unsecured loan performance, losses from loan defaults will be offset by customer interest payments and ratepayer capital will be returned in full (or with a small return) when the pool of loans it is supporting matures.
- WHEEL has been designed as a nationwide program. As such, it would be available statewide. WHEEL would provide contractors at least one consistent statewide offering – while not precluding other statewide (or localized) offerings. Most existing program-sponsored financing products in California are not offered statewide.

WHEEL Disadvantages:

- WHEEL necessitates a high up-front credit enhancement relative to other, local programs. While our analysis suggests that the net subsidy should actually be zero or near-zero based on long term historical loan performance trends, in the event that the loan pool significantly underperforms expectations, more utility ratepayer capital is ultimately at risk than in a traditional LLR model. In addition, utility ratepayer capital will achieve lower short-term leverage through WHEEL than through the local lending pilot we discuss in the next section.
- Even with a robust subordinate debt stake, the WHEEL base interest rate is projected to be 9 percent,[40] which is higher than other loan programs currently offered in California. WHEEL's rate is an all-in rate that includes the costs of servicing, origination and the

[40] This estimate is from WHEEL's sponsors. The rate is expected to fall significantly overtime as the market develops and liquidity and access to performance data improve.

infrastructure required to access the capital markets. While the PUC guidance document suggests a target interest rate of 7 percent, we believe that this number is somewhat arbitrary given our experience across the country and review of the available (but limited) data on the elasticity of demand around loan interest rates, especially for reactive efficiency projects.[41] In fact, when compared to double digit interest rates of other nationally available loan products against which WHEEL is competing (e.g. Fannie Mae, GE Money), a 9 percent target interest rate is attractive.

- If the program desired an interest rate lower than the anticipated 9 percent target interest rate, WHEEL would necessitate that ratepayer funds be used to buy down the interest rate by the undiscounted future value of the interest rate payments for the full loan life. The rate buy down option is expensive relative to most national products (which enable contractors or program sponsors to make an upfront payment of the discounted present value of the buy down over the expected life of the loan) and is not available to individual contractors. Hence, the consultant team is not recommending such a buy down with ratepayer funds.

We conclude that WHEEL is a robust emerging program model that will deliver Californians a "plug and play" financing tool and offers the basis for substantial growth opportunities. Despite some drawbacks, we recommend that WHEEL be funded during the 2013-2014 energy efficiency program cycle.

In addition to WHEEL, a longer term fund model option would use the same (or same type) of centralized origination and servicing structure as WHEEL, but utilize local and/or foundation capital supported by utility ratepayer subordinate debt. This option is potentially complementary to WHEEL – it could be used to expand or test alternative underwriting criteria (such as utility bill repayment history). This option could also provide competition for national investors, leveraging local capital that may be available at more attractive rates while offering the centralization of critical functions that is essential to "making the case on loan performance" to institutional investors. This model does not currently exist, and we suggest discussions with potential investors be pursued through Fall 2012 and Spring 2013 for potential implementation in 4Q2013, after WHEEL has been introduced.

5. PILOT 2 RECOMMENDATION: LOCAL LENDING PRODUCTS

As a second pilot we recommend (of equal priority to the WHEEL pilot recommendation)that utility ratepayer capital be used to fund a loan loss reserve that supports local and regional financial products.[42] Any existing financing program lending partner should be able to participate in this program subject to meeting program requirements.[43] Financial institutions [44]that are new to

[41] Reactive projects are those undertaken by households with an immediate need seeking to replace major equipment (e.g. hot water heater, HVAC) that has failed or is at the end of its useful life.

[42] We use the terms local and regional financial products to mean those offered by credit unions, community development financial institutions, community & regional banks.

[43] We do not recommend that residential PACE programs be eligible for this credit enhancement. Residential PACE faces significant regulatory challenges. We believe these challenges severely limit the scalability of the residential PACE model. We note that several residential PACE programs are generating significant project

energy efficiency lending could also choose to participate. Our recommendation leverages the existing network of financing programs in California, and moves them towards increased standardization through program requirements.

We considered a range of approaches to centralization (e.g. centralized origination and servicing, centralized loan application intake) of these local financing programs, but based on extensive stakeholder feedback recommend that, in the spirit of fast pilot implementation and minimal disturbance to existing initiatives, consideration of this additional functionality be delayed until the post-pilot period. In other words, FIs should be free to offer their own origination structures, their own interest rates and terms and their own underwriting subject to certain minimum requirements designed to protect the integrity of the credit enhancement funds, to ensure that the credit enhancement is expanding customer access to attractive capital, to ensure quality control, and to ensure data sharing with the Hub. Embedded within this is the assumption (and controls, through lender agreements) that all measures are approved energy efficiency financing measures, per CPUC guidance.

Local Lending Products Advantages:

- More attractive interest rates and more inclusive underwriting criteria than WHEEL;
- Integrated additional credit enhancement into existing lending partnerships (and enable additional lenders/products) that are generating energy improvement investment rather than implement new financing program;
- Lower up-front credit enhancement relative to WHEEL. Less ratepayer capital is ultimately at risk and short-term leverage of ratepayer monies is higher;
- Supporting local lenders and lending products delivers greater short-term economic multipliers to Californians than supporting national money bank centers and institutional investors.

Local Lending Products Disadvantages:

- Higher transaction costs relative to WHEEL (common transaction costs include multiple week loan closings and in-person lender closing), which make contractor sales process more difficult;
- While the up-front credit enhancement is lower for local loan products than for WHEEL, our analysis suggests that, based on historical loan performance trends, WHEEL requires less net ratepayer subsidy over the life of a loan pool. Loan loss reserve money sits in escrow, and is, by definition, depleted as customer loans default. Subordinate debt, on the other hand, is only depleted if customer defaults exceed the debt's interest earnings;
- Local lending products are ultimately constrained by balance sheet and regulatory restrictions faced by their credit union and other portfolio lending funders;
- Most local lending products in California do offer full coverage of IOU territories;

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volume, but believe that this may be a function of the program design (e.g. broad measure eligibility, streamlined participation) rather than the financing tool.

[44] Financial Institutions are establishments that deal in financial transactions including loans, investments and deposits

- Local lending products and programs vary – and despite pilot requirements of greater conformity – it will be more difficult to use data from these local lenders to demonstrate the "EE value proposition".

6. CREDIT ENHANCEMENT STRUCTURE

In order to foster competition and to ensure that we are supporting successful financing tools, we recommend that a single credit enhancement pool for both subordinate debt and loan loss reserves be made available to all pre-qualified financial institutions and finance companies to draw down from on a "first come, first served basis" as loans are originated. This structure will avoid locking up utility ratepayer capital in contracts with financial institutions that are not successfully generating energy improvement project loan volumes.

Specifically, we recommend the following process for allocation of the credit enhancement.

- Credit enhancement funds are available to pre-qualified financial institutions that have agreed to a standard set of servicing terms, product terms, data sharing protocols and other program elements.
- Credit enhancements are available either as a subordinate debt stake in a fund, according to the terms negotiated with that fund, or in the form of a 10% loan loss reserve (the reserve will cover 90% of any individual loan loss to motivate responsible lending)[45]
    - Upon funding their first loan, qualified lenders would have a Hub-managed account pre-funded with an initial loan loss reserve amount to protect them during early lending stages, when 10% of their loan total (the amount in their LLR account) is less than the 90% recovery on individual loans (the amount they could recover should an individual loan default).
    - This 10% figure is based on standard practice for energy efficiency lending programs around the country. It represents, for the residential sector, a good balance between protecting the integrity of loss reserve funds and providing enough credit enhancement to attract private capital.
- Loans will be registered with the Energy Efficiency Financing Hub (described in a separate document). Once registered, the loans will be assumed to comply with all Hub requirements for the credit enhancement. If loans are subsequently deemed to have been improperly originated or serviced, the lender is at risk for any outstanding balance that would otherwise have been covered by the loss reserve. Note that this process refers only to financial underwriting and servicing; project approvals will be addressed by existing IOU program project approval protocols.
- The credit enhancement will be available to support loans not otherwise covered by existing credit enhancements, such as those provided by local governments. In other words,

[45] While we have greater confidence in the level of credit enhancement necessary for the loan loss reserve pilot than the subordinate debt pilot, we recommend that the CPUC not codify a specific loan loss reserve or loss-share level in its decision. This will grant the pilot manager sufficient flexibility to steward ratepayer monies and get financing pilots launched by responding to evolving financial institution needs and supporting innovative models that may necessitate unique loan loss reserve structures (such as that developed by CHF and Five Star Bank).

FIs may expand their lending programs using this enhancement, but may not double dip on loss coverage.[46]

Finally, we recognize that other entities currently offer credit enhancements, such as CAEATFA. CAEATFA's credit enhancement may complement the credit enhancement, much as happens with local government programs. As an alternative, CAEATFA credit enhancement funds could, at a later stage be combined with or harmonized with the structures that we propose. For instance, a CAEATFA credit enhancement could be offered through the Hub structure, but for different income populations or at different terms than is currently available. These options are to be explored in the near future.

7. Minimum Financial Product Terms for Programs 1 and 2

Rather than prescribing a detailed term sheet,[47] we recommend that financial institutions be required to provide lending terms that balance the need to:

- Protect the integrity of any ratepayer funds provided for credit enhancements;
- Provide options for consumers who might not otherwise qualify for loans, to qualify using alternative underwriting criteria (such as utility bill payment history), or more flexible credit qualifications.[48]

Protection of integrity of loss reserve: We anticipate that financial institutions will propose a variety of programs for credit support through the Hub, and that the Hub will maintain quality control through service level standards. In addition, financial institutions are at risk for the majority of capital provided through these lending programs; they will incur significant losses if their loan portfolios experience significant charge-offs. As a result, we believe that there exists a proper allocation of risk, supplemented by additional quality control on servicing.

Options for consumers not otherwise qualifying: One purpose of a credit enhancement is to encourage lenders to provide capital to populations beyond those with the highest credit scores. This does not mean that we encourage lending that will result in very high charge-off rates; it does mean that we expect that the presence of the credit enhancement will encourage lenders to offer credit to borrowers who are lower than the top tiers of credit. We believe that the incentives within this program are to increase loan volumes, and that this credit enhancement will encourage

[46] While we believe that credit enhancement "stacking" raises significant additionality questions, this may be an appropriate strategy for targeting specific underserved populations/properties. For example, this may be an attractive way to leverage private capital for the middle income sub-pilot described below.

[47] The CPUC included illustrative program features: interest rates around 7% for most borrowers with credit scores of 600 or more and terms up to 15 years for major energy efficiency actions (possibly longer for solar). We generally agree that these illustrative features are within the realm of possibility for programs receiving credit enhancement.

[48] It is possible that, especially in the short run, this may lead to concern about the credit risk of the overall pool. However, this risk can and should be managed to remain small, and potentially disappear over time as the alternative mechanisms are proven in the marketplace.

lenders to lend to populations at mid-tier credit scores and incomes in addition to the very high qualify credit borrowers.

We do not include specific minimum standards in our recommendations because we believe that these should be established as part of final discussions with financial institutions and that pilot administrators should have the flexibility to adjust these standards in response to on-the-ground needs. Note also that we realize that by not developing specific minimum standards that the evaluation of data from the portfolio may become more complex. However, the Hub master servicer data protocols will be established to enable evaluation of specific tranches (i.e. loans conforming to common national underwriting standards) of the portfolio.

8. Sub-Pilots: Line item Billing and Expanding Access to Credit

Here we propose two sub-pilots for implementation during the pilot period. These sub-pilots will test important program approaches and elements, and we recommend with equal priority that they both be funded. We anticipate each will require more set up time, be implemented at more limited scale, and require smaller budget allocation than is required for the larger pilots. We recommend that they be implemented at the local or regional level with likely launch in the second half of 2013.

A. Sub-Pilot 1 Recommendation: Line Item Billing

Subject to legal/regulatory barriers described below, in the absence of additional near-term state legislation authorizing on-bill repayment in the residential sector, we recommend that line item billing (LIB) be piloted in the 2013-2014 program cycle. Line item billing involves collecting the principal and interest payments on consumer loans through utility bills but is not a full version of OBR in that it does not involve utility disconnection for failure to pay the utility bill nor does it involve a pari passu (proportional) allocation of partial customer payments of energy and finance charges.[49] Line item billing is potentially compatible with both of the financing programs described above.

Line item billing advantages:

- Offers customers the convenience of repayment through their utility bill;
- May offer improved security to financial institutions to the extent that customers pay their utility bill on a regular basis;
- May reduce servicing costs for financial institutions, to the extent that collection costs are offset by utility collections, and to the extent that utility charges for such collection do not offset such savings;
- Provides new ways to integrate expanded access to capital to EE financing programs;
- May help drive demand for energy improvements, to the extent that aligning loan repayment with energy savings overcomes consumer reluctance to invest in energy improvements.

[49] Line item billing is a service to financial institutions. A reasonable fee structure may be appropriate to reimburse ratepayers and IOU's for the costs of implementing this sub-pilot.

Line item billing disadvantages:

- While line item billing does not entail risk of utility meter shut off for loan non-payment, significant concerns have been raised as to whether collection of financing payments from consumers alone subjects the IOUs to regulation as financial institutions in California;
- May entail costs to utility billing or IT systems;
- If not properly described to customers, FIs, and others may lead to confusion with respect to its differences from OBF and OBR.

We recommend that further clarification from the California Department of Corporations or other relevant regulatory entity be sought as to whether utilities would be classified as consumer lenders if the LIB pilot was implemented – even if they are not providing loan capital. Classification as a lender will subject utilities to significant new regulation and costs, and may expose the utilities to additional risks. Therefore we recommend strongly that these regulatory and legal questions be answered prior to final implementation. This pilot deserves a resource allocation of $1 million with more detail on expenditures to be established through an RFP process. Figure 3 illustrates this model.

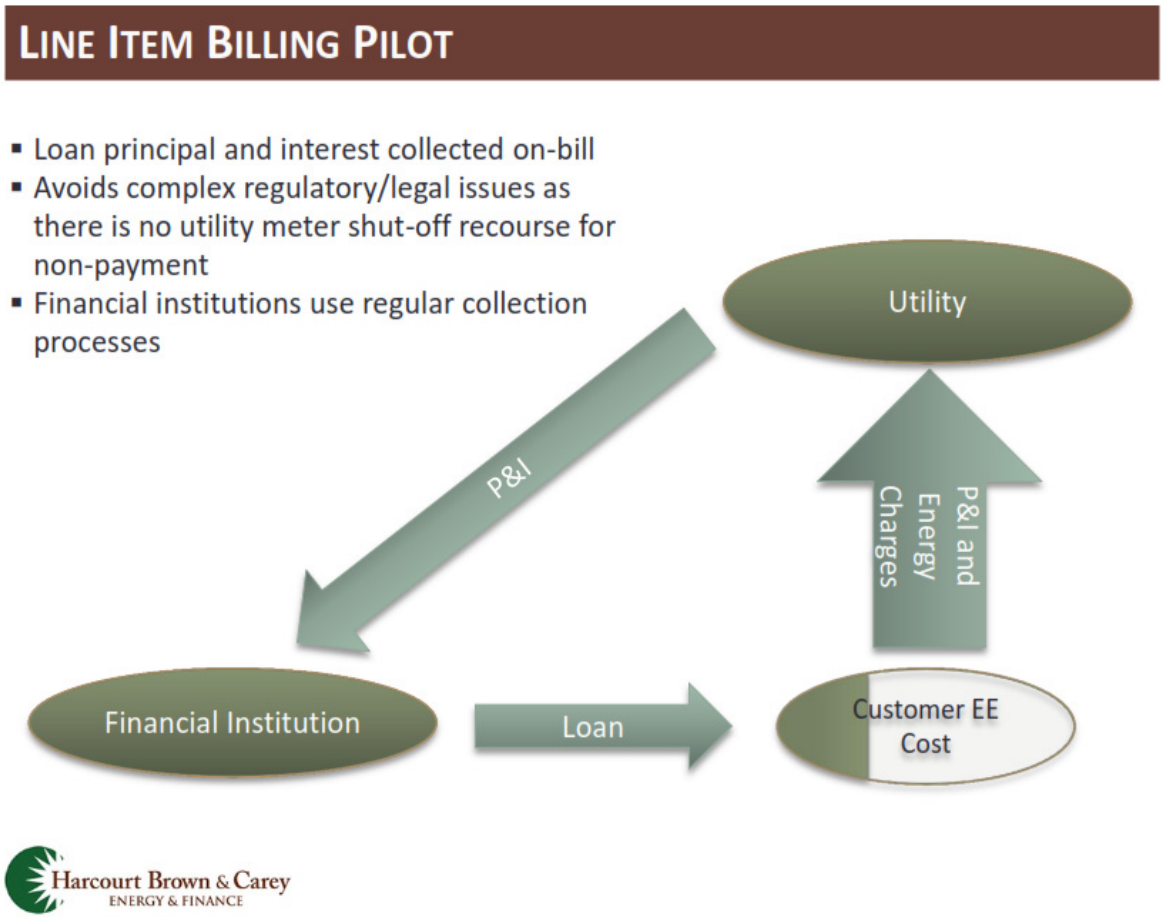

Figure 3. Line Item Billing Pilot Illustration

B. Sub-Pilot 2 Recommendation: Expanding Access to Capital

Today, energy efficiency financing programs using conforming underwriting standards (e.g. min. FICO 640, max debt-to-income (DTI) ratio 50%) typically reject 40 to 50% of program applicants. For residential efficiency markets to move to a larger scale, it is important to test new ways to identify additional creditworthy borrowers, and deliver capital to them. This may include the use of innovative financing tools such as line item billing, expanding eligibility using traditional credit evaluation metrics and/or using innovative credit worthiness assessment tools such as utility bill repayment history. The minimum criteria described above explicitly allow for such expanded access programs. The local capital fund model described above is one option for leveraging local/program related investment monies to do this.

We are also aware of pilot proposals, including the "Saving Neighborhood Energy to Generate Neighborhood Wealth" initiative created in partnership with Union Bank. We believe that sub-pilots like this are important to testing the extent to which financing can responsibly enable investment in energy efficiency amongst traditionally underserved households and believe they warrant funding. We recommend that, to the extent line item billing is available, priority be placed on sub-pilots that test customer and lender acceptance of line item billing loans that are transferable. This pilot deserves a resource allocation of $1 million with more detail on expenditures to be established through an RFP process.

9. BUDGET

Below is a "medium" demand forecast that assumes a 50/50% split between sub-debt supported loans and LLR supported loans. We believe this level of demand and funding is reasonable to expect during the pilot period.

Single Family Budget 2 Year Pilot Period

Forecasted Demand			medium forecast
	Reactive Units		15,714
	Reactive Financing		$ 110,000,000
	Proactive Units		5,556
	Proactive Financing		$ 50,000,000
Total Demand & Financing Need			**$ 160,000,000**
	split	cost	
Sub-Debt	50%	20%	$ 16,000,000
LLR	50%	10%	$ 8,000,000
Total Credit Enhancement Need			**$ 24,000,000**

In addition, we have allocated an additional amount in the single family budget for:

Line Item Billing (set up costs and potential additional IT/billing system upgrades) $1.0 million

Moderate-Income Targeted (additional credit enhancement) $1.0 million

There are important costs to operating this pilot such as marketing, administration, audits, rebates, EM&V and ongoing technical assistance that require a scoping process to include staff from each IOU to establish.

10. TIMELINE

We have designed the single family pilot to be rapidly implementable. The timeline for program implementation follows:

Q4 2012: Final program rules developed, LIB regulatory issues explored, relevant RFPs released for key program functions and access to capital pilot, contractor financing training and outreach to financial institutions and potential fund investors begins

Q1 2013: WHEEL launches in California, LLR available to local lenders, contractor financing training and outreach to financial institutions and potential fund investors continues

Q2 2013 - Q3 2013: Access to capital pilot chosen and program rules developed, go/no go decision on local/foundation fund pilot based on investor interest. Contractor financing training continues

Q3 2013 - Q4 2013: Access to capital pilot launched, local/foundation fund pilot launched (if "green lighted" in Q2 2013), Contractor financing training continues

Q1 2014: All single family pilot elements fully operational

APPENDIX FOR CHAPTER 4

Subordinate debt (WHEEL) vs. LLR

The following analysis is intended to highlight how two different credit enhancement structures – subordinate debt and loan loss reserves (LLRs) perform in response to three different loan performance scenarios – a 3%, 6% and 15% cumulative lifetime loan default rate (these rates were chosen as low, medium and high range of realistic loan pool performance scenarios based on the HB&C team's experience with a range of loan programs around the country). In both cases, the loan pool supported is $25 million and the loan terms are identical (10 years). We have included additional assumptions (see below) about the loans for the subordinated debt stake scenario (9% interest rate, annual prepayment rate of 8%) because, unlike LLRs which sit in escrow, subordinate debt is used to fund loans and thus earn interest – therefore, the loan interest and prepayment rate influence the amount of interest these stakes earn. We assume that the subordinate debt stake is 20% and earns 6% interest based on preliminary data from WHEEL sponsors, while we assume that the LLR is 5% or 10%. One additional difference between LLRs and subordinate debt stakes (at least those stakes supporting secondary market financing) is that the credit enhancement covers 100% of any individual loan loss – with LLRs, this coverage is typically limited to 80% to ensure lenders are incentivized to underwrite responsibly.

SUBORDINATE DEBT VS. LLR ANALYSIS ASSUMPTIONS		
Credit Enhancement	Subordinate Debt	Loan Loss Reserve
Loan Pool	$25 million	$25 million
Loan Interest Rate	9%	N/A (no influence on results)
Loan Term	10 years	10 years
Annual Prepayment Rate	8%	N/A (no influence on results)
Cumulate Lifetime Loan Default Rate	3%, 6%, 15%	3%, 6%, 15%
Credit Enhancement Coverage on Individual Loan Loss	0%	80%
Credit Enhancement Size	$5 million (20%)	$1.25-$2.5 million (5-10%)
Credit Enhancement Interest Earned	6%	0%

The results in show that, even though a larger upfront credit enhancement is required up-front for the subordinate debt stake, because it earns interest, it outperforms both the 5% and 10% LLRs in the low and mid loan default rate scenarios over the life of the loans (this despite taking 100% of each loan loss). In the high default rate scenario, both the 5% and 10% LLRs are exhausted, while the subordinate debt stake slightly outperforms the 10% LLR. In an extreme event with higher than 15% default rates, the program sponsor risks losing its entire $5 million credit enhancement.

Credit Enhancement Performance (thousands $)	20% Subordinate Debt ($5 million)		5% Loan Loss Reserve ($1.25 million)		10% Loan Loss Reserve ($2.5 million)	
	Credit Enhancement (less defaults and including earnings)	Gain (Loss) on Credit Enhancement	Remaining Credit Enhancement	Credit Enhancement Gain(Loss)	Remaining Credit Enhancement	Credit Enhancement Gain (Loss)
3% Loan Default Rate	$6,800	$1,800	$650	($600)	$1,900	($600)
6% Loan Default Rate	$5,880	$880	$50	($1,200)	$1,300	($1,200)
15% Loan Default Rate	$2,850	($2,150)	0	(1,250)	0	($2,500)

Subordinate Debt vs. Loan Loss Reserve Scenario Analysis for $25 Million Loan Pool

Over the mid-term, we expect that a subordinate debt model supporting a secondary markets approach will require ongoing credit enhancement (likely on the order of 2-3 times the expected loan pool default rate). In the event that the loan pool low or medium default levels, the initial credit enhancement (and more) will be available to program sponsors to support another round of lending (or to repurpose for other programmatic uses. Whether the local and regional lenders typically supported by LLRs require ongoing credit enhancement remains an open question. Early experience in Oregon suggests that at least some lenders may see the value of energy efficiency

lending and be willing to deliver attractive products without LLRs. However, in California, lenders have often been reluctant to participate in energy efficiency financing programs, and they may well require ongoing credit enhancement to deliver accessible, low-interest rate products. To the extent that ongoing LLRs are necessary, even in the low and mid-default rate scenarios, additional program sponsor injections of capital to these LLRs are likely to be necessary as these funds are depleted.

CHAPTER 5
MULTIFAMILY EE FINANCING PILOT PROPOSAL

Summary

Energy efficiency financing in multi-family rental properties is particularly difficult due to complex ownership structures and split incentives between landlords and tenants. On-bill repayment (OBR) should improve the credit profile of EE loans provided to master-metered property owners and therefore bring new capital at attractive terms.

We recommend a pilot program targeting the affordable master-metered multifamily segment. This holds great promise as the strategic pathway to offering OBR financing to the entire multifamily market.

The pilot will have the following features:

* OBR mechanism
* 10% Debt Service Coverage Reserve credit enhancement
* Emphasis on flexibility on contracting
* Funding for building audits and ongoing technical assistance

We believe this pilot design will create a compelling value proposition to energy efficiency contractors and owners of affordable multifamily properties.

Proposed budget: $2.9 million over two years.

1. INTRODUCTION

This document provides recommendations for a Multifamily pilot program for the 2013-2014 program cycle and is organized as follows:

1. Context and Policy Objectives
2. Pilot Designs and Recommendation
3. Market Overview
4. Demand Generation
5. Other Key Program Elements
6. Program Evaluation Metrics
7. Program Implementation Timeline
8. Program Budget Estimate
9. Appendix

The multifamily housing sector represents a large and complex marketplace for energy efficiency services. Due to this complexity, we have identified two distinct financing pilot design(s) to engage the market. One, an on bill repayment (OBR) pilot specifically for master-metered affordable

multifamily properties and, the second, a credit enhancement strategy available statewide to the entire multifamily building sector.

Our final recommendation is to implement only the OBR pilot focused on master metered affordable multi-family properties. Ultimately, we believe this targeted pilot program holds real promise in being the strategic pathway to eventually addressing the entire market of multi-family properties, including a way to address the "split incentive" dynamic. This pilot does not immediately take on the split-incentive challenge, but we believe it can be used to build out the infrastructure needed to address it along with a body of experience that will inform the value proposition(s) and risk profile of energy efficiency in the multi family building stock to owners, renters, contractors, utilities and capital providers.

We offer details of both pilot designs in this document, but after receiving multiple points of feedback questioning the merits of the co-financing pilot design coupled with consistent and legitimate concerns about time and resource constraints, during the 2013-2014 period, we focus our recommendations toward solutions that are the most directionally strategic and tactically focused.

2. Context and Policy Objectives

A successful pilot period will build the foundation for a large-scale, competitive energy efficiency financing market characterized by large, attractively priced pools of capital, delivered conveniently within contractor sales processes and broadly available to consumers and stable through time.

The *Guidance Decision* (D. 12-05-015) provides direction on the criteria that successful financing pilots should meet. The Decision notes that, "multifamily buildings that house primarily low-moderate income households may provide a unique test bed for multiple aspects of an (on bill repayment) financing program," pointing out that virtual net metering was pioneered in low-income multifamily buildings in California. The Commission guidance also raises several key issues that should be addressed in an OBR pilot including:

- The need for landlord acquiescence to allow an improvement project and the placement of a repayment obligation on a meter, since it could affect their ease of finding subsequent tenants, who would be expected to continue loan repayment.
- The notification process for successor tenants.
- The desire for limits or protections, such as bill neutrality, that the cost of measures undertaken, and associated repayment obligation, will imply a reasonable debt relative to the anticipated bill savings.

Without clear legislative authority to implement residential OBR outside of master-metered properties, we believe that it will not be possible to address some of these issues through pilots during the 2013-2014 program cycle. The issues that are essentially impossible to address are around landlord disclosures and tenant notifications associated with placing the charge directly on a tenant paid meter.

The CPUC guidance goes on to instruct the utilities and their consultant:

- Start with a bill neutrality objective, at least for credit-challenged or lower-income populations.
- Consider an additional cushion beyond bill neutrality (for example, limiting bill savings to 80% of estimate) to minimize potential negative impact on consumers.
- Seek to structure loans and eligible measures to give the owner at least an 11% return.
- Start with placing the loan obligations on common meters. A second stage product could work on tying the payment obligation to individual tenant meters. This will require greater attention to notification and disclosure, as well as possibly credit re-qualification by tenants.
- Identify specific waivers and/or clearance required from the California Department of Corporations.
- Consider possible tariffed service utilizing private capital.
- Seek to marry the energy efficiency loan opportunity with solving another problem (such as equipment malfunction, safety, health).
- Seek to pair the energy efficiency measure with a home equity loan instead of a stand-alone unsecured energy loan.
- For multifamily market-rate rental housing, credit enhancement may be necessary to drive participation.
- Offer (and test) with a variety of multifamily types, including high rises and low rises, condos and rentals, and different physical configurations (e.g., central vs. individual building systems).

Note: The design proposals in this document don't contemplate how to provide at least 11% returns to building owners.

3. PILOT DESIGNS & RECOMMENDATION

A. Summary of Potential Financing Pilot Designs

Pilot 1: OBR for substantially master-metered for affordable housing properties

This program uses an OBR (without shut off provision) tariff with optional transferability feature for the affordable housing market segment and is designed to create a new way to finance energy efficiency in the multifamily sector. It will be attractive to property owners in stabilizing rising energy and water operating costs. These transactions are considered to be "commercial" financing by nature and removing the shut-off provision of OBR for the pilot will provide more time to solve for consumer/tenant protection issues while building out processes and attracting capital to serve the entire multifamily building sector beyond the pilot period.

Goals of this pilot:

- Test the value proposition of OBR in multifamily building environment as potential pathway to eventually addressing the "split incentive" dynamic of residential rental properties.

- Understand how to better coordinate and streamline the delivery of services across utilities, building auditors, contractors and lenders (create strong value proposition for building owners and tenants).
- Gather data to evaluate actual performance of energy efficiency measures in multifamily setting.

PROS	CONS
Leverages value of OBR with a tariff provision	Doesn't address the entire multifamily market during the pilot period
Limited market w targeted ownership type	Relatively complex sub-sector of the market in terms of existing capitalization structures (long term tax credit partnerships)
Economically motivated owners. (limited ability to raise rents with escalating energy costs)	
Ability to attract additional "mission" capital	
Existing organizations active in the market (CHP and SAHF).	
Seems to address and relieve a significant key barrier to energy efficiency uptake for a focused category of building owners (lack of financing)	

Pilot 2: **A statewide co-financing program available for all multi-family properties**

This program can be set up and promoted statewide while relying heavily on the ability of qualified lenders to perform underwriting with ratepayer funding provided behind standardized participation agreements. We recommend funding for each project up to 50% of each deal at 0% cost to the lender. Goals of this pilot:

- Engage a range of property types and ownership structures through lenders at time of refinance and recapitalization of multifamily properties.
- Compare the value and effectiveness of a financial incentive that moves through existing lending relationship and products versus OBR mechanism.
- Go to market quickly with a relatively simple mechanism that most lenders will recognize and can be available statewide.

PROS	CONS
Available to statewide to range of building types and ownership arrangements quickly	Requires a relatively large allocation of ratepayer funds per transaction
Relatively simple and straightforward to administer	Doesn't move the needle on "split incentive" challenge
Relies on existing relationships between lenders and owners	Might not be very compelling to either lenders or building owners (problem for owners at point of refinance is likely NOT capital)

C. Recommendations

We recommend implementing only Pilot 1 during 2013-2014. Based on additional deliberation and stakeholder feedback, there appears to be more support, enthusiasm and potential for this targeted pilot than the co-financing pilot. As mentioned in the opening section of this document, we also believe this pilot design has more strategic value through a targeted sub-sector of the overall multifamily market that already has some momentum that can be harnessed into a focused pilot.

In lieu of investing in a co-financing program available statewide, we recommend that the IOUs closely track Fannie Mae's Multifamily Green Initiative that was announced earlier in 2012.[50] This initiative could result in the creation of Federally-supported financing tools specifically for energy efficiency in multifamily properties. Given Fannie's expertise, market presence and commitment to this initiative we believe it is, at least preliminarily, worthwhile for the IOUs and CPUC to track its progress during 2013 & 2014.

In the October 2nd workshop and accompanying proposals, we offered a co-financing pilot design as summarized above as "pilot 2".At the workshop, and in comments, we heard legitimate concerns and criticisms about the level of ratepayer dollars needed to lift a co-financing pilot. This limited leverage, coupled with the reality that this pilot doesn't appear to be readily attractive to market participants and doesn't address key barriers such as split incentives, lead us to recommend against funding this pilot.[51]

However, in the Guidance Decision, the CPUC placed priority on making capital available to a broad set of multifamily properties. The co-financing pilot would achieve such an end. Should the CPUC choose to fund the co-financing pilot, we recommended that it be offered in a limited geography and with a limited budget. Given the BayREN's experience with multifamily properties and its familiarity with this co-financing approach, a limited BayREN pilot may be appropriate.

D. Pilot Design: OBR for Substantially Master-Metered Affordable Housing Properties

We recommend that "OBR without-shutoff" be made available to "substantially master-metered" affordable multifamily buildings. Master-metered buildings, where the owner pays utility bills and charges tenants for energy through their rent, provide a good opportunity to pioneer OBR financing in the multi family sector. It is also possible that buildings in which an owner's meter pays for common areas, parking and certain centralized systems might produce significant energy efficiency gains.

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[50] See https://www.efanniemae.com/mf/refmaterials/pdf/wpgreen.pdf

[51] While there is limited data on the pilot's potential efficacy, a similar program operated by the New York State Energy Research and Development Authority (NYSERDA) has not experienced significant uptake.

"OBR without-shutoff" is a term worth clarifying and contrasting to Line Item Billing. Line Item Billing is a mechanism currently offered by the IOUs that is a fee for service arrangement in which a fee(this could include things like principal and interest payments of a loan agreement or payments on an insurance contract) is placed on the utility bill. Line Item Billing does not include any provision to address allocation of partial payments and does not have a feature that allows for transfer of the charge from one utility meter owner to the next, nor does it include provisions for disconnection. To be clear, we believe transferability of the tariff charge is a necessary feature that is opted-into by the financier and building owner in this market sector. Many issues around the value and procedures in supporting transferability of charges needs to be evaluated during the pilot period. "OBR without shutoff" would retain provisions for transferability and address partial payments that are valuable to both financial institutions and building owners. In short, the financing placed on the bill needs to be more like a tariff agreement and less like a loan repayment in a Line Item Billing scenario. These two features are important to eventually addressing the split incentive issue in rental markets.

For purposes of this pilot we define affordable properties as those with deed restrictions that require the owner to keep rents affordable for Energy Savings Assistance Program (ESAP)-eligible households occupying at least 50 percent of the units.[52]Given that most retrofits of low income rental housing properties will need to leverage the resources of the Energy Savings Assistance Program (ESAP) to achieve financial feasibility, one of the challenges that must be addressed is the current requirement of ESAP that the utility select and direct the work of a separate ESAP contractor without the ability to combine or coordinate work on recommended measures outside the scope of ESAP. While this document largely deals with the discussion and design programs to create financial tools, there are certain things that are directly related to either demand for or the risk profile of financial tools worth highlighting. We think a review of the contracting process with an emphasis toward giving the property owner/manager more involvement and input into the selection and procurement of contractors is an essential exercise to be included in the implementation of this pilot program.

Restricting the OBR multifamily pilot to this pool of properties provides two key benefits:

1) The owners of these buildings are usually "mission" driven non-profits that may be more willing than for-profit market rate property owners to absorb risk associated with participating in a new energy efficiency financing pilot in the spirit of developing tools that have the potential to help reduce building operating costs and preserve affordable housing. There are also mission-based CDFI lenders and foundations that are interested in delivering "impact capital" into these types of affordable housing properties for the purpose of saving energy.
2) Tenants in these properties are protected by a range of Federal and state regulations from any unintended consequences that might result from an OBR financing pilot. To be clear, we do not anticipate significant unforeseen risks, but this pilot can safely uncover such risks if

[52]More information on ESAP and its eligibility guidelines available here.

there are any. In addition, these properties typically have deed restrictions that require the owner to keep rents affordable. In master-metered buildings (in which building owners pay utility bills), this means that the risk of rising utility bills falls on property owners – making these owners highly motivated to stabilize or reduce energy and water expenses.

Finally, this sector is one in which access to capital is, for many property owners, *the key* (rather than one of many) barrier to investment in energy efficiency; experience in California and elsewhere has shown that standard "property secured" financing models simply do not work in the affordable housing sector, where complex capital stacks that involve multiple private, federal, state and local government lien holders lead to overwhelming transaction costs. This leaves a highly motivated group of owners, without access to capital to make energy improvements to reduce their operating costs and achieve a range of benefits (e.g. enhanced comfort, new equipment) for their tenants. Structured as a tariff (i.e. the obligation is attached to the meter), OBR has the potential to overcome this capital access barrier – by providing access to a new form of financing for energy efficiency that doesn't rely on the asset value equity in the property and likely won't interfere with the existing debt covenants and lien position of the existing tax-equity partnerships.

This pilot will be used to test the OBR process (e.g. the flow of funds, various stakeholder roles and responsibilities) and its value to the financial community while broader legal issues around OBR and how it can be deployed in mixed-metered buildings are resolved. We feel confident that by offering OBR (without shut-off rights) and credit enhancements during the pilot period, sufficient interest can be generated in the financial community to deliver a robust set of projects. We recommend that priority be placed on attracting mission-driven CDFI lenders who are likely to agree to the most favorable terms for building owners while demonstrating the viability of this new financing vehicle.

Finally, we recommend that the economic benefits of water savings be included in the calculation of "bill neutrality" and the net eligible project financeable amount during the pilot period. Water is a major operating cost and opportunity for energy efficiency in this sector, and water savings themselves will often provide a substantial economic benefit to a project – making the entire project economically viable in ways that would be impossible for energy-only projects. We strongly believe water savings have too much potential value for owners and financiers to exclude from this pilot period. We acknowledge some of the difficulties around eligible use of ratepayer funds for energy efficiency, but encourage that these issues be worked out during the pilot period with the benefit of actual experience in this market segment.

Specifically, we believe that while water efficiency measures need to be included in OBR financeable amount and "bill neutrality" calculation, the financeable amount of water measures can be excluded from receiving the 10% debt service reserve credit enhancement. Below is a brief illustrative example of hypothetical project costs and the effect on use of ratepayer funding:

Water Measures Not Receiving Credit Enhancement			
Net Financing Need			$ 300,000
Net cost of water measures		15%	$ (45,000)
Amount eligible for 10% credit enhancement			$ 255,000
Credit Enhancement Available	10.0%		$ 25,500

By allowing water measures to be included under this framework, for this specific market segment, there will be greater adoption of energy efficiency measures at no incremental cost to ratepayers. The costs for supporting OBR administratively are the same for a $300,000 financing as for a $255,000 financing. The OBR infrastructure that gets built during the 2013-2014 pilot period can eventually be made available to water agencies and/or municipal utilities on a fee-for-service basis that will both recover initial IOU ratepayer funding and also enable water agencies to directly deliver financial incentives to the water efficiency portion of comprehensive building efficiency projects.

We recommend the OBR master-metered affordable multifamily pilot have the following elements:

FEATURES	BENEFITS	CAPABILITIES NEEDED
OBR Mechanism for Lenders	Provides a form of security to capital providers that enables them to design new financial products for energy efficiency	Standardized administrative process management for steps like customer intake application all the way to project completion. Information and data management. Accounting and reporting. Cash management.
Bill Net Neutrality Requirement (100% maximum)	Provides lenders and customers a cash flow based solution for financing projects.	Standardized measurement methodology understood by contractors and IOUs. Clear energy savings disclosure requirements for customers and lenders.
Energy Audits co-funded by IOUs (50% cost-matching program for a limited number of buildings in this market segment)	Provides robust information for financial decision-making, contractor pricing and baseline for data tracking over pilot period. We also recommend piloting the use of emerging technologies for assessing buildings in lieu of traditional "audits."	A comprehensive understanding of building science with experience installing energy efficiency and proven ability to deliver audit reports that are actionable.

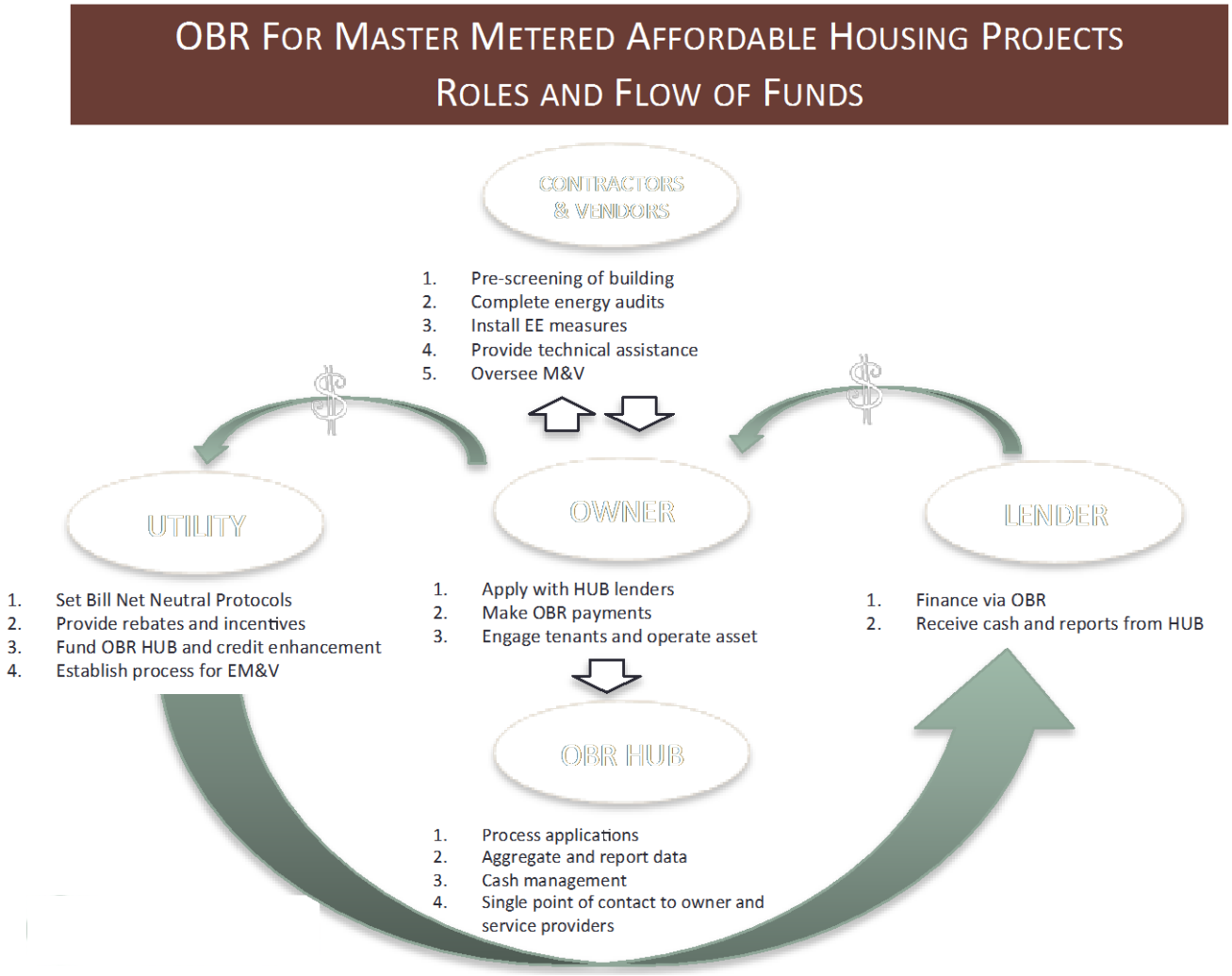
FEATURES	BENEFITS	CAPABILITIES NEEDED
A single utility point of contact for customers with emphasis on accommodating a streamlined project approval process	Conversion rate of audits into retrofits will increase as pre-retrofit process time and customer confusion decreases.	Facilitate design of a new process that eliminates the complexity of existing programs in which building owners must engage complex (from their perspective) IOU programs and multiple program managers to get projects approved and completed.
Debt Service Coverage Reserve (cash credit enhancement) used to cover any cash shortfalls of actual energy savings (compared to forecasted savings) funded at 10% of financing amount.	Provides an important level of confi-dence to building owners and capital providers who are reluctant to make obligations on forecasted energy savings in absence of more substantial experience and predictive data sets	Information & data management to administer. Legal department for contract execution. Accounting and reporting in a trustee role to IOUs and recipients of the credit enhancement. Cash management to disburse funds when due.
Project rebates (note that both pilot programs for Multi-family sector will limit the amount of financing to the project cost net of rebates to limit building owners from pocketing cash as a result of financing)	Reduces cost of project to customer. Given current legal inability to finance savings from tenant meters, the only savings available to service the OBR obligation will be those on owner meters. Rebates are necessary to ensure that scope of energy improvements will generate sufficient savings to create the buffer necessary to deliver bill neutrality.	Recommend that IOUs continue to offer current EUC multifamily and proposed REN rebates. Ability to rapidly deploy and perform QC/QA at completion of project.
Ongoing technical assistance post-retrofit to building manager sponsored by ratepayer capital: a) tenant engagement b) M&V and c) O&M	Helps ensure persistence of savings and will broaden knowledge base of how to maximize EE in multifamily properties. This is a key component of this pilot's strategic value to inform level of support needed to address the broader multifamily market after the pilot period.	Customer service culture and nimble deployment of resources. Information and data management. Building science expertise.

A typical project cost profile for this pilot would be:

Average Project Profile for Multi-Family Pilot #1

Average cost per project (200 unit project @ $3,000 per)					$ 600,000
Average ratepayer rebates as % of project cost				40%	$ (240,000)
Amount to be financed					$ 360,000
Credit Enhancement Budget		10.0%			$ 36,000
Ratepayer funding for audit	50%	$ 30,000			$ 15,000
Ongoing Technical Assistance					$ 10,000
Total Funding Needed per Project			$ 676,000		100%
Ratepayer Funding (including existing rebates)			301,000		45%
Private Capital Funding			375,000		55%
Ratepayer Funding (excluding existing rebates)			61,000		9%

The chart below depicts the interaction of key parties, process steps and flow of funds in Pilot Recommendation #1.



4. Market Overview

The multifamily property market, as defined by federal agencies, consists of properties of 5 or more units. The market is composed of three ownership types: (1) privately owned, market rate properties (approximately 90% of all units), (2) privately owned subsidized "affordable" properties (5% of all units) and (3) public housing (5% of all units). While public housing energy projects can typically be financed with tax-exempt municipal lease financing or bonds, the market rate and affordable market sectors present unique and difficult challenges (market rate and affordable) to energy efficiency financing, most notably:

- The property owners are unwilling or unable to acquire capital.
- The "split incentive" between landlords and tenants where tenants typically pay the utility bill prevents owners from financing energy efficiency when tenants pay the energy bills and

would benefit from the savings but generally don't contribute to paying for larger energy improvements, which are paid for by the building owner.

- Complex ownership structures may require the approval of numerous mortgage holders

Overall, this market is significant in size and potential with a myriad of ownership structures and landlord/tenant relationships. It deserves to be approached with a targeted focus on a specific and definable market segment.

Affordable Multifamily Market Segment

Given that "affordable" properties make up about 5% of the entire market, there are approximately 158,000 units available to Pilot #1. With an average cost of $3,000 per unit, there is a total market potential for energy efficiency services in this sub-sector of approximately $475 million. We think the pilot should attempt to address approximately 2% of this market potential or $9 million worth of projects during the 2013-2014 pilot period through Pilot #1. This equals approximately 25 projects that have an average of 200 individual units in each project. (also see budget section)

California Affordable Multifamily Retrofit Market Potential

Renter- and Owner-Occupied Housing Units

Building Type	Total Units [1]	Percent of Affordable	Total Market for Affordable
5-9 Units	843,623	5.0%	42,181
10-19 Units	731,031	5.0%	36,552
20+ Units	1,593,276	5.0%	79,664
Total	3,167,930		158,397

Per-Unit Retrofit Cost [2]		$ 3,000
Total Market Potential		$ 475,189,500
Addressable in Pilot [3]	2.0%	$ 9,503,790

(1) The authoritative 2011 American Community Survey reports that there are 3.17 million rental- and owner-occupied residential dewlling units in California in buildings with five or more units.

(2) Retrofit costs are estimated to be an average of $3,000 per unit.

(3) 2.0% benchmark is a conservative figure derived from energy efficiency programs across multiple building sectors nationwide. It is both an attainable and meaningful amount of projects.

Below is a summary of project profiles from Improving California Multifamily buildings, Opportunities and Recommendations for Green Retrofits, 2011. We interpret this to an average cost of $3,000 per retrofit.

- For a 40-unit low-rise building built before 1980, achieving a 20 percent performance improvement might include improving the attic and wall insulation, replacing windows and sealing ducts. The estimated cost would be $2,861 per dwelling unit, with a straight line payback ranging from 5.2 years to 14.3 years, depending on the climate zone.
- For the same prototype building built between 1980 and 2000, achieving a 15 percent performance improvement might include improving attic insulation, sealing and insulating ducts, verifying refrigerant charge, and replacing air conditioners and water heaters. The cost per dwelling unit is estimated at $3,117, with a payback ranging from 6.6 years to 9.9 years, depending on climate zone.
- For the same prototype building built between 2001 and 2008, achieving a 10 percent performance improvement might include improving attic insulation, verifying refrigerant charge, sealing and insulating ducts, and replacing water heaters for an estimated cost of $1,970 per dwelling unit and a payback ranging from 9.5 to 19.1 years.

5. Demand Creation

A. General Marketing

We recommend programs be marketed through the following channels with all program design decisions made to the advantage of the building owners, occupants and clean energy service providers:

- HVAC, plumbing, ESCOS and lighting contractors
- Property management associations
- Non-profit housing consortiums
- Low/Moderate income advocacy groups

Generating demand is an essential activity needed for any financing program to succeed. It deserves ample resources and customized outreach, advertising and promotion strategies.

B. Incentives

It is essential that, at least during the pilot period, customer financial incentives (e.g. rebates) remain available at least their current level. We recommend that the pilots focus be primarily weighted to increasing program volume. Over the mid-term, programs can do more to focus on balancing and testing reductions in per project incentives against demand impacts of offering financing incentives like OBR and participation agreements.

6. Other Key Program Elements

A. Clear Bill Impact Disclosures

We recommend that bill neutrality be required in affordable housing properties as a tenant and owner protection – at least in the pilot period. It is not, however, clear that master-metered properties necessitate an additional cushion stipulating a savings to financing cost ratio above 1.0 and we recommend that building owners be granted maximum flexibility to pursue deep energy savings and to achieve the Commission goal of marrying the energy efficiency loan opportunity with solving another problem (that may not have positive cash flow impacts). We believe the convenience and economy scale benefits of combining energy efficiency improvements with deferred maintenance and/or health and safety upgrades are more important to address than deep buffers to bill neutrality of the financing.

In addition, it is essential that the economic benefits of water savings or renewable energy production be included in bill net neutrality calculations and that rates and terms of financing be adjusted to present an annual cash net-neutral value proposition for each deal during the pilot period.

We suggest that the bill impact disclosure policy put forth by NRDC and the Commission be applied to privately funded non-OBR loans during the pilot period. Where tenants are not at significant risk of bill increases from energy improvements, customers and financial institutions should be given the latitude to finance a range of improvements – what is critical is that both customers and financiers are made aware of expected bill impacts of a project. This approach will maximize program flexibility, and allow the market to resolve the most efficient and effective projects with appropriate underwriting criteria.

B. Eligible Measures

During the pilot period, we believe a broad range of energy-related measures should be eligible for program-sponsored financing. The top priority in the pilot period should be increasing program participation and loan volume. To do this, we recommend making a broad range of energy efficiency, *Guidance Decision*-listed demand-side investments, water efficiency and non-energy measures (NEM) eligible for financing. We recognize that expanding the eligible resources will require further discussion with the CPUC and utilities.

NEMs should be:

- Related to the core energy improvements (e.g. mitigation of deferred maintenance or health and safety issues that would otherwise make energy improvements impossible or handicap their performance).
    - We recommend the development, in collaboration with contractors and other stakeholders, of a list of eligible non energy measures to avoid the need to go through burdensome utility approval processes for each loan with NEMs – instead, contractors and customers will be able to look to this list for pre-approved measures.
- Limited NEMs to 20 percent of the overall project cost.

7. PROGRAM EVALUATION METRICS[53]

To facilitate rapid program implementation, we suggest that the CPUC delay requiring that financing programs be treated as resource programs until after the pilot period. By treating these initiatives instead as market transformation programs, we believe that the pilots will be better positioned to succeed – avoiding extended discussions about energy savings and earnings contribution, among other things. This market transformation designation would also help to focus program goals and evaluation metrics on the extent to which the financing pilots have helped to catalyze growth in the level of energy efficiency investment, something that is essential to attracting capital providers to this emerging market.

We recommend that the multifamily residential pilots be evaluated based on the following metrics:

1. Number of projects completed in OBR affordable pilot
2. Conversion rate of audits to completed projects
3. Number of organizations that provide capital into the structure during pilot period

These simple, easy to track, criteria place an emphasis on getting projects complete during the pilot period in order to accrue as much data and experience around the value of the financing mechanisms to contractors, building owners and lenders. They also emphasize conversion of audits into projects and prioritize the inclusion of multiple capital providers. (this could include program related investments from Foundations)

We believe that specific milestones and targets for the three metrics above need to be set during the implementation plan phase.

8. PROGRAM IMPLEMENTATION TIMELINE

We have designed the multi family pilot to be rapidly implementable as follows:

Q4 2012: Final program rules developed and implementation plan developed. Procurement process for contracting understood and outlined.

Q1 2013: Procurement for services is complete. OBR Affordable pilot launches into market with a clear plan to complete financings in Q2 and Q3 2013.

Q42013: Review and adjust program design and funding commitments for 2014 performance.

Q1 2014: Pilots fully operational and completing significant volume of projects

9. PROGRAM BUDGET RECOMMENDATIONS

[53] We note that the Commission has required that financing programs be Resource programs. We also note that there is little if any experience in measuring energy savings from financing programs, especially in cases in which they are combined with incentive programs. Such EM&V issues will be challenging. Further challenges arise when considering the use of credit enhancement funds that are actually returned to utility ratepayers, net of losses.

Budget for master-metered affordable housing pilot

We anticipate that this pilot will leverage private capital from CDFIs, banks and foundations. A draft budget estimate is below. Total ratepayer capital needed for this pilot (in addition to existing rebate estimates) is $2.9 million. This budget amount could be adjusted to accommodate more volume if the program is successful in completing this many projects before the end of 2014.

Master-metered Affordable Housing Pilot (2013 & 2014)

Average cost per project (200 unit project @ $3,000 per)				$ 600,000
Average ratepayer rebates as % of project cost			40%	$ (240,000)
Amount to be financed				$ 360,000
Number of projects				25
Total Private Capital Required				$ 9,000,000
Credit Enhancement Budget		10.0%		$ 900,000
OBR admin set-up costs, including legal				$ 1,000,000
Audits funded		50		
total cost per audit		$ 30,000		
ratepayer funding for audits	50%	$ 15,000		$ 750,000
Ongoing Technical Assistance budget per project		$ 10,000		$ 250,000
Total OBR pilot cost				$ 2,900,000

Marketing and outreach costs are not reflected in this budget but generating demand is a critical activity of any pilot program and needs to be treated as such.

CHAPTER 6
NON-RESIDENTIAL EE FINANCING PILOT PROPOSAL

Summary

The non-residential sector has long been challenging to serve with financing products. Small, medium and large businesses that occupy commercial buildings are often leveraged with debt, so taking on additional debt is often impossible or difficult. Further, many businesses are unwilling to take on new debt for activities that are not central to their business.

We propose a series of financial products and structures to take on these challenges through a combination of approaches. These approaches are designed to build the deal flow necessary to test the OBR value proposition, to test the value of OBR, and (through a sub-pilot) to test a new approach to using an efficiency performance insurance product as an alternative to traditional utility M&V. These pilots will test the extent to which structuring on bill repayment overcomes traditional lending barriers and attracts large pools of low-cost and accessible private capital to energy efficiency markets.

We propose pilots as follows:

* OBR for small, medium and large business, available to fund any energy efficiency retrofit or, in some cases, renewable energy, distributed generation, storage and similar resources. This pilot uses a credit enhancement to attract financial institutions that, in our view, will not otherwise participate in a new and untried OBR pilot. The pilot also proposes the use of an equipment lease origination structure for the small business sector.

* An insurance pilot designed to use third party performance guarantees as a pilot substitute for utility-based M&V processes.

Proposed budget: $21 million

1. INTRODUCTION

For the non-residential sector, we recommend that the IOUs' On-Bill Financing (OBF) programs be complemented by On-Bill Repayment (OBR). We recommend that OBF be modified to accommodate the introduction of OBR. Because the OBR value proposition to investors, originators customers and contractors remains unproven, we recommend that a credit enhancement be offered to support all non-residential energy efficiency OBR projects. A second credit enhancement option, is to make this credit enhancement available only for small business projects, but we believe that the priority during the pilot period should be to generate substantial project volume and that a more broadly available credit enhancement is the best strategy for achieving this goal. In addition to these financing options, we recommend that the CPUC and IOU's move forward with a sub-pilot

testing energy savings insurance-based project measurement & verification (M&V) in lieu of traditional IOU M&V protocols.

2. What Are We Testing?

Our pilots will test the extent to OBR overcomes traditional lending barriers in the non-residential sector, and attracts large pools of low-cost and accessible private capital to energy efficiency markets.

3. On-Bill Financing & On-Bill Repayment Pilot Recommendations

Table 1 provides an overview of our recommendations integrating OBR into the existing IOU OBF programs for the non-residential sector.

Non-Residential On-Bill Financing & Repayment Summary			
	Existing OBF Program	Proposed OBR Program	
		OBR w/credit enhancement	OBR w/o credit enhancement
Credit enhancement	None	No more than 20% of total financed cost. For lease origination: determined by RFP.	None
Eligible Customers	All non-residential IOU customers	All non-residential IOU customers	All non-residential IOU customers*
Eligible Measures	Existing program guidelines apply, except lighting measures may not exceed 20% of total project cost. (Government & institutional customers exempted from this lighting-maximum)	• All measures eligible for OBF, • Projects with lighting in excess of 20% of total project cost, • All other CPUC-"traditionally"-approved EE measures	• All measures eligible for credit-enhanced OBR. • "Demand-side investments" (renewables, DG, DR, storage)[54], EE measures not approved by the traditional CPUC tests (e.g. low-e win-dows), and certain non-energy measures.[55] May not exceed 20% of total project cost
Interest rate	0%	Market rate	Market rate

[54] The "demand-side investments" are as listed in the *Guidance Decision*, p. 107.

[55]Non-energy measures (NEM) and "non-traditional" EE measures must be related to the core energy improvements and necessary to enable their installation and/or improve their performance. We recommend that criteria for, or a list of, such measures be developed by the CPUC, IOUs and RENs in collaboration with building science experts and stakeholders.

NON-RESIDENTIAL ON-BILL FINANCING & REPAYMENT SUMMARY			
Credit enhancement	None	No more than 20% of total financed cost. For lease origination: determined by RFP.	None
Bill Neutrality Required?	Yes	No, contractor disclosure of projected bill impact required.	

* Non-residential POU customers can become eligible if their POU negotiates its participation

A. Continuation of the Existing On-Bill Financing Program

The *Guidance Decision* (D. 12-05-015) notes that OBF is making good progress reaching small business and government customers, and the *Proposed Decision* called for the IOUs to allocate $123.2 million to OBF during the 2013-2014 program cycle. Our proposal for OBF reflects and builds on the *Proposed Decision*. Specifically, we recommend that OBF be available to all customers who currently have access to OBF financing.

However, we recommend that single end use lighting measures not be permitted to exceed 20% of total project costs for small business customers. Such project should be funded through a new OBR pilot. We make this recommendation for the following reasons:

- OBF, with a 0% rate and utility ratepayers bearing credit risk, is the most highly subsidized financing option available in California. It should support comprehensive energy efficiency projects, and single end use lighting projects are not comprehensive.
- The OBF program has demonstrated a robust market in the lighting end use area, with a strong network of contractors. The infrastructure for delivering this end use is the most mature of any of the end uses markets. It will likely be most tolerant among any end uses of a change to OBR.
- We feel it is important to draw a bright-line distinction between OBF and OBR; a distinction based on the single end use measure is simple and easy to understand.
- In order to attract capital providers and lease originators, the OBR program must be able to predict strong uptake. It is well understood that programs that allow single end use lighting projects will produce substantial volumes.
- The paybacks in the single end use lighting market are quick enough that the deals will tolerate the addition of a key component: a non-zero interest rate. Put another way, OBR single end use lighting projects will still "pencil" out after the addition of an interest rate and we believe that these projects will still remain economically compelling to customers.
- Under the newly modified OBF program, we propose that property owners be able to contribute its own funds allow the project to produce positive cash flow when funded within the five year loan term.

B. The Proposed On Bill Repayment Program

We divide our recommendations for OBR into two primary segments: (1) with a credit enhancement and (2) without a credit enhancement. The two sections below describe these options.

i. On Bill Repayment (with Credit Enhancement)

Recommendation Overview

The OBR pilot fills in gaps in the altered OBF offering. We recommend that the following form the basis of credit-enhanced OBR:

- Eligible Projects: All projects eligible for OBF, majority lighting projects that no longer qualify for OBF, water efficiency projects, projects exceeding OBF's maximum financing limit and projects not meeting OBF's bill neutrality requirement.
- Financial Product Options: Projects may be delivered through a range of energy efficiency services delivery models, including leases, loans and efficiency service agreements.[56]
- Credit Enhancement: No more than 20% of a project's financed cost. We recommend that OBR's credit enhancement be available for a limited set of projects, and describe the OBR pilot in two segments below:
- Qualifying Customers: All non-residential IOU customers (including those eligible for REN programs) should be eligible for credit-enhanced OBR (except for government customers).[57] We describe the rationale for this credit enhancement recommendation below.

Credit Enhancement Justification and Description

Credit Enhancement Justification

We recommend that for the customers and measures described above, a credit enhancement be made available. We acknowledge that stakeholder support for a credit enhancement outside of the small business OBR sector is not universal, and have considered the input of all stakeholders carefully. Our rationale for continuing to propose a credit enhancement is as follows:

- Investor-owned commercial properties are generally unwilling or unable to borrow funds to finance energy efficiency projects because (a) they cannot take on new debt on their balance sheets or (b) other non-energy projects that are core to their business

[56]A range of models are fall into this category including Energy Service Agreements (ESA) and Managed Energy Service Agreements (MESA). They are characterized by a third party (the service provider) leveraging equity and debt financing to deliver no-cost energy improvements to a building owner in exchange for periodic payments for verified energy savings. We recommend that OBR and credit enhancement be made available to support these models. In addition, we note that CalCEF is developing a pilot targeting this model to medium sized non-residential projects (deal size <$1 million), a model which may warrant additional credit enhancement support.

[57] Government customers, generally, have a range of financing options at their disposal. We do not believe it is necessary or appropriate for these customers to be eligible for credit enhancement during the pilot period.

activity take priority. Owner occupants of corporate real estate are not subject to the same restrictions but may also be unwilling to commit to energy projects due to lack of existing budget, executive-level support or insufficient technical knowledge.[58]

- OBR is new and untested. Our extensive discussions with financial institutions have led us to conclude that investors do not know how to place a value on OBR when they make credit decisions. In general, investors feel that, intuitively, there appears to be value in OBR, however there is little to no data to back up that value. We do not believe that OBR along, today, will produce significant deal flow.
- We believe that a this credit enhancement is required for a transitional period. It should be put in place during the pilot and reevaluated at the end of the pilot. One purpose of the credit enhancement is to educate financial institutions about the value of OBR during the pilot, and to demonstrate that OBR does indeed lead to stronger loan, lease or other investment performance than is otherwise possible.
- We do not believe that, in the absence of a credit enhancement, OBR alone will produce enough commercial energy efficiency deals to have any deals that will enable the CPUC to evaluate OBR.
- Funds are only committed when deals actually close. If commercial deals do not result from credit enhanced OBR then no money will have been spent, and funds may be reallocated elsewhere.
- For the medium to large size commercial deals funded through an ESA/MESA structure our discussions with financial institution have led us to conclude many banks and other investors are unwilling to commit to deals outside of the small business space for greater than approximately 60% of the total deal size. Equity investors are typically willing to cover 20% of the deal; a gap remains before significant numbers of deals can be closed in this sector.
- For ESA/MESA deals, the utility ratepayer funds are not in a first loss risk position; that risk of first loss is taken by the equity investor. Subordinated debt provided by utility ratepayer funds takes on a second loss position and is protected by the equity investors. The subordinated debt does not reduce the equity investors' risk, nor does it increase their returns on the deal.
- From a customer perspective, the two biggest differences between OBR and OBF are that (1) OBR will involve an interest rate greater than 0% and (2) OBR may involve a more extensive financial underwrite of a borrower. These are significant barriers,[59] and we believe that the combination of credit enhancement with OBR may make it possible to offer commercial financing to customers who would not otherwise qualify for private financing, and make such financing available at more attractive terms

[58] This collateral is typically necessary because businesses are almost always corporate entities (e.g. LLC, S-Corp) and are separate from the business owner. A business owner is able to shut down a business or stop paying the bills without directly affecting his/her own credit.

[59] The Cadmus OBF Process Evaluation's survey of OBF participants, for example, found that 30% claimed they would not have participated in the OBF program if the interest rate had been above 0%.

Credit Enhancement Description

We make the following recommendations with regard to the credit enhancement:

- We do not believe that the level and structure of credit enhancement should be codified in the CPUC's final decision although we recommend that the CPUC limit the credit enhancement to no more than 20% of a project's financed cost. We recommend a maximum of 20% based on our experience in negotiations with financial institutions in other jurisdictions that have adopted financing programs for the in the non-residential commercial sector. In general, financing programs in this sector tend to be viewed as riskier (from a credit perspective) than residential programs. This greater risk results from the fact that(1) collateral is typically very difficult to secure in the commercial space for energy efficiency (2) our discussions with financial institutions have revealed that debt funding gap on these efficiency deals of about 20% is typical. We note also that there is no "magic" number and the task of choosing a credit enhancement amount is more art than science; our view is that this maximum of 20% is the best match for the current market.
- The pilot administrator should be granted flexibility to negotiate with financial institutions and investors to achieve an appropriate balance between attracting private capital and maximizing the leverage of utility ratepayer monies.
- We recommend that the maximum per-project credit enhancement be capped at $200,000.[60]
- We recommend that this credit enhancement be made available as either a loan loss reserve or subordinate debt, subject to the needs of the investor, property owners and lenders across the non-residential space.

Credit Enhancement Allocation

For ***all*** Non-Residential Market Providers

- The credit enhancement should be made available to any qualifying financial institution that applies to the Hub Manager for approval and is granted such approval. Qualifying financial institutions are expected to include banks, credit unions, efficiency service agreement providers, lease companies and community development financial institutions.
- The credit enhancement should be made available to support financial products, to include secured and unsecured loans or leases as well as efficiency service agreements.
- We recommend that this credit enhancement be available to qualifying financial institutions on a first come-first served basis. However, we also recommend that 50% of the credit enhancement pool be reserved for small business customers (as defined through mutual agreement of the IOUs, who currently have differing definitions of small business for purposes of their OBF programs).

[60] Should the CPUC decline our recommendation that credit enhancement be made available outside the small business sector, we recommend that the maximum per-project credit enhancement be reduced.

- To access the credit enhancement, we recommend that financial institutions be required to describe how the credit enhancement will expand customer access to credit or improve the interest rate/term of the financing.
- We note that we have had substantial discussions with CalCEF, which is working with an ESA provider (Metrus) to offer an ESA for the medium sized businesses. We believe that this type of offering is the kind of offering, among others, that demonstrates the benefits of both on bill repayment and the credit enhancement feature in the commercial sector. We do not recommend a specific allocation for CalCEF.
- We have considered the option of providing a credit enhancement or rate buy down for Commercial PACE. At this point, we do not see PACE, which has strong built-in credit features that result from the first lien position (subject to senior mortgage holder agreement), as benefiting from an additional enhancement. Our view is that PACE appears to have promise, but that it is not clear to us that there is high value in providing an additional credit enhancement for PACE.
- We have considered, based on stakeholder comments, the possibility of providing additional credit enhancement or covering origination costs for other products such as the FHA/HUD PowerSaver product. Our view is that PowerSaver already has a credit enhancement built in, through FHA/HUD, and that PowerSaver lenders have already received large grants from FHA/HUD that can cover origination costs or other lender costs. The PowerSaver approved lenders have not yet exhausted these other grant funds. As a result, we do not see a high additional value in increasing funds available for either credit enhancements or for coverage of origination costs.

<u>For Small Business Sector OBR Lease Providers</u>

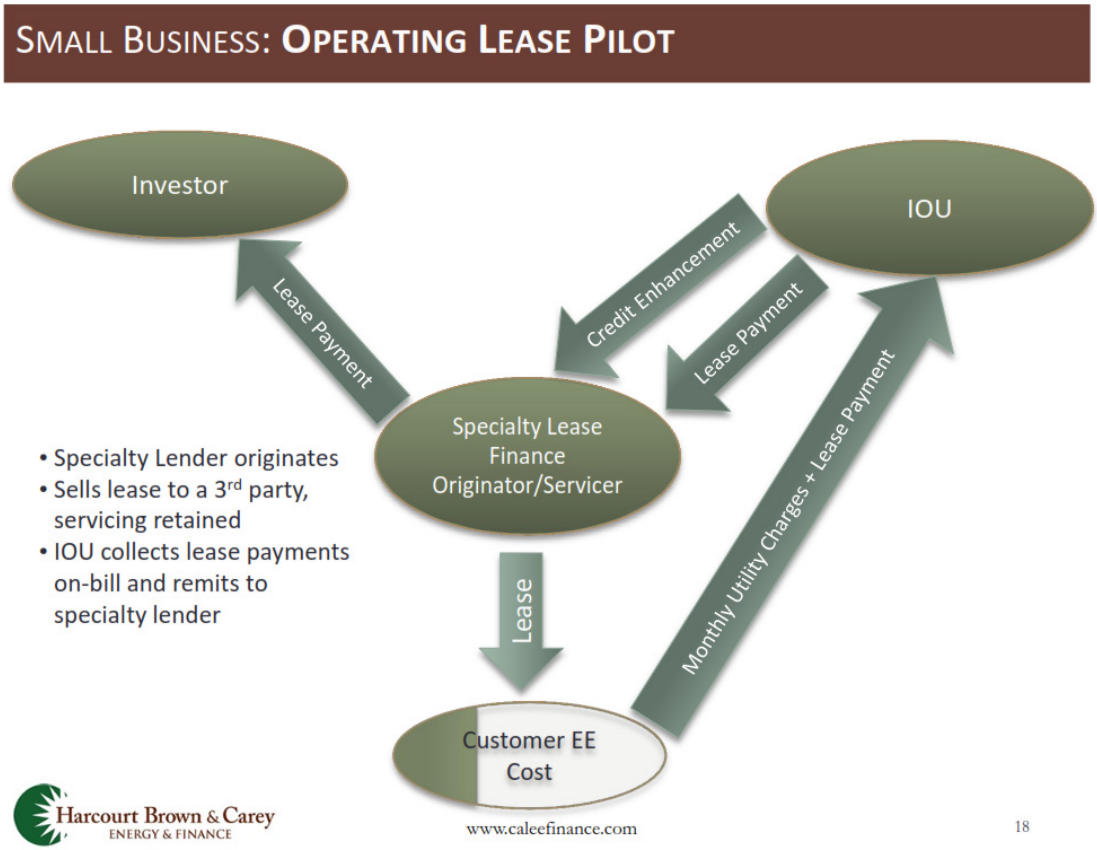
We propose an energy efficiency equipment lease financing pilot as the primary pathway to offer small business customers an alternative to OBF.[61](See Figure 1).

We propose this based on our experience with commercial energy efficiency financing in other states. Equipment leases and lease companies are, in many respects, the commercial analog to residential unsecured loan specialty originators (finance companies). Lease companies know how to design and market financial products to small businesses, know how to manage contractors, understand how to quickly originate leases, and bring pools of lease investors to the commercial equipment market.

Equipment lease financing is a mature market with many capital providers – it is the most common method used by the commercial sector (and is also quite popular in the institutional sector) to acquire equipment and has been used extensively to finance energy improvements. OBR with credit enhancement can extend the availability of these leases to a broader swath of customers than currently qualify for private financing, and deliver more attractive terms to customers. Figure 1 describes the small business lease pilot.

[61] While this sub-pilot is specifically targeted at small businesses, we recommend that all non-residential customers be eligible to participate.

Figure 1. Small Business Lease Pilot Overview



We recommend the following:

- Up to four (4) lease originators should be selected by competitive RFP to participate in the pilot. The consultant team initially recommended a single lease originator, but extensive stakeholder feedback convinced us that allowing a limited number of lease originators during the pilot period will (a) provide lease originators with enough confidence that deal flow will be sufficient to warrant the up-front costs of participating in the initiative while (b) creating competition amongst originators to propose lower rates, thinner spreads or access to deeper credits. If the program is deemed successful at the end of the two year pilot, we recommend allowing all lease companies be eligible to participate if they meet certain requirements.
- We recommend that RFP respondents be primarily judged based on:
  - We have spoken with a number of leasing companies who have shown interest in this pilot, so we believe that the interest is sufficient warrant this approach.
  - Maximum interest rates to be charged to borrowers expressed as a spread over LIBOR, prime or other well-known index.
  - Maximum fee for origination and servicing expressed as a spread over cost of funds.

- Contractor management capabilities, including number of contractors in California who currently or prospectively could work through the lease company in IOU and REN-sponsored programs.
- Size/structure of credit enhancement (maximum 20% of outstanding value of underlying lease) proposed. Risk-adjusted credit enhancements allowed (provide a smaller credit enhancement for leases with lower risks etc.)
- Years in business and net worth
- Willingness to guarantee to investor a minimum of 10% of outstanding value of any underlying lease.[62]
- Demonstrated impact of credit enhancement offered to affect rates, terms and/or diversity of customer credits to which the investor/originator is willing to lend.
- Investor pool, measured in terms of diversity of investors, number of investors and total amount of capital currently or prospectively available.
- Experience in operating equipment lease programs that are focused on energy efficiency.
- Servicing standards.
- Ability and willingness to explore alternative underwriting standards that incorporate such things as utility bill payment history.

Fund Model Lease Capital Provider

In the interest of rapid implementation, we recommend that the lease sub-pilot be initially implemented using lease originators' existing sources of investment capital. We also recommend that that, once implemented, an option be pursued that leverages the same (or same type) of centralized lease origination and servicing structure identified above, but utilizes local and/or foundation capital supported by utility ratepayer credit enhancement (see Figure 2). This option is complementary to the lease financing sub-pilot described above – the fund could be used to expand or test alternative underwriting criteria (such as utility bill repayment history). This fund could also provide competition for capital markets investors, leveraging local capital that may be available at more attractive rates, while offering the centralization of critical functions that is essential to "making the case on lease performance" to institutional investors. This fund model does not currently exist, and we suggest discussions with potential investors be pursued through Winter 2012 and Spring 2013 for potential implementation in 4Q 2013 or 1Q 2014.

[62] This feature is intended to ensure that these originators are appropriately motivated to responsibly underwrite leases, and ensures that the lease company maintains an ongoing interest in the lease. For explanation, a lease company that originates a lease and then sells that lease to an investor is still required to guarantee to the investor 10% of the outstanding principal balance, should the lease be charged off. 10% is a figure that is often used by lease investors and lease companies in the industry.

C. On Bill Repayment (no Credit Enhancement)

While we recommend that utility ratepayer credit enhancements for OBR be limited to energy efficiency measures for certain customers, we recommend that the OBR mechanism, itself, be made available to additional customers and for additional measures:

- Qualifying Projects: All measures eligible for credit-enhanced OBR. DSM measures including renewables, DG, DR, storage) and energy efficiency measures not approved as cost-effective (e.g. low-e windows). Non-energy measures[1] up to 20% of total project cost.
- Qualifying Customers: We recommend that all non-residential IOU customers be made eligible for non-credit-enhanced OBR.

The consultant team's initial inclination was to require energy efficiency improvements in conjunction with qualifying DSM measures. However, several stakeholders argued that permitting DSM measures (e.g. renewables, DG, DR, storage) would deliver benefits to IOU ratepayers. According to EDF, "Many small and medium businesses in California find it difficult to qualify for the credit necessary to install distributed generation. EDF believes that extending the OBR program to solar projects would significantly increase solar companies' ability to service this market, lower costs for these businesses and increase jobs."

This increased OBR volume will have an additional benefit to utility ratepayers as higher transaction volume (and associated fees for leveraging OBR) will help to offset the upfront costs to ratepayers of implementing OBR and the Hub.

Similarly, we recommend that non-residential POU customers be permitted to access to the Hub. Because IOU ratepayers will bear the up-front costs of implementing the Hub, we recommend that POU access be permitted, but subject to negotiation between the IOU's and POU's on appropriate compensation and fees for granting access. Such compensation would need to be structured in a way that does not allow for cross subsidization of the Hub as used for POU customers, by the IOU ratepayers. Once access has been granted, POU customer volume can help to defray these startup costs.

i. OBR Features: Tariff and Clear Bill Disclosure

Loan versus Service/Tariff

We recommend that, consistent with Commission guidance, OBR with transferability be available to financial institutions as a means to offer innovative financing products to customers. We believe that OBR with transferability (often referred to as a tariff, or service-based structure) has a number of advantages. These include:

- Eliminating the need for the ratepayer to take on debt. Most ratepayers have limitations as to the amount of debt they carry (either self imposed or imposed by existing and/or potential creditors). However if the OBR obligation is structured as a tariffed service agreement, ratepayers are not required to take on debt.
- A true service payment obligation is not recorded on the balance sheet of a customer.

- The service payments do not become due on sale (or vacancy).
- The payment obligation and the use of the energy efficiency asset, is transferable to the new owner/tenant.

We note that, as the utilities have pointed out, billing system changes would be required in order to implement an OBR program with transferability. Our discussions with the utilities lead us to believe that such changes will be unlikely to occur by the end of the first quarter of 2013. As a result, an OBR program with transferability built in, may be a longer-term option to be pursued.

We also note that transferability requires specific notification provisions so that successor occupants will understand that a payment obligation is on the energy bill. One program, Midwest Energy, has approached this notification in the following way:

- Midwest Energy's (Kansas) How$mart program provides the installation with no upfront capital requirement and records a UCC-1 lien against the property, evidencing the obligation for the ratepayer to make "surcharge" payments under the "How$mart" tariff. The surcharge and the energy efficiency are transferable to new owners/tenants.

We do not, however, recommend that OBR with transferability be a <u>required</u> element of financial products. Our discussions with financial institutions lead us to conclude that they will not engage in an OBR program that requires transferability, at this point for the following reasons:

- OBR (with threat of disconnection incorporated) is still a new concept to financial institutions, with an as-yet unproven value proposition. Layering on an additional element of a required transfer of payment obligation from one building occupant to a successor occupant adds new risks.
- Investors are willing to allow transferability with consent, but based on conversations with lenders, we believe they will not accept mandatory transferability.
- Financial institutions would consider engaging in a program with transferability if the credit risk of such a product were covered, to a very large extent through a creditworthy entity such as the State or a rated utility. Neither of these substantial credit risk propositions is proposed here.

We are aware, however, that some financial institutions – particularly mission driven investors and CDFIs, may be interested in pursuing an OBR structure with transferability. These structures, with more flexible investors, may be test cases to prove out the value of transferability, within certain target markets. To the extent that financial institutions are open to structuring an OBR program that involves shut off, we see no reason not to allow such a program.

D. Clear Bill Disclosure

In-line with CPUC guidance, we recommend that bill neutrality continue to be required for OBF and that clear expected bill impact disclosure be required for OBR. Several stakeholders have expressed concerns about the potential unintended consequences on future building owners and tenants of a "bill disclosure" requirement rather than a bill neutrality requirement.[63] We recognize these risks, but believe they are minimal – we believe that building owners and their financiers have adequate incentives, particularly in a bad economy, to maintain high levels of tenancy (i.e. not to perpetrate abuses on their current tenants) and that an appropriately designed disclosure policy at the time of property transfer can protect future property owners and tenants. We also believe that these risks are outweighed by the limits, in terms of achievable efficiency savings, that a bill neutrality requirement would burden the system with. However, we do recommend that real-time monitoring be done to assess the types of improvements being installed with OBR during the pilot period so that program changes, if necessary, can be made to ensure the program is being used responsibly.

4. SUB-PILOT RECOMMENDATION

A. Energy Savings Insurance M&V Sub-Pilot

This pilot provides an opportunity to test the attractiveness, and accuracy, of third party energy savings insurance in delivering verified energy savings in a more streamlined manner than current IOU processes.[64] Long project evaluation and approval times are often required in order for utilities to respond to Commission directives designed to assure proper and best use of utility ratepayer funds. These approval times can derail energy improvement projects. Further, M&V is costly for utilities.

This sub-pilot would use the services of the fledgling energy saving insurance industry. An energy savings insurance policy provides insurance to guarantee the performance of energy efficiency improvements.[65]

We believe that developing this industry will:

1. Establish national standards for third party insurance-based M&V using California protocols
2. Organize the energy efficiency business model around an independent "fifth-party" guarantee (utility, ESCo, host, financier and insurer) to build confidence among all parties and to bring discipline and standard metrics to the energy efficiency industry.

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[63] The Environmental Defense Fund has been particularly vocal, suggesting that, for example, building owners might fund capital investments they are typically responsible for and shift the payment burden to tenants.

[64] It is important to differentiate EM&V from M&V. The M&V to which we refer is that required to authorize an energy efficiency project to move forward, not the process used to retro-actively evaluate the cost-effectiveness of energy efficiency programs

[65] Due to high transaction costs, these products are primarily deployed as part of large non-residential energy improvements, although CalCEF intends to pilot a model targeting $200,000-$1 million projects.

3. Transfer balance sheet liabilities away from ESCos to the insurance provider allowing them to increase their rate of growth and eliminate the need for parental guarantees, capital charge-backs and financial statement contingencies and disclosures
4. Provide confidence to project hosts that both the utility and an insurance provider are party to the measurement and guarantee of energy savings
5. Ensure that the utilities' claim of "resource acquisition " is backed by the insurance provider's in-house engineering review
6. Allow the "market" to decide which ESCOs have sufficient capabilities, track record and controls to received insurance coverage and participate in the industry
7. Protect investors by allowing property owners will to repay financing even if savings are not achieved
8. Include both resource and non-resource measures under the policies.

While only a few providers of this insurance exist, we have had discussions with major providers that would enter the market with sufficient deal volume. We propose that for a limited number of projects, the Commission and IOUs work with the insurance providers to develop terms of an agreement to allow projects that have received insurance coverage to substitute that coverage for the project standard IOU approval process.

We understand that both utilities and the Commission would need to undertake a thorough review of the energy savings insurance performance criteria, including possible conflict of interests related to the insurance provider both calculating energy saving impact and paying claims for shortfalls. We further understand that, at least on a pilot basis, new Commission rules would need to be developed to accommodate such a change. We suggest that this review and consideration be undertaken through a dedicated workgroup to begin after the Commission decision

We do not envision that this pilot would require an allocation of capital. We view this pilot as an enabler that seeks to integrate new financial products (in this case and insurance product) to reduce the transaction costs of efficiency upgrades, thus increasing the deal flow for financial institutions in the large commercial sector.

5. BUDGET RECOMMENDATIONS

We recommend that the CPUC allocate $21 million to the OBR financing pilot during the 2013-2014 program cycle.

Our projection of budget needs for non-residential OBR are as follows.

Top-Down Analysis for Small Business, Government & Institutional

1. We assume that 85% of projects that would have been funded through OBF are now eligible only for OBR (based on analysis of the OBF programs and customers currently eligible for OBF).
2. We estimate a that the total value of OBR projects funded will be $70 million. This compares to the total OBF projects funded in the PD of $123 million. We note that this OBF

allocation may decline if the Commission accepts our recommendation to remove single end use lighting measures for small businesses from OBF eligibility. We estimate that OBR uptake will be lower than OBF in during the pilot period because OBR entails an interest rate and more extensive underwriting than OBF.

3. We assume that the OBR credit enhancement will be 20%, with a credit enhancement need of $14 million.

Large Non-Residential Bottom-Up Analysis (excluding small business, government & institutional)

1. Based on extensive discussions with non-residential energy efficiency financing programs across the country and energy efficiency services providers for that sector, we estimate that 20 large projects and 20 medium size projects will be completed during the pilot period.
2. We estimate the typical large project size as $1,500,000 and typical medium project size as $250,000 (while the average project may be larger, we have recommended capping the credit enhancement for any individual project at $200,000. For a 20% credit enhancement, this means that the credit enhancement will not increase once a project increases above $1,500,000).
3. We assume that the OBR credit enhancement will be 20% and forecast a large non-residential OBR credit enhancement need of $7 million.

We, recommend that $21 million be allocated to provide OBR credit enhancement during the 2013-2014 pilot period.

Small Business OBR:	$14.0 M
Med/Large Business OBR:	$ 7.0 M
Total	**$21.0 M**

6. TIMELINE

We have designed the Non-Residential Pilot to be implementable quickly. The proposed timeline for program implementation follows:

Q4 2012: Final program rules developed, relevant RFPs released for key program functions and access to capital pilot, outreach to financial institutions and potential fund investors begins.

Q1 2013: Financial institutions and potential fund investors selected.

Q2 2013 - Q3 2013: Access to capital pilot chosen and program rules developed, go/no go decision on local/foundation fund pilot based on investor interest.

Q3 2013 - Q4 2013: Access to capital pilot launched, local/foundation fund pilot launched (if "green lighted" in Q2 2013)

Q1 2014: All Non-Residential pilot elements operational

APPENDICES

Appendix 1

Ordering Paragraphs Regarding Financing from the Guidance Decision (D. 12-05-015)

(OPs 21-31; pp. 400-403)

Financing

21. By no later than August 1, 2012, San Diego Gas & Electric Company and Southern California Gas Company shall hire, on behalf of themselves, Pacific Gas and Electric Company, and Southern California Edison Company, and co-funded by all of the named utilities, an expert financing consultant to design new pilot financing programs for 2013-2014 and to convene working groups on the new program design and data collection needed to support scalable financing programs in the future.

22. In their 2013-2014 program portfolio filings, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall propose a statewide portfolio of financing programs funded at a level of at least $200 million statewide over the two-year period, consisting of the following components:

a. Continuation of and improvement to the on-bill financing programs currently in the utility 2010-2012 portfolios for non-residential customers;
b. Continuation of successful financing programs that were originally supported by American Recovery and Reinvestment Act stimulus funding in 2011 and 2012 and implemented by third parties, local governments, and/or via the California Energy Commission; and
c. A set of new financing programs to be designed in 2012, and then offered consistently on a statewide basis, in pilot form in 2013, and on a larger scale in 2014.

23. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall propose new statewide financing programs in their 2013-2014 portfolio applications for piloting in 2013 and full-scale offering in 2014, to include the following elements:

a. A credit enhancement strategy for the single-family residential market and any other proposed single-family program approaches operating within existing statutory constraints;
b. A financing program strategy designed specifically for the multi-family residential market that includes both credit enhancement and an on-bill repayment option and/or tariff-based energy efficiency improvement reimbursement mechanism that may require legislative change to fully implement;
c. A credit enhancement strategy for the small business market; and
d. An on-bill repayment strategy for all non-residential customers.

24. The on-bill repayment strategy for non-residential customers proposed for 2013-2014 shall not require bill neutrality and shall allow for pro-rata allocation of payments between utility bill obligations and loan repayment.

25. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas

&Electric Company, and Southern California Gas Company shall, beginning in 2012 and in consultation with the expert financing consultant hired by San Diego Gas & Electric Company and Southern California Gas Company and a working group convened by the consultant, develop or contribute to a larger-scale database or databases of financing related data and information, that can be shared publicly after appropriately masking individual customer confidential information, and that consists of the following minimum types of information:

a. Customer type;
b. Host site characteristics;
c. Utility payment history;
d. Borrower credit scores and energy project repayment history;
e. Energy project performance data; and
f. Billing impacts comparing pre- and post-installation utility bills.

26. By the end of the third quarter of 2012, the expert financing consultant hired by San Diego Gas & Electric Company and Southern California Gas Company shall present 2013 pilot program design details in a written program plan and a public workshop.

27. No later than January 1, 2013, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall continue to provide On-Bill Financing programs and funding consistently statewide.

28. No later than August 1, 2012, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall provide funding for selected successful financing programs previously supported by American Recovery and Reinvestment Act funds in 2011 and 2012.

29. In their 2013-2014 energy efficiency program portfolio applications, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall address their strategy for maximizing portfolio cost-effectiveness by offering financing programs in coordination with rebate/incentive programs, either by offering financing in lieu of rebates and/or by lower incentives in cases where financing is also provided. The financing programs shall be considered resource programs designed to deliver additional energy efficiency savings beyond those available through other programs.

30. In their 2013-2014 energy efficiency program portfolio applications, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall propose a methodology to estimate incremental savings delivered by the statewide financing programs towards their energy savings goals, while avoiding double-counting of savings from other programs.

31. In 2013-2014 statewide financing programs, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Southern California Gas Company shall not require that all measures supported by financing programs be part of another utility incentive program.

Appendix 2

Ordering Paragraphs Regarding Financing from the Oct. 9 Proposed Decision

(OPs 19-20; p. 122. Additionally, OPs 7-10 govern the programs of the BayREN, SoCalREN and MEA, including their proposals for EE Financing programs.)

19. Pacific Gas and Electric Company, San Diego Gas & Electric Company (SDG&E), Southern California Gas Company (SoCalGas), and Southern California Edison Company shall fund energy efficiency financing programs at the budget levels shown in Table 7 in this decision. Revolving loan funds for SDG&E and SoCalGas shall not be funded out of energy efficiency program funds. These budgets do not include funding for the statewide marketing, education, and outreach program, which is being evaluated in Application 12-08-007 et al.

20. Approval to proceed with activities related to the statewide energy efficiency financing pilot programs required by Decision 12-05-015 is delegated to the Assigned Commissioner in this proceeding, who shall issue any rulings necessary to approve the final program designs.

Conclusions of Law Regarding Financing from the Oct. 9 Proposed Decision

(CoLs 48-53; pp. 112-113. Additionally, several CoLs relate to the BayREN, SoCalREN and MEA, including their proposals for EE Financing programs.)

48. The utilities' on-bill financing programs should be approved as proposed with the budgets authorized herein.

49. Pilot financing programs originally funded under ARRA have shown promise and should be allowed to continue with energy efficiency program funding for two years.

50. The statewide energy efficiency financing pilot activities should be carefully coordinated with the REN and MEA financing activities.

51. Funding should be reserved for the REN and utility financing pilot programs until further action by the Commission. Programmatic decision-making on the financing pilot activities should be delegated to the Assigned Commissioner.

52. Any entity administering or implementing a financing program in 2013 and 2014 should contribute project data to a database effort to better inform financing program offerings going forward.

53. Utilities should not be prohibited from offering both incentives and financing options for the same measure in 2013, but should pilot the appropriate balance of both while balancing cost-effectiveness considerations so that we may learn more about customer acceptance of the products.

Appendix 3

OVERVIEW OF CPUC-REGULATED EE FINANCING ACTIVITIES		
Activity	**Party(s)**	**Status**
On-Bill Financing	All IOUs	Underway, continuation very likely*
Successful ARRA program – various	Local gov'ts	Underway, continuation very likely for many*
Pilot Programs – Proposals (Single Family, Multifamily, Small Bus'n, Non-Resid., Hub)	Consultant, All IOUs	Submitted for review
Pilot Programs – Implementation	All IOUs, Consultant	Awaiting CPUC authorization, very likely (piloted 2013; larger scale 2014)*
Single family loan loss reserve (LLR)	SoCalREN	Approved in PD
Public building LLR; PACE debt service reserve; Public agency Revolving loan fund	SoCalREN	Denied in PD
Multifamily affordable pilot	SoCalREN	Proposed; deferred† in PD
Pay As You Save water efficiency pilot	BayREN	Approved in PD
New Regional PACE program (& incentives)	BayREN	Denied in PD
Single Family LLR, Multifamily co-financing	BayREN	Proposed; deferred† in PD
Multifamily OBR, Small Commercial OBR, Standard Offer	MEA	Approved in PD
Data and database development	IOUs, Consultant, Working Group	Start: Oct. '12

* Per *Guidance Decision* and *Proposed Decision*

†Pending further authorization by the Commission after review of the financing consultant proposals

Abbreviations

ABAG	Association of Bay Area Governments
ARRA	American Reinvestment and Recovery Act
C&I	commercial and industrial
CAEATFA	California Alternative Energy and Advanced Transportation Financing Authority
CalCEF	(a clean energy finance nonprofit)
CCA	community choice aggregator
CDFI	community development financial institution
CPUC	California Public Utilities Commission
DG	distributed generation
DR	demand response
DSM	demand-side management
DTI	debt-to-income
EE	energy efficiency
EDF	Environmental Defense Fund
EM & V	evaluation, measurement and verification
ESA	energy services agreement
ESAP	Energy Savings Assistance Program
ESCo	energy service company
FASB	Federal Accounting Standards Board
FI	financial institution
FICO	(a credit score company)
HB&C	Harcourt Brown & Carey
IOU	investor-owned utility
LIB	line item billing
LLR	loan loss reserve
M&V	measurement and verification
MEA	Marin Energy Authority
ME&O	marketing, education and outreach
MESA	managed energy services agreement
MF	multifamily
NEM	non-energy measures
NRDC	Natural Resources Defense Council
O&M	operations and maintenance
OBF	on-bill financing
OBR	on-bill repayment
PACE	Property Assessed Clean Energy
PD	Proposed Decision
PG&E	Pacific Gas and Electric
POU	publically owned utility
PRI	program-related investment

QA/QC	quality assurance/quality control
REN	Regional Energy Network
RFP	request for proposal
SBA	Small Business Administration
SCE	Southern California Edison
SDG&E	San Diego Gas & Electric
SF	single family
SoCalGas	Southern California Gas Company
SPV	special purpose vehicle
WHEEL	Warehouse for Energy Efficiency Loans