



Criteria for a Comparative Assessment of Energy Efficiency Financing Programs Available in California

July 2016

Table of Contents

A.	Introduction	4
1.	Purpose of this Report	4
2.	Acknowledgements	4
B.	Highlights: A Summary of the Proposed Comparative Criteria and Discussion of Issues	5
1.	Key Issues to Consider	6
	Criteria that are Comparative	6
	Comparative Criteria v. Evaluation Methodologies.....	6
	Competing Policy Goals	6
	Differing Levels of Development	6
	Analytic Information v. Comparative Criteria.....	6
	Net Energy Savings v. Gross Energy Savings.....	7
	Availability of Data.....	7
	Market Transformation and Establishing a Baseline	7
	Program versus Financing Product	8
	Project-Level vs. Program-Level Savings.....	8
	Process Evaluation	8
	Other Policy-Related Metrics.....	8
C.	Proposed Criteria for a Comparative Assessment of Energy Efficiency Financing Programs Available in California	9
1.	Energy Savings Attributable to Financing Program	9
	Importance of Attribution Analysis	9
	Attribution Methods.....	10
	Access to Energy Savings Data.....	10
	Data Quality, Reporting, and Verification.....	10
2.	Analytic Information	10
	Finance Program Elements	10
3.	Cost-Effectiveness: Total Net Savings and Benefit-Cost Ratio	11
	Total Net Benefits vs. Benefit-Cost Ratios	11
	Calculating Financing Costs	11

Program Maturity	12
4. Savings, Cost-Effectiveness, and Market Penetration by Market Segment and Project Type ...	12
Impacts by Market Segment: Customers/Sub-segments Reached, Attributable Savings, and Cost-Effectiveness by Market Segment.....	12
Project Type/Characteristics: Measure Mix by Program, Number of Measures per Project, Savings per Project	12
5. Customer Experience: Customer Satisfaction and Consumer Protection	12
Customer Satisfaction.....	12
Consumer Protection.....	13
6. Market Transformation	13
Logic Models	14
Market characterization	14
Interim Metrics	14
Tracking Simultaneous Impacts	14
D. Background	14
1. Legislative Directive	14
2. Working Group Process	15
3. Written Comments	15
4. Timeline of Activities	15
5. Background Information on California Energy Efficiency Financing Programs	16
PACE Financing	16
CHEEF Pilot Programs	16
On-bill Financing	16
Other Financing Programs	16
Evaluation of California Energy Efficiency Financing Programs	16
Appendix A – Working Group Members.....	18
Appendix B – Written Comments on Proposed Comparative Criteria	19

A. Introduction

1. Purpose of this Report

This report recommends criteria for a comparative assessment of energy efficiency financing programs in California, and includes comments from a stakeholder working group regarding the relative importance and challenges posed by the comparative criteria.

The recommended comparative criteria are simply a proposal, and are offered as a starting point for an important conversation on how the state should evaluate and compare various energy efficiency financing programs. This paper does not explore the methodologies used for the criteria, although this will be a critical issue going forward with any comparative assessment. Additionally, this report assumes that a primary purpose of the criteria is not merely to determine whether a financing program is successful in making capital available, but to understand whether by doing so, the financing program is producing greater energy savings or reducing the need for public funds while improving or maintaining energy savings.

This report was undertaken in response to the 2015-16 California Budget in which the California Legislature tasked the California Alternative Energy and Advanced Transportation Financing Authority (“CAEATFA”) with creating a working group to “develop criteria for a comparative assessment of energy efficiency financing programs” in California. The work was to be done in consultation with the California Public Utilities Commission (“CPUC”). CAEATFA did not receive funding for this project.

To fulfill this directive, CAEATFA staff convened a public process to encourage stakeholder participation and input in developing criteria for a comparative assessment. Over several months, CAEATFA, with technical assistance from Lawrence Berkeley National Laboratory and Energy Futures Group, hosted a series of educational workshops featuring presentations from stakeholders on various metrics for evaluating energy efficiency financing programs. The process culminated with a public meeting at which a working group, appointed by the CAEATFA Board, discussed a proposal of comparative criteria drafted based on the discussions from the previous workshops. The list of working group members is included as Appendix A to this report. CAEATFA also solicited written public comment on the proposed comparative criteria; written comments received are included in Appendix B to this report.

2. Acknowledgements

CAEATFA staff would like to recognize Jeffrey Deason, Program Manager in the Electricity Markets and Policy Group at Lawrence Berkeley National Laboratory, and Christopher Kramer, Senior Consultant at Energy Futures Group, for their technical assistance and support in creating this report. CAEATFA staff would also like to thank those who presented at the workshops: Chuck Goldman, Jennifer Caron, Megan Campbell, Jeevika Galhotra, Alex Hill, Frank Spasaro, Craig Carlock, James Hamill, Mike Lemyre, Barbara Spoonhour, Jewel James, Jenine Windeshausen, Pat McGuckin, and Laura James. Finally, CAEATFA staff would also like to thank the staff at the CPUC for their participation and advice, and to all who contributed on the working group.

B. Highlights: A Summary of the Proposed Comparative Criteria and Discussion of Issues

This report proposes the following as comparative criteria. These are consistent with California's greater climate change goals and focus on goals that can be compared across programs. Programs may have different policy goals or priorities, making the development of comparative criteria challenging.

Energy Savings Attributable to Financing Program

- The reduction in energy usage brought about specifically by the financing program, but not including savings that would have occurred in the absence of the offered financing.

Analytic Information

- Basic program and finance information to provide context and detail on the various energy efficiency financing programs in California, including but not limited to such things as: loan volume, cost of borrowing, etc.

Cost-Effectiveness: Total Net Benefits and Benefit-Cost Ratio

- Total Net Benefits: The dollar value of the energy savings attributable to the financing program less the cost of providing those savings.
- Benefit-Cost Ratio: The dollar value of the energy savings attributable to the financing program divided by the costs of providing those savings.

Energy Savings, Cost-Effectiveness, and Market Penetration by Market Segment and Project Type

- Impacts by market segment/sub-segment, by building type, as well as customer demographics.
- Measure and project characteristics: metrics related to the types of projects installed using the financing programs.

Customer Satisfaction and Consumer Protection

- Customer satisfaction: Whether customers got what they expected out of the program and were happy with the experience. Customer satisfaction may include ease of use, time/duration of transaction/project, quality of project, comfort, health, etc.
- Consumer protection: Whether the program adequately protected participants' financial interests, including by preventing consumers from taking on obligations they are unable to meet, and by providing a clear understanding of financial product, energy savings expected, the uncertainty of savings projections, terms of financing, and repayment schedule.

Market Transformation

- The financing program's ability to scale up savings by impacting the market as a whole.

1. Key Issues to Consider

Criteria that are Comparative: The criteria are intended to evaluate programs relative to each other; therefore, criteria must look at common aspects that can be compared across energy efficiency financing programs. Additionally, the criteria are intended to understand not just the relative performance of programs, but also how programs may complement each other and the potential costs and benefits of having multiple programs in the same market segment. For example, certain programs may be more effective in different sub-segments of a particular market or may be more successful at encouraging certain project types.

Comparative Criteria v. Evaluation Methodologies: This report intentionally focuses only on comparative criteria, and not on evaluation methodologies. Methodologies for evaluating energy efficiency financing programs are still being developed and refined, and may vary across programs. However, the choice of methodologies is a critical element of program evaluation. If the proposed criteria are to be useful, energy efficiency financing programs will need to apply evaluation methodologies consistently across programs.

Competing Policy Goals: Different programs will have various policy goals, posing a challenge to conducting a comparative evaluation. For example, some programs may place greater emphasis on return on investment or market expansion. Others may be more interested in more efficient use of ratepayer funds, or ensuring a greater amount of energy savings, either through more or deeper projects. Some may be more focused on specific sub-sectors or income levels. The Legislature, by asking for proposed comparative criteria, has raised the important issue of establishing clear, statewide set of goals for energy efficiency financing programs.

Differing Levels of Development: The discussion of some proposed criteria is relatively well developed, while of others, such as Market Transformation, the discussion is largely conceptual. Because CAEATFA was charged with recommending criteria, the report includes any criteria CAEATFA believes valuable to a comparative analysis, regardless of whether a well understood method for analyzing the criteria exists.

Analytic Information v. Comparative Criteria: Certain basic data may provide helpful context around various energy efficiency financing programs. For example, loan volume, interest rates charged, private capital leveraged, and loan performance data each provide useful and important information regarding the financial aspects of a given program. This data is not assessment criteria per se, as it may not provide a direct measurement of the achievement of policy goals, such as an increase in cost-effective energy savings. Furthermore, a program's relative success in financial metrics may not always translate into superior performance along policy dimensions, e.g. lower interest rates may not directly translate into more energy savings or into reaching targeted populations. To the extent these metrics do influence energy savings, the impacts will be reflected in the energy savings criteria. Nonetheless, analytic information is included in the proposed criteria because it became clear during the working group discussion that this information was important to policy makers for understanding the context of a program and tracking the program's progress during the early years of program development.

Net Energy Savings v. Gross Energy Savings: The proposed criteria recommend evaluating programs based on “net energy savings”, or the energy savings generated that would not have occurred but for the financing program. However, many members of the working group pointed out that quantifying gross energy savings might also provide useful context, and could easily be included in the energy savings criteria. Most programs currently self-report gross energy savings, but if gross energy savings are to be included as criteria, it is important that methodologies used by financing programs for calculating gross energy savings are verifiable and consistent enough across programs to allow for useful comparison. It is also important to note that net savings are the ultimate measure of the energy impact of a financing program and that a program with higher gross savings than another program will not necessarily also have higher net savings.

Availability of Data: Financing programs in California are at different stages of development, and some have no program data to inform any type of evaluation. In addition, programs are run by a variety of program administrators with different procedures and privacy constraints, and may or may not be collecting the necessary data, or may not make data publicly available. The Legislature may wish to establish policy or standards for the availability of certain data.

Market Transformation and Establishing a Baseline: In addition to obtaining energy savings through direct program participation, some financing programs seek to scale up savings by impacting the market as a whole.

Assessing the market transformation impact of programs involves several elements:

- (1) A “baseline” market study that includes current market practices, activity, and barriers for energy efficiency financing. This establishes a starting point for evaluating market changes. Members of the working group noted that the CPUC has done considerable work on establishing a baseline that perhaps could be used as a starting place for all energy efficiency financing programs.
- (2) A logic model that describes the expected impacts on the market from program intervention and establishes a timeline over which specific changes are projected, which may be many years after program launch.

It became clear from working group discussions that goals for transforming energy efficiency financing markets are new and somewhat loosely defined. Furthermore, financing programs may concentrate on different aspects of market transformation. For example, some programs may focus on gathering loan performance data to reduce the perceived risk of energy efficiency lending, thereby increasing the number of lenders, improving rates and terms, and encouraging a loosening of creditworthiness requirements. These supply side efforts might be expected to indirectly increase customer demand through increase of availability of credit and more attractive lending terms. Other programs may focus on using financing to drive demand directly by shifting customer perceptions of the value proposition offered by energy efficiency; and yet other programs may focus not only on increasing customer demand through market transformation, but also on whether the government is able to invest less public or ratepayer dollars, while achieving the same or greater level of energy savings.

Until these varying ideas of what market transformation means are reconciled, it will be difficult to comparatively evaluate “market transformation” across differing programs. Furthermore, expected timelines for market transformation may in some cases be many years after program launch, and evaluation activities should be conducted at points along that timeline corresponding with the maturity of the program.

Despite these issues of definition and timing, this report includes market transformation as proposed comparative criteria because market transformation is often cited as a goal of energy efficiency financing programs. Clarifying what is meant by market transformation is important, and the topic deserves further discussion and policy direction.

It should be noted that some aspects of market transformation, such as increase in customer demand and reduced need for public or ratepayer dollars, is captured in other criteria, such as energy savings and cost-effectiveness.

Program versus Financing Product: Throughout this report, the authors have referenced criteria to compare and assess energy efficiency financing programs. However, in some cases it may be more accurate to refer to criteria that assess financing products, as some programs may administer several different subprograms, offering different products.

Project-Level vs. Program-Level Savings: Financing programs support many individual projects in different types of buildings and with different types of occupants. Results on individual projects may vary, and we do propose assessing project-level data in a few instances. However, in general, energy savings and cost-effectiveness are viewed at a program level, and this report proposes comparatively assessing programs at the program-level, except where specifically noted otherwise.

Process Evaluation: Process evaluations typically provide information, often qualitative in nature, related to the operational aspects of program implementation, as well as the experience of customers, contractors, and other program partners. Contractor experience may be a particularly important factor to investigate for financing programs, as contractors are typically key sales channels for financing products. This information is generally used to help improve program implementation going forward in order to achieve programmatic goals more effectively. In a comparative assessment of financing programs, such information might be used to better contextualize quantitative impacts. Such information could also potentially be used in earlier stages of program development, to help determine whether certain programs are likely on track to be successful.

The recommended comparative criteria do not include Process. In some cases, it may be possible to develop proxy metrics for operational effectiveness, and programs with more effective and efficient implementation can deliver more value. However, such metrics might not be considered “primary” criteria, as they are not as directly tied to energy and policy goals as other criteria.

Other Policy-Related Metrics: Each financing program included in a comparative assessment may have its own policy-related goals and objectives. Conducting a comparative assessment of financing programs

may require determining whether the assessment should focus only on progress toward achieving energy efficiency goals or should also track progress toward other policy objectives. The language calling for the creation of the working group refers to criteria for “assessment of energy efficiency financing programs,” but does not specify whether progress toward other goals that are tied to these programs should also be evaluated. Other policy-related goals may include the promotion of renewable generation or facilitation of other project types (e.g., water conservation, electric vehicle purchases, seismic strengthening), reduction of greenhouse gas emissions, as well as job creation and economic development. If a comprehensive assessment includes progress toward all policy goals, it would also ideally provide information regarding whether and how the activities of various programs to achieve different policy objectives acted in concert to achieve a broad range of policy-related goals. A comprehensive assessment that tracks progress toward other policy goals would also need to identify pre-existing quantitative targets and potentially develop additional metrics to determine progress toward less concretely defined overall goals.

In cases where other policy goals are included as program objectives, they may ultimately enter the core criteria as non-energy benefits within the cost-benefit criteria. If other policy goals are not tracked as part of a comprehensive comparative assessment, the assessment should acknowledge that a complete understanding of the overall progress of any particular program includes examining progress toward the full range of objectives of that program.

C. Proposed Criteria for a Comparative Assessment of Energy Efficiency Financing Programs Available in California

1. Energy Savings Attributable to Financing Program

Importance of Attribution Analysis: In evaluating the financing aspects of energy efficiency programs, a key question is how much each financing program is “growing the pie” by generating savings that would not otherwise have occurred, or might have occurred only at a later time. Attribution analysis is needed to answer this question. For example, some of the savings from projects supported by financing products would likely have happened even in the absence of that financing, supported by other capital such as conventional loan products or cash, or perhaps would have occurred at a later date.

Although some savings may also be attributable to rebates or other programs and policies that also affected the project, this report does not recommend that the attribution analysis parse out the impact of multiple programs on energy savings. If a project requires both financing and a rebate incentive to go forward (i.e. without the financing, the project would not happen, and without the rebate, the project would not happen), then 100% of the energy savings may be attributed to the financing because, but for the financing, the project would not have happened.

Attribution analysis also helps evaluate any tradeoffs between high total participation with lower attributable savings levels under some programs, versus lower total participation with higher rates of attribution per project in other programs.

But attribution analysis has its challenges. Some members of the working group noted that financing alone does not make a successful program and needs to be bundled with marketing and consumer satisfaction efforts to accelerate up-take and demand. Attribution analysis may require determining whether and how to parse out the impacts of financing alone versus other elements such as those that may be integrated into a financing program. A traditional attribution analysis that assigns each unit of energy savings to one single program or program element may not be feasible for those energy efficiency projects that require assistance from multiple programs or incentives and may discourage cooperation among programs; therefore, as mentioned above, this report does not recommend this traditional approach to attribution analysis.

In addition, attribution analysis may lead to over analysis and a false sense of ‘precision.’ While it is important to try to get a sense of how much a particular financing program is “growing the pie”, it is also important to recognize that what is attainable and needed is a reliable estimate, not a perfect analysis. For this reason, it may make sense to track verified gross energy savings, also. This would provide context and additional background.

Attribution Methods: Methods of attributing savings specifically to financing programs are under discussion in California and elsewhere. A comparative assessment should incorporate the latest thinking regarding best practices in this area and ideally be consistent with methods used in other California financing evaluations for this purpose.

Access to Energy Savings Data: Depending on the chosen methodology, evaluators may need access to key data related to energy savings, such as measures installed, pre- and post-installation billing data, or billing data from non-participants. This may require cooperation with utilities, customers, and financing program administrators.

Data Quality, Reporting, and Verification: Data should be reported in a manner that is consistent and reliable, and that allows for independent verification of reported savings. If programs collect and report different types of data, a comparative assessment would likely be less meaningful.

2. Analytic Information

Finance Program Elements: Certain basic data may provide helpful context around the various energy efficiency financing programs in California. The information could also help explain the results measured by the comparative criteria and give policy makers more tools for understanding how each program is working. As such, diagnostic information should be included in a comparative assessment, at least during the period of program start-up. Analytic information might include, but is not limited to, the following:

- Types of financial products offered
- Types of eligible projects, estimated useful life of projects
- Loan volume
- Median and average loan amounts
- Private capital leverage

- Source of funding
- Security required, if applicable
- Loan performance data
- Verified gross energy savings
- Terms, APR, fees
- Average payment amounts
- Types of loss mitigation options
- Consumer eligibility and underwriting criteria

3. Cost-Effectiveness: Total Net Savings and Benefit-Cost Ratio

Total Net Benefits vs. Benefit-Cost Ratios: The proposed criteria recommend that both total net benefits and benefit cost ratios be used to assess cost effectiveness.

Total net benefits represent the value of energy efficiency achieved minus the cost, providing an overall sense of the success of an energy efficiency financing product. Alternatively, benefit-cost ratios provide a sense of the average amount of value produced in a program per dollar invested, which is also a useful metric.

Some programs may serve customers for whom benefits are large and easily gained, and may not need to spend a lot to attract customers. As a result, they may have high benefit-cost ratios. Programs seeking higher participation rates from harder to reach customers may need to spend more to acquire customers. Furthermore, each subsequent dollar invested may, in some cases, produce slightly lower returns even if returns for each project are still positive. The ratio of benefits to costs may decline as more is invested, even as total value increases.

Programs frequently calculate benefits and costs from at least two perspectives: (1) holistically (regardless of who is paying) to determine whether a program is a good investment overall, and (2) from a program administrator perspective to determine how the benefits that accrue to those paying for the program compare to proportion of total costs they are contributing. This report recommends considering both perspectives.

From a program administrator perspective, benefit-cost ratios for financing programs may seem encouraging due to lower costs borne by the administrator than would occur in other financing programs, or in traditional programs such as a rebate program. For example, the benefit-cost ratio would effectively measure how successful a program is in leveraging private dollars, thereby reducing the investment of public or ratepayer dollars. However, the benefit-cost ratio alone does not indicate if total net savings are increasing as a result of introducing financing. To get a complete picture, both net benefits and benefit-cost ratio should be considered.

Calculating Financing Costs: Some financing costs may be less straightforward to calculate than other types of program costs. These may include forecasting uncertain future costs (e.g., costs stemming from future loan defaults), accounting for the cost of offering below-market rate financing, and valuing the

opportunity cost of using funds for loan loss reserves. Methods used for a comparative evaluation should be consistent with current evaluation best practices.

Program Maturity: When comparing results of cost-effectiveness tests, one should consider the relative maturity of the programs being assessed. A program just starting out may be spending more at the outset than a more mature and established program, which would not necessarily indicate the newer program's long-run cost-effectiveness potential.

4. Savings, Cost-Effectiveness, and Market Penetration by Market Segment and Project Type

Impacts by Market Segment: Customers/Sub-segments Reached, Attributable Savings, and Cost-Effectiveness by Market Segment: Understanding impacts such as energy savings and cost-effectiveness by market segment is essential to a comparative assessment of financing programs, as certain programs may be more or less effective within specific targeted markets. Determining whether programs are more effectively reaching certain segments or sub-segments (e.g., low-income or credit-challenged customers, small businesses, specific business sectors, or specific geographies) may also inform whether and how certain programs are operating in a complementary fashion. Gathering this type of information may require cooperation by program administrators, or potentially supplemental non-program data sources for information that is not collected in the regular course of program operations.

Project Type/Characteristics: Measure Mix by Program, Number of Measures per Project, Savings per Project: Some programs may be more heavily weighted toward supporting the installation of certain measures versus others (e.g., HVAC equipment versus insulation). Understanding what measures primarily are being installed under different programs may help inform whether they are operating in a complementary manner.

Understanding the savings and number and types of measures installed per project under different programs may help illustrate whether and how various financing programs are facilitating larger or more comprehensive projects.

5. Customer Experience: Customer Satisfaction and Consumer Protection

The proposed criteria recommend including customer satisfaction and consumer protection as criteria because understanding how customers perceive or respond to programs or specific finance products could be important to developing new policy direction. However, as members of the working group noted, the financing products are simply one set of tools or instruments in a complicated program delivery system involving energy use, contractor delivery, property evaluation and relative returns.

Customer Satisfaction: Customer satisfaction looks at whether customers got what they expected out of the program and were happy with the experience and is typically derived from customer surveys, but may be quantifiable in many cases. Customer satisfaction would provide important information to policymakers as to whether and what value program participants feel they are receiving from the program. These benefits may go beyond energy savings, and incorporate ease of use, health benefits, quality of the project, noise reduction, or increased comfort.

Consumer Protection: An assessment of a program’s consumer protection looks at whether the program adequately protected participants’ financial interests, including by preventing consumers from taking on obligations they are unable to meet, and by providing a clear understanding of financial product, energy savings expected, the uncertainty of savings projections, terms of financing, and repayment schedule. Survey questions related to customer experience may also be tailored to provide information related to consumer protection, such as their experience with the contractor, their experience with the lender, whether they understand and can manage their repayment obligations, and whether they have experienced any unforeseen negative consequences as a result of participating in the program. Consumer protections also may be determined through a review of a program’s policies and procedures and quantifiable data, such as loan performance.

6. Market Transformation

In addition to acquiring energy savings through direct program participation, some financing programs seek to scale up savings by impacting the market as a whole, e.g. transforming the market. This report includes market transformation as proposed comparative criteria while recognizing that efforts at market transformation are relatively new and that market transformation may not be a focus of all energy efficiency financing programs in a given market. In addition, different programs may have different market transformation goals or approaches, including:

- Overcoming barriers specific to energy efficiency (such as split-incentives)
- Reaching underserved market segments, markets that are not currently participating
- Providing the necessary data and experience to encourage the private market to offer attractive financing products and terms
- Ability for public/ratepayer dollars to leverage larger scale investment

Some of the above market transformation goals may be captured in other proposed criteria such as net energy savings and cost-effectiveness. Others may be difficult to compare across all programs. Furthermore, attribution, or attempting to understand the relative contribution of the different programs to the transformation of the market, could be extremely difficult. Nonetheless, this report recommends that market transformation be included as comparative criteria because it is often cited as an important goal of California’s energy efficiency financing programs. At a minimum, the subject deserves further discussion and analysis.

Assessing the market transformation impact of programs involves several elements: (1) market characterization and assessment that describes current market practices, activity and barriers and includes a “program logic model” that describes the expected impact on the efficiency services market of the program, and (2) development of interim metrics that can help track progress, and establishing a timeline over which specific changes are expected. Expected timelines for market transformation may in some cases be many years after program launch, and evaluation activities should be conducted at points along that timeline corresponding with the maturity of the program.

Logic Models: Different financing programs may seek to impact the market in different ways. In order to evaluate market impacts, each program would first need to develop a “logic model” that characterizes the market(s), identifies barriers, and describes expected impacts from the program intervention. For example, some programs may focus on gathering loan performance data to reduce the perceived risk of energy efficiency lending, thereby increasing the number of lenders, improving rates and terms, and encouraging a loosening of creditworthiness requirements. These supply side efforts might be expected to indirectly increase customer demand through increased availability of credit and greater attractiveness of financing offers. Other programs may focus on using financing to drive demand directly by using financing to shift customer perceptions of the value proposition offered by energy efficiency (e.g., by matching benefits with repayments via cash-flow-positive, transferable loans). Understanding these differences may also have important implications for determining whether and how different programs may be operating in complementary ways.

Market characterization: Market assessments provide a baseline that includes current market activity (e.g., estimates of savings attributable to financing offered by private sector entities, existing programs). This assessment may help inform evaluations that assess market impacts of financing programs.

Interim Metrics: Determining key indicators of progress is essential to tracking the relative success of a given program in effecting its expected market transformational impacts. Establishing an appropriate set of interim metrics would first require agreeing upon a theory of market transformation and developing a related logic model for each program. In order to track progress, timelines would need to be established for each program, with specific points along the schedule at which concrete milestones would be expected to have been achieved. Timelines could potentially differ depending on the program and related logic model.

Tracking Simultaneous Impacts: Changes in the broader market and timelines could be the result of external factors, as well as combined or interactive effects of multiple financing programs. Methods would need to be devised to isolate these various impacts, and adjust to changes in the broader economy and environment

D. Background

1. Legislative Directive

Item 0971-001-0528 of the Supplemental Report of the 2015-16 Budget Package provided:

“CAEATFA, in consultation with the CPUC, shall also create a working group that will include key stakeholders to develop criteria for a comparative assessment of energy efficiency financing programs available in California, including Property Assessed Clean Energy financing and legacy utility on bill financing for short term lending. CAEATFA shall publish summaries of the issues discussed with and recommendations made by the working group. Relevant Senate and Assembly policy committee staff shall be invited to observe meetings of the working group.”

2. Working Group Process

In response to the legislative directive, CAEATFA staff planned a public process to encourage stakeholder participation and input in developing criteria for a comparative assessment. CAEATFA hosted three educational workshops featuring presentations from stakeholders on various metrics for evaluating energy efficiency financing programs:

- Introduction to Workshop Series and Presentation on Lawrence Berkeley National Laboratory Report, *Making it Count: Understanding the Value of Energy Efficiency Financing Programs Funded by Utility Customers*.
- Evaluation Efforts for the CHEEF Pilot Programs and Utility On-Bill Financing
- Evaluation Efforts for PACE Financing Programs

CAEATFA staff reached out to stakeholders and developed a list of 41 working group members (Appendix A), which included representatives from several key stakeholder groups. The CAEATFA Board approved the list of working group members at its March 2016 board meeting.

The process culminated with a public meeting at which the working group discussed a proposal of potential comparative criteria drafted based on the discussions from the previous workshops.

3. Written Comments

CAEATFA solicited written public comments on the proposed comparative criteria. CAEATFA responded to many comments by incorporating changes to the final proposed criteria. All written comments received on the proposed comparative criteria are attached to this report in Appendix B.

4. Timeline of Activities

February 10, 2016	First public workshop with presentation from Lawrence Berkeley National Laboratory on <i>Making it Count</i> . The public was provided the opportunity to submit written comments on criteria that should be discussed during the process on a rolling basis.
March 15, 2016	Board considered and approved Working Group members.
March 22, 2016	Second public workshop with presentations on the California Hub for Energy Efficiency Financing (CHEEF) and On-Bill Financing evaluation.
March 29, 2016	Third public workshop with presentations on PACE financing.
April 15, 2016	Draft proposal of comparative criteria noticed to the public. Public may submit written comments on the proposed criteria for 5 business days.
April 22, 2016	Initial public comment on the proposed criteria due.
April 27, 2016	Public meeting of the working group to discuss proposal of criteria for a comparative assessment of energy efficiency financing programs.

May 6, 2016	Final written public comment on the proposed criteria due.
July 19, 2016	CAEATFA Board considers proposed report on criteria for a comparative assessment of energy efficiency financing programs.

5. Background Information on California Energy Efficiency Financing Programs

PACE Financing: PACE is a method of financing energy efficiency, water efficiency, renewable energy retrofits, electric vehicle charging stations, or seismic strengthening improvements for residential and commercial properties. PACE financing is available in specific jurisdictions, or PACE districts, in which the local governments have authorized special taxes or contractual assessments for these improvements. PACE programs are created by local agencies and may be run locally or through a public-private partnership with a private finance entity. Property owners in a PACE district can use PACE financing to retrofit their homes or businesses with no money down and pay for the assessment through their local property tax bill. PACE financing is secured with a first-priority lien on the underlying property.

CHEEF Pilot Programs: The CHEEF Pilot Programs were authorized by CPUC Decision 13-09-044 and are being managed by CAEATFA in collaboration with the CPUC and the state’s investor-owned utilities (“IOUs”). The \$65 million pilot programs will encourage and leverage private unsecured lending and investment in energy efficiency projects for both the residential and commercial sector with various features such as loan loss reserves, debt service reserve funds, and the ability for IOU customers to include monthly loan payments directly on their monthly utility bills (on-bill repayment). The single family residential pilot program will be the first in the sequence of pilots to launch, with an anticipated launch date of summer 2016. The remaining pilots will subsequently phase in throughout 2016 and 2017.

On-bill Financing: Utility On-bill financing programs are administered by the IOUs, and provide zero-percent interest, unsecured, non-transferable loans for businesses to finance energy efficiency projects from their utility provider. The financing terms are designed such that the energy savings covers the loan installment. Monthly payments are included on the utility bill, and any loan default results in meter shut-off.

Other Financing Programs: In addition to the financing programs and structures identified above, there are other types of financing and incentive programs that are administered by various types of entities across the state --including local governments, public utilities, and other state entities for which these criteria may be helpful.

Evaluation of California Energy Efficiency Financing Programs: The CHEEF Pilot Programs and utility on-bill financing are a part of the CPUC’s portfolio of energy efficiency programs and are incorporated in CPUC’s evaluation, measurement, and verification (EM&V) plan, which budgets for both process and impact evaluations of the programs.

California PACE financing programs are created by local agencies and administered locally or through a public-private partnership. Each program may have different goals, processes, and procedures and its

own strategy and plan for evaluation. However, the CPUC has commissioned a profile study of the residential HERO Program, a PACE provider, to determine key factors in HERO's rapid growth and to understand lessons learned, especially those that might apply to the utility rebate programs and the CHEEF Pilot Programs.

Appendix A – Working Group Members

<u>Name</u>	<u>Organization</u>
Paul Blagbrough	Union Bank
Matthew Brown	Harcourt Brown and Carey
Daniel Buch	Office of Ratepayer Advocates
Megan Campbell	Opinion Dynamics
Richard Chien	City and County of San Francisco
Howard Choy	LA County Office of Sustainability, Internal Services Department
Jeanne Clinton	California Public Utilities Commission
Charles Cormany	Efficiency First - California
Susan Davison	CalCERTS, Inc.
Jeff Deason	Lawrence Berkeley National Laboratory
Jane Elias	Sonoma County Energy Independence Program
Laura Franke	Public Financial Management, Inc.
Al Gaspari	Pacific Gas & Electric
Sandy Goldberg	Governor's Office of Planning and Research
Matt Golden	Open Energy Efficiency
Charles Goldman	Lawrence Berkeley National Laboratory
Kevin Gould	California Bankers Association
Peter Grabell	Figtree Financing
Angela Hacker	Community Services Department, County of Santa Barbara
James Hamill	California Statewide Communities Development Authority
Alex Hill	Dunsky Energy Consulting
David Ismailyan	California Energy Commission
Jewel James	Renovate America
Courtney Jensen	California & Nevada Credit Union Leagues
Chris Kramer	Energy Futures Group
Mike Lemyre	Ygrene Energy Fund
Joseph Livaich	Renew Financial
Barbara Lloyd	California Clean Energy Fund
Van Mattison	Sacramento Municipal Utility District
Ari Matusiak	Renovate America
Pat McGuckin	Cadmus, Energy Services Sector
Ralph Prah	California Public Utilities Commission, Energy Division
Dennis Quinn	Joule Assets
Diane Schrader	THIRDact
William Shady	Sustainable Design & Project Management
Frank Spasaro	Southern California Gas Company
Barbara Spoonhour	Western Riverside Council of Governments
Jennifer Svec	California Association of Realtors
Mark Tsimanis	Energy Loan Network
Wayne Waite	California Housing Partnership
Jenine Windeshausen	County of Placer

Appendix B – Written Comments on Proposed Comparative Criteria



CALIFORNIA ASSOCIATION OF REALTORS®

April 22, 2016

Ashley Bonnett, Analyst

CAEATFA

916 Capitol Mall, Room 457

Sacramento, CA 95814

RE: Draft Criteria for a Comparative Assessment of Energy Efficiency Financing Programs Available in California

Members of the CAEATFA Working Group:

Thank you for the opportunity to provide comments on the Draft Criteria for a Comparative Assessment of Energy Efficiency Financing Programs Available in California (Criteria). The California Association of REALTORS® (C.A.R.) seeks to be a valuable contributor to the Working Group and to the development of the assessment Criteria. C.A.R. would like to offer a few additions to the comparative criteria to help compare energy efficiency financing programs throughout the state.

Energy Savings Attributable to Financing/Cost Effectiveness

C.A.R. recommends that any energy savings attributable to financing must be based on quantifiable results directly related to energy financing. Any information gathered or quantified must not include unquantifiable non-energy benefits in the cost-effectiveness calculation. C.A.R. agrees that it is important to measure pre- and post-installation billing data; however we recommend that it is also vitally important to compare and contrast energy efficiency programs with the savings achieved from local rebate programs, municipal weatherization programs, weather trends and the cost of energy.

Market Segment and Project Type

The Criteria should include data on what drives a customer to utilize energy efficiency financing programs, like PACE. (i.e. Do customers utilize a financing program when a catastrophic event {e.g. appliance failure/property damage} occurs? Do customers have to prioritize efficiency improvements based on cost? What types of improvements are most often sought by consumers? Since PACE also funds seismic retrofits, how often are improvements made that are not intended to reduce energy costs to the customer? etc.) It is also vitally important that this effort uncover data regarding the length of property ownership prior to the improvements and how long those owners retain the property after the energy efficient upgrades are made to show the general payback period by the initial homeowner.

Customer Service

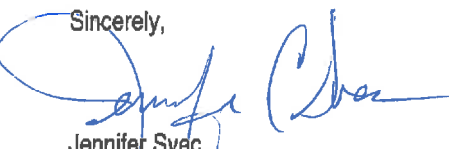
The Criteria must evaluate the ease of access to information, evaluate provider customer disclosures regarding lien transferability issues that may occur during the sale or refinance of the property and demonstrate to consumers how the savings can be quantified in dollars and cents or costs vs saving, using real numeric values. (i.e. Are consumers able to access all the necessary financial product information? and by what means? Does each provider offer a loan calculator that anticipates payback projections based on the term, fees, principle and interest rates? Are consumers required to enter the contractual process before knowing all the costs associated with the loan product? etc.)

Finance Program Elements:

The Criteria must include information on the all programs and products currently available and identify the average actual loan term (i.e. origination minus loan completion or payoff, effective interest rate, APR and principle payment or principle plus interest payment when applicable, etc.)

The California Association of REALTORS® looks forward to collaborating with the Working Group and CAEATFA staff to develop sensible Criteria to evaluate energy efficiency financing programs in California.

Sincerely,


Jennifer Svec,
Legislative Advocate

California Association of REALTORS®



REALTOR® is a federally registered collective membership mark which identifies a real estate professional who is a Member of the NATIONAL ASSOCIATION OF REALTORS® and subscribes to its strict Code of Ethics





CALIFORNIA
BANKERS
ASSOCIATION
celebrating 125 years

April 28, 2016

Ashley Bonnett
Analyst
California Alternative Energy and Advanced Transportation
Financing Authority
915 Capitol Mall, Room 457
Sacramento, CA 95814

RE: Draft Criteria for a Comparative Assessment of Energy Efficiency
Financing Programs Available in California

Dear Ms. Bonnett:

The California Bankers Association appreciates the opportunity to serve as a member of the working group established to develop criteria for a comparative assessment of energy efficiency financing programs available in California. Once adopted, the criteria is "intended to evaluate the performance of programs relative to each other, including understanding whether and how programs may complement each other, as well as to evaluate the potential costs and benefits of running multiple programs in the same market segment."

The draft criteria include an assessment of customer experience with the goal of measuring both customer satisfaction and consumer protection among the various energy efficiency financing programs available in California. We agree that measuring the customer experience is critical and that the proposed criteria surrounding consumer protection include "a clear understanding of [the] financial product, energy savings expected, the uncertainty of savings projections, terms of financing, and repayment schedule."

We strongly recommend strengthening the consumer protection criteria. We believe this section should be more inquisitive measuring the degree to which energy efficiency financing programs require consumer disclosures, the timing of when disclosures are furnished to potential customers, and whether these disclosures clearly and adequately articulate the financial terms and conditions of the product. This section of criteria should evaluate whether debt obligations resulting from a product offered by an energy efficiency financing program are secured or unsecured extensions of credit.

If secured against real property, criteria should evaluate the consequences of any liens that may be recorded against the real property and whether consumers had knowledge of such liens prior to consummating the contractual agreement and the potential impact such liens have on subsequent financial transactions.

The consumer protection criteria ought to evaluate the methods used by an energy efficiency financing program to determine a customer's eligibility, including, but not limited to, whether lending is collateral-based or whether the customer's financials are underwritten to determine their ability to repay the debt. If underwriting of the customer's financials is performed by an energy efficiency financing program, criteria should distinguish the manner in which the financial analysis is accomplished, such as consideration of debt-to-income ratios, credit scores, etc. We believe criteria should include an inquiry of whether debt associated with financing by energy efficiency programs is reported to credit bureaus.

The draft criteria propose collection of supplemental diagnostic information, including finance program elements. Information collected proposes to include loan performance data, such as "share of loans or assessments that are delinquent, in default, or prepaid." We recommend that data collected under these criteria describe the type of loss mitigation options offered to defaulting customers and the number of loss mitigation options extended to customers.

In strengthening the section on consumer protection, we strongly urge that the assessment criteria move beyond customer surveys that may not yield sufficient responses. In addition to any customer surveys, energy efficiency financing programs should provide requested data and information established in the assessment criteria in order to achieve the underlying goal of the working group to create an effective and meaningful comparative assessment as directed by the Legislature.

Thank you for the opportunity to participate as a working group member and for allowing us to share our thoughts. Please do not hesitate to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Kevin Gould', with a stylized flourish extending to the right.

Kevin Gould
SVP/Director of State Government Relations

KG:dp



April 27, 2016

Ashley Bonnett, Analyst
CAEATFA
916 Capitol Mall, Room 457
Sacramento, CA 95814

RE: Draft Criteria for a Comparative Assessment of Energy Efficiency Financing Programs Available in California

Dear Members of the CAEATFA Working Group:

The California Credit Union League (CCUL) appreciates the opportunity to serve as a member of the working group and provide comment on the draft criteria for a comparative assessment of energy efficiency financing programs available in California. We understand that during the 2015-2016 Budget Package, the California Legislature directed CAEATFA and the working group to develop the criteria and specifically to concentrate on the PACE financing, legacy utility on bill financing, and CHEEF Pilot Programs.

In reviewing the draft criteria CCUL would like to offer a few comments and additions to the comparative criteria.

Customer Service/ Consumer Protections

CCUL believes this is a critical criterion for comparison between the different programs and we strongly believe this criterion should be strengthened. Consumer education is essential to making sure homeowners understand how the financing program works and whether the program is the most appropriate financing mechanism for them.

This criterion should evaluate the disclosure and the effectiveness of that disclosure. Included should be an evaluation of if the disclosure clearly describes the debt obligations, including if the financing is secured or unsecured, potential lien transferability issues, the terms of the loan, including APR, fees, prepayment penalties, interest rates and principal. If the lien is secured against real property the criteria should also evaluate the potential consequences of that lien. Did the consumer understand the potential impact before signing the contract? Have consumers faced issues with transferability of liens? Also part of the evaluation should be when

the disclosure document was provided to the borrower. Did the borrower have enough time to review the disclosure before signing a financing agreement?

The consumer protection criteria should also evaluate how the potential borrower is evaluated for their ability to repay the cost of the improvements to the property. Do the programs consider debt-to-income ratios, credit scores, etc.?

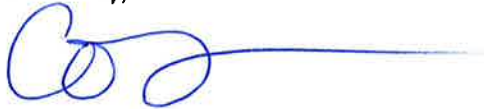
Energy Savings Attributable to Financing/ Cost Effectiveness

The draft criteria propose evaluating the cost-effectives and benefits achieved by the energy efficiency products. We recommend also evaluating the useful life of the improvements. The Department of Energy (DOE) in a May 7, 2010 statement entitled "Guidelines for Pilot PACE Financing Programs¹" stated "The Term of the Assessment Should Not Exceed the Useful Life of the Improvements." "DOE stated "This best practice guidelines document is intended to ensure that a property owner's ability to repay is enhanced throughout the life of the PACE assessment by the energy savings derived from the improvements. It is important to note that useful life of the measure often exceeds the assessment term."

We also believe for data collection in addition to customer surveys, financing programs should be required to provide requested data and information to make sure that there is enough data to make a comprehensive assessment of all programs as directed by the Legislature.

The California Credit Union League looks forward to future collaboration with the Working Group and CAEATFA. Please do not hesitate to contact us if you have any questions.

Sincerely,



Courtney Jensen
Legislative Advocate

¹ https://www1.eere.energy.gov/wip/pdfs/arra_guidelines_for_pilot_pace_programs.pdf



May 5, 2016

Ashley Bonnett, Analyst
CAEATFA
915 Capitol Mall, Room 457
Sacramento, CA 95814

Subject: Comments on Draft Criteria for Comparative Assessment of Energy Efficiency Financing Programs Available in California

Ashley,

The California Housing Partnership Corporation (CHPC) thanks the California Alternative Energy and Advanced Transportation Financing Authority (CAETAFa) for the opportunity to comment on the *Draft Criteria for Comparative Assessment of Energy Efficiency Financing Programs Available in California* (Comparative Assessment Criteria) presented at the CAETAFa Working Group meeting on April 27, 2016.

CHPC believes that the proposed Comparative Assessment Criteria provide a well-reasoned foundation for evaluating a program's energy savings, cost effectiveness, outcomes for particular market segment, and consumer satisfaction. Accordingly, we generally support the Comparative Assessment Criteria proposed to evaluate California energy efficiency financing programs, with the following comments and observations:

1. Energy Savings Attributable to Program Financing

CHPC agrees that the methods for attributing energy savings to financing programs are very important to the underlying objective of assessing energy efficiency financing programs. CHPC cautions, however, that assumptions and methods for evaluating the linkage between energy financing programs and savings must consider the unique factors within each market segment that influence the energy efficiency value proposition for the property owners in that market segment.

SAN FRANCISCO

369 Pine Street
Suite 300
San Francisco, CA 94104
Tel: (415) 433-6804
Fax: (415) 433-6805

LOS ANGELES

600 Wilshire Blvd.
Suite 890
Los Angeles, CA 90017
Tel: (213) 892-8775
Fax: (213) 892-8776

SACRAMENTO

1107 9th Street
Suite 560
Sacramento, CA 95814
Tel: (916) 683-1180
Fax: (916) 682-1194

For affordable rental properties, split incentive challenges and the relatively small scale of typical energy projects and the relatively modest savings they often generate, require combining financing tools with incentives from potentially multiple resource sources. The attribution or role of low-cost financing options is not negated because a transaction also includes or requires incentives from programs such as the utility-administered Energy Upgrade California (EEUC) or the Cap-and-Trade-funded Low Income Weatherization Program (LIWP) administered by the California Department of Community Services Development. For the typical rent-restricted multifamily rental properties serving low-income renters (LIMF), the split in responsibility for utility meters between owners and renters generally means that there will not be enough savings coming back to the owner to pay for the project, meaning they must access various incentives for the transaction to be financially feasible. In other words, owners must have access to all products and resources if we are to “grow the pie” of energy efficiency saving for the more than 500,000 LIMF rental units and the low-income California households who occupy them.

2. Baseline for Energy Saving Calculations

CHPC generally agrees that the evaluation of energy savings should be based on a measurement of actual energy usage post-retrofit compared to a baseline usage. For these calculations to be possible for LIMF properties, which to date have not had meaningful access to utility baseline data, CAEATFA must coordinate its approach with the CEC’s implementation of property benchmarking mandated by AB 802. Accordingly, we request that CAEATFA consult with the CEC on how to align AB 802 implementation with the Comparative Assessment Criteria for the evaluation of California’s energy financing programs for the LIMF sector.

There are two primary reasons why CAEATFA should embrace this approach:

First, energy savings outcomes in LIMF properties are a function of both the physical attributes affecting energy performance (e.g., building and equipment characteristics) as well as the energy behavior of the occupants. The energy consumption habits of tenants in LIMF properties are remarkably diverse and can greatly affect energy outcomes. Consequently, when calculating energy savings at LIMF properties it is important that tenant energy use be normalized so that the comparative savings attributed to energy efficiency financing products are properly and fairly evaluated.

Second, , energy savings in utility energy efficiency incentive programs are frequently calculated based on the level of savings above what would have been achieved from the routine or scheduled replacement of equipment (e.g. lighting, appliances) with products meeting higher efficiency standards due to updates to building and energy codes. In contrast, the proposed Comparative Assessment Criteria for energy efficiency financing programs relies on a comparison of actual pre- and post-energy usage. While CHPC agrees that the CAC approach is superior to the approach often used by IOU programs, it is critical that the criteria for the calculation of energy savings for energy efficiency programs and energy efficiency financing programs be consistent and aligned. We therefore recommend that CAEATFA initiate discussions with the CPUC to reconcile differences in program evaluation criteria and push the CPUC to adopt the CAC approach for all programs serving the LIMF sector.

3. Cost Effectiveness Criteria

CHPC agrees that the Total Net Benefits metric is a better indicator than traditional benefit/cost ratios for determining overall program performance and value to customers. CHPC also agrees that the inclusion of traditional Benefit/Cost metrics, such as Savings to Investment Ratios (SIR), along with Total Net Benefit metrics will provide a complete picture of the cost effectiveness for energy efficiency financing programs. Additionally, we urge CAEATFA to include Greenhouse Gas (GHG) emission reductions in the benefits calculations of program outcomes. These benefits are quantifiable through methods already adopted by other State agencies.

With regards to non-energy benefits (e.g., health and safety improvements, job creation, or economic development), we agree in theory that they should be included with benefits calculations. However, the calculation of non-energy benefits is complex and there is not as yet a widely recognized platform for calculating non-energy benefits for energy efficiency programs. As such, until a platform is developed and vetted we recommend the Comparative Assessment Criteria for evaluating energy efficiency financing programs not include non-energy benefits.

4. Expansion of Project Level Savings and Cost Effectiveness.

CHPC generally agrees that energy savings and cost-effectiveness are best assessed at the program level. However, the value proposition of the competing financing program options is an important consideration to LIMF property owners in assessing the feasibility of competing energy efficiency financing strategies. Accordingly, we recommend CAEATFA solicit a representative

sample of LIMF properties that have used the various energy efficiency financing programs and perform a qualitative as well as quantitative analysis of the benefits and costs.

5. Impacts by Market Segment.

LIMF properties and market multifamily housing in Disadvantaged Communities (DACs) have been largely underserved by energy efficiency incentive and financing programs to date. The Comparative Assessment Criteria should assess the availability and use of energy efficiency financing programs and products in DACs specifically, and examine what elements of the programs are most effective in mitigating cost, credit risk, complexity, time delays and other barriers that have limited access and participation for LIMF properties in available energy efficiency financing programs.

CHPC looks forward to continued discussion of these issues with the CAEATFA Working Group.

Sincerely,

/s/ Wayne W. Waite

Wayne W. Waite
Director of Policy
California Housing Partnership
wwaite@chpc.net

Dear Ashley,

I appreciate the opportunity to provide the following comments for the proposed “Draft Criteria for a Comparative Assessment of Energy Efficiency Financing Programs Available in California” for consideration by the CAEATFA Working Group.

Overview

It is important to establish context for the development of the Comparative Assessment. The legislature’s Supplemental Report of the 2015-16 Budget Package, Item 0971-001-0528 also commissioned CAEATFA with the following: *“(CAEATFA) shall report, in consultation with the California Public Utilities Commission (CPUC), to the Senate and Assembly Budget Committees on the degree to which the California Hub for Energy Efficiency Financing Pilot Programs have increased the availability of lower-cost financing for energy efficiency investments throughout the state.”*

This is important, in my view, because it provides possible insight into legislative intent; namely, how would the CHEEF programs expand access to low cost financing for energy efficiency. With this as background, it seems reasonable to consider the Draft Comparative Assessment against the backdrop of this overarching principle. The following comments reflect this perspective.

Suggested Changes to Proposed Criteria

Draft Criteria #1- Energy savings attributable to program financing

The proposed Draft Criteria place a heavy emphasis on attribution. A significant amount of discussion at the April 27th Workshop was dedicated to this topic alone. Particularly problematic is the fact that attribution, by its very nature, and by the definition provided during the workshop, quickly descends into methodological issues. Put differently, establishment of attribution for a given energy efficiency project is by no means objective. Furthermore, as acknowledged by the Consultants, untethering financing from the other “value drivers” of a given project is very difficult.

The establishment of attribution as key comparative criteria is not at all straightforward. For example, there is available debt financing for energy efficiency projects that does not rely upon utility ratepayer subsidies or taxpayer dollars, and may, or may not rely upon ratepayer or taxpayer funded direct incentives. How is this type of financing to be compared to the CHEEF programs? More importantly, should it be?

Finally, as was discussed at the workshop, there is a paucity of free-ridership (i.e. attribution) studies that focus solely on finance’s specific impact on a customer’s decision to implement a project. Slide 15 of the Workshop presentation regarding Residential EE Financing seems to invite more questions than insights when comparing different types of Residential EE Financing against the attribution criteria. Is it to be assumed that “conventional financing”, which requires little or minimal ratepayer or taxpayer funds should not be considered as an important option for

Energy Efficiency Finance? Or, alternatively, doesn't this suggest that the open market is providing at least one source of energy efficiency finance?

Based upon this review, it is suggested that Draft Criteria 1 be eliminated in its entirety, or, alternatively, be integrated into Criteria 3: ***Savings, cost-effectiveness, and market penetration by market segment and project type***. What is more important than divining the energy savings "lift" from "finance only" is to consider the potential savings lift opportunities (and limits) for segment specific bundles, inclusive of one of a number of combinations of:

- 1) Debt finance
- 2) Ratepayer incentives,
- 3) Ratepayer subsidized debt finance
- 4) Taxpayer incentives
- 5) Taxpayer subsidized debt finance
- 6) Customer copayment

Draft Criteria #2- Cost Effectiveness

Proposed Draft Criteria #2 Cost Effectiveness sets forth criteria for comparing costs drawn primarily from EMV metrics. As was discussed at the Workshop, it seems that additional metrics of ratepayer and/or taxpayer dollar leverage should be incorporated into this criteria. The example used on slide 17 uses the term Program Administrator costs which are generally ratepayer or taxpayer funded. Of course, this does not include all of the costs of a program, and what appears to be missing from this analysis is the amount of ratepayer or taxpayer funded subsidy (either directly through incentives and/or through subsidizing finance in the form of loan loss reserves, loan guarantees, or interest rate buydowns). A metric that takes full account of all ratepayer or taxpayer funded dollars are allocated to a given program would seem to provide greater visibility into the important comparative criteria of ratepayer or taxpayer leverage.

For Proposed Draft Criteria #2 it also seems that there must be some normalization based upon the potential savings lift opportunities and market segment. A stand-alone program may appear to be highly cost effective and seemingly attractive; however, it is critical that any program specific limits and/or market segment boundaries are used when comparing programs serving similar customer segments.

Draft Criteria #3- Savings, cost-effectiveness, and market penetration by market segment and project type *Energy savings attributable to program financing*

Draft Criteria #3 seems to provide the best criteria for supporting CAEAFTA's ability to report back to the legislature "*on the degree to which the California Hub for Energy Efficiency Financing Pilot Programs have increased the availability of lower-cost financing for energy efficiency investments throughout the state*".

This analysis, and the comparison of CHEEF offerings against others currently being implemented has a significant ability to shine a light on where there are gaps in the marketplace and where ratepayer and taxpayer dollars are best applied to support California's ambitious

energy efficiency goals. As such, it is recommended that this Draft Criteria be elevated to Draft Criteria #1 as it reflects the most important of the criteria presented.

Draft Criteria #4: Customer Experience

As was discussed at the April 27th workshop it is unclear why the Customer Satisfaction criteria has been introduced at this point in the proceedings. As with attribution, establishment of customer satisfaction for a given energy efficiency project is by no means objective. Furthermore, trying to “tease out” customer satisfaction with the finance portion of the project vs. other elements of the project (incentives, if/as applicable) invites exceedingly complex methodological issues. Perhaps the most important and somewhat objective metric for comparative Customer Satisfaction may be historical participant complaints----to the extent this is tracked. It is suggested that customer complaint activity be integrated into the Consumer Protection element of this Draft Criteria #4.

The elements for Consumer Protection are important, adequately scoped, and are a sound basis for Program Comparison.

Supplemental Diagnostic Information: Finance Program Elements

The Draft Criteria report suggests that this category may be secondary to the Draft Criteria. To the contrary the inclusion of these metrics when comparing finance programs serving similar market segments would seem to be very valuable in allowing CAEATFA to knowledgeably report back to the Legislature.

As such it is suggested that this Diagnostic Information be integrated into the primary Draft Criteria.

Conclusion

I greatly appreciate the opportunity to provide comments on the Draft Criteria for a Comparative Assessment of Energy Efficiency Financing Programs Available in California and look forward to continued development of robust Energy Efficiency Finance programs in California.

Sincerely,

James Dodenhoff

Culver City, CA

May 9, 2016

Ashley Bonnett, Analyst
CAEATFA
916 Capitol Mall, Room 457
Sacramento, CA 95814

RE: Comments on the Draft Criteria for a Comparative Assessment of Energy Efficiency Financing Programs Available in California

Dear Ms. Bonnett:

On behalf of Renovate America, I would like to thank you for this opportunity to offer our comments and feedback on CAEATFA's Draft Criteria for a Comparative Assessment of Energy Efficiency Financing Programs in California. Renovate America fully supports CAEATFA's effort to significantly reduce emissions while spurring the growth of California's clean energy economy. We stand ready to support CAEAFTA in evaluating PACE and other financing programs across California.

I. Introduction and Background

Renovate America's PACE offering, HERO (Home Energy Renovation Opportunity), is the fastest growing energy efficiency financing solution in the country. 80% of all residential PACE projects financed since the inception of PACE are HERO projects. Our success is due to our partnerships with state and local governments, home improvement contractors and private capital providers, leveraging our technology platform to deliver a seamless experience to homeowners with unparalleled consumer protections. Our PACE program is defined by the following core elements:

- Database of over 1,200,000 energy-efficient, water efficient and renewable energy products across 57 product types which are either certified by the U.S. Environmental Protection Agency, U.S. Department of Energy or a state or regional regulatory body, with comprehensive automatic nightly updates.
- Contractors – most of them locally-owned small businesses – all of whom are bonded, licensed and insured, and must agree to comply with a set of business practice standards set by the HERO Program.
- Unparalleled consumer protections in home improvement finance, including limiting financing only to approved products; maximum financing amounts across all major product categories to ensure fair pricing; requiring homeowner sign off that the work is complete prior to contractor receiving payment; contractor identity verification, and additional protections for seniors over age 64 to ensure they are moving forward with a project that is right for them.

- The HERO Gov software portal, which provides real-time data and reporting to our state and local government partners regarding projects funded in their communities as well as the resulting economic impact, jobs created, and estimated kilowatt-hours (“kWh”) of energy saved, emissions reduced, and gallons of water saved.
- The HERO Pro software portal, which provides contractors data on HERO eligible homes, training curriculum and guidelines for program operation, and project estimation tools.
- Proprietary software which allows Renovate America to evaluate and underwrite applications quickly and accurately against established underwriting criteria.

As a result of the success of our platform, over the past four years, we have provided approximately 62,000 homeowners throughout California with over \$1.45 billion in financing for improvements which will, by our calculations using industry accepted formulas, result in approximately 9.5 billion kWh of energy and 3.9 billion gallons of water saved, \$2.5 billion in lower utility bills in addition to 2.5 million tons of emissions reduced over the improvement’s useful lifetime. We also estimate more than 12,291 local jobs have been created as well as \$2.5 billion in stimulus to the California economy.

Public recognition of HERO includes the 2016 Climate Leadership Award for HERO governmental partners, the Governor’s Environmental and Economic Leadership Award in California, the Urban Land Institute Best of the Best, and the Southern California Association of Governments President’s Award for Excellence. In addition, Renovate America was recently recognized as the Top Workplace in the midsize company category by the San Diego Union Tribune.

II. Renovate America’s Comments on CAEAFTA’s Draft Criteria for a Comparative Assessment of Energy Efficiency Financing Programs Available in California

General Observation

CAEAFTA’s draft criteria focuses on evaluating energy-efficiency financing programs on their effectiveness across five key criteria: energy savings attributable to program financing; cost effectiveness as defined by the dollar value of the energy savings attributable to the program divided by the cost of producing those savings; impacts by market segment; savings, cost effectiveness, and market penetration by market segment and project type; and customer experience.

The five criteria rely heavily on calculations of energy savings as well as the costs and benefits resulting from the energy savings. Such considerations are entirely appropriate when evaluating energy efficiency programs broadly but such an emphasis is inappropriate when applied to the evaluation of energy efficiency financing products

specifically. One of the greatest challenges to increasing the uptake of energy-efficient home improvements in California and the nation has been the barrier presented by the higher upfront cost of energy-efficient products as compared to inefficient products and homeowners' access to capital to fund higher cost, higher efficiency home improvements. It stands to reason that the effectiveness of financing solutions in lowering these financial barriers which prevent greater uptake of energy-efficient home improvements should be the foremost criteria by which financing solutions are measured and evaluated.

The Impact of Cost Barriers on Energy Efficiency:

High upfront costs are one of the most significant barriers to driving energy efficiency retrofits. Addressing the financial barrier to investments in energy efficiency has been a complex hurdle, which is evident from the number of energy efficiency financing program designs that have emerged over the past several decades. Whether these programs succeed, however, in overcoming that financial barrier, is essential to any CAEATFA comparison.

To illustrate the challenge of cost barriers, a recent study produced by Cadmus for PG&E found the following:

“All respondents in both single-family segments agreed that a project’s cost and/or size influenced their decision process. As one project-completed respondent stated, “[I] have to look at the cost of living compared to the project need.” That is, respondents agreed that they must consider necessary living expenses (mortgage, utility and phone bills, groceries, etc.) before investing in energy efficiency. Another respondent preferred to save half of the estimated project cost before taking action. . . . However, as one respondent in the project-not-completed segment put it, “if [my] water heater breaks, I have to fix it *tomorrow*.”¹

When asked how likely they would be to use their own funds to complete an energy-efficiency project, most respondents in both single-family segments said “it depends on where we are at the time [that is, do we have the money]... and how critical it [the project] is.” For example, several respondents from both segments reported they would consider a loan for a critical project for which they did not have sufficient funds to purchase the equipment.

¹ Cadmus, *Energy –Efficiency Financing, Customer Research Focus Group Findings*, June 2013 (pp.38-39) (emphasis added)

Proposed Criteria for a Comparative Assessment of Energy Efficiency Financing Programs Available in California

In the tables below, Renovate America outlines criteria for your consideration which we believe are better suited for evaluating the success of energy efficiency financing solutions in lowering the financial barriers which stand in the way of increased adoption of energy efficient home improvements.

Supply of Capital and Competition: Financing programs aim to increase the supply of capital available to support energy savings in the market place and promote competition.

FINANCING SUPPLY & COMPETITION	
Finance Program Goals	Performance Metrics
Offer attractive consumer energy efficiency financing programs	• Total value of loans issued • Number of loans issued • Number of customer applications • Interest rate and fees • Application approval time
Attract greater amount of private capital to the energy efficiency retrofit market	• Amount of private capital being deployed annually • Ratio of public to private capital deployed

Loan Performance & Risk: Low defaults and reduced lender risk can drive greater program efficiencies and increase market liquidity, which over time should reduce the cost of financing and drive more energy efficiency projects.

LOAN PERFORMANCE & RISK	
Finance Program Goals	Performance Metrics
Reduce program risk	• Annual default rate • Average delinquency rate • Average and minimum FICO • Average loan-to-value ratio • Average and maximum debt to income ratio

Customer Experience: Customer satisfaction with the energy efficiency upgrades, contractor service and loan program are important to protect the success and long-term reputation of an energy efficiency financing program.

Customer Experience	
Finance Program Goals	Performance Metrics
Are there consumer protection or customer service principles or guidelines?	• Adequate disclosures • Compliance and Customer resolution processes • Presence of QA/QC procedures
Is there an evaluative component to ensure compliance and deal with bad actors in the program?	• 3rd party independent audit of consumer protection and customer service principles

III. Summary

We are concerned that, if adopted, CAEATFA's draft criteria would obscure the purpose and unique role of California's energy efficiency financing programs. Energy efficiency financing options like PACE, on-bill financing, and the CHEEF pilot programs advance the adoption of energy efficiency by lowering the upfront cost barriers which prevent homeowners from making energy-efficient purchasing decisions. These financing options are vehicles which allow for greater uptake of products which reduce energy consumption. Instead of evaluating PACE, on-bill financing, and the CHEEF pilot relative to their effectiveness in providing access to capital for the purchase of energy efficient products, CAEATFA's proposed criteria would evaluate the financing tools relative to the effectiveness of the energy efficient products themselves in generating energy savings. The draft criteria would further obscure the purpose and value of the energy-efficiency financing tools currently present in the market by requiring a measure of cost-effectiveness for which no accurate methodology currently exists.

We hope CAEATFA will take into consideration the above comments as it finalizes its comparative criteria. Thank you for considering our comments, and enabling the state to utilize PACE in achieving a more energy efficient and sustainable future for us all.

Sincerely,



Ari A. Matusiak
Executive Vice President, Market Development and External Affairs

From: James (Pat) McGuckin
To: Bonnett, Ashley
Subject: Financing Working Group Comments

- 1) **Will the Total Resource Cost (TRC) test be feasible for this comparative analysis?** The problem is that different financing programs offer benefits that may be impossible to quantify. For example, some people choose HERO over a home equity loan even though HERO's hard costs (interest rate, fees, etc.) are higher. In such cases, we know that HERO's soft benefits (speed, convenience, awareness, etc.) must be greater than the higher costs, but how much greater? It may or may not be possible to answer this question with discrete choice modelling (DCM); we'll know in a few months when our evaluation of the HERO Program is completed. If DCM does not pan out, the TRC test may not be feasible. (Note: the Program Administrator Cost test would still be workable).
- 2) **Market Transformation: what if some of the financing programs are themselves the market transformation we seek?** If the goal of market transformation is to develop a robust market free of public subsidies, PACE may already be close to achieving that goal for some market sectors. The HERO Program (and presumably the other PACE programs) does not involve any ratepayer subsidy, and at the local government level the fee revenue to WRCOG covers the costs of additional staff, recording fees, tax collection, etc.). At the state level, the only taxpayer subsidy is the minimal (so far) cost of CAEATFA's loss reserve fund. The days of needing that fund may be numbered, for two reasons. First, the HERO Program was succeeding prior to the creation of the reserve fund, and might still be able to succeed without it. And second, when President Obama recently announced support for PACE, it was on the condition that PACE liens would be subordinate to first mortgage liens. The leading PACE implementers have indicated they could live with this. If PACE liens move to a subordinate position, a reserve fund to protect first mortgage lenders may no longer be necessary. Bottom line, for some market sectors, PACE may already represent the end game of market transformation.

From: [Clinton, Jeanne](#)
To: [Bonnett, Ashley](#)
Subject: Comments regarding comparative assessment of energy efficiency financing programs

Suggestions on the Comparative Evaluation, and Criteria to be used, to compare the effectiveness of PACE, CHEEF leveraged finance pilots, and the legacy IOU On Bill Financing program

First, it will be important to characterize the overall goal of these finance mechanisms, such as

- a) To increase overall energy efficiency savings or clean energy solutions
- b) To reduce greenhouse gas emissions (if applicable)
- c) To facilitate broader building improvements, especially those that are sustainable or otherwise contributing to public policy objectives.

Second, for each mechanism, describe the specific policy objectives that mechanism seeks to address or what barriers each seeks to overcome. E.G.

- d) To increase access to financing (improved convenience, qualification, and/or finance affordability measured by the cost of funds borrowed) to undertake those EE, clean energy, or GGHG reduction actions
- e) to expand the breadth of utility customer, building owners, and/or occupants who can qualify for, benefit from, and thus use these mechanisms

Third, it is important to clearly describe how each of the three types of financing presents a solution (or not) to the overall energy/GHG goals and policy objectives.

With this context, I offer some examples of policy objectives that the CHEEF pilots using leveraged private capital for (primarily) “unsecured” energy efficiency loans, service agreements, or other such financing mechanisms. By design, the CHEEF pilots were intended to:

- a) Test the deployment of mechanisms not competing with PACE, or where the market conditions, nature of the improvement transactions, or financial circumstances of the borrower or building/facility being improved did not make a PACE transaction do-able.
- b) Test the ability for a statewide lending facilitation platform to attract private capital at scale (e.g. by having uniform program rules statewide, supporting a common database of transaction performance information available to capital providers and finance originators in assessing performance risk and the associated terms of the transactions) as a way to find a scalable alternative to 100% ratepayer-supply of capital (to the OBF lending by utilities) collected via rate surcharges. This might be viewed as a “market transformation” objective.

Key issues to evaluate should thus include:

1. The potential of each financing approach to attract capital at scale, and on terms that attract both an expanded set of borrowers, and for a deeper set of EE or clean energy improvements than might otherwise have been procured using “conventional” finance products.
2. The extent to which an expanded set of borrowers occurs.
3. The extent to which “deeper” (greater investment levels) EE and clean energy improvements are made in transactions.
4. The extent to which the cost of capital (terms of the transactions) is reduced or offered for longer tenors (length of the finance term offered), such that the cost of funds is lower and/or is better matched to the cash flow savings expected from the clean energy improvement.

More specific evaluation issues should include:

- Assessment of changes or improvements for different market sectors (e.g. residential vs. commercial) and for market sub-segments (e.g. low and moderate income households, multi-family buildings, small businesses)
- Assessment of whether certain finance products (e.g. PACE, debt instruments, operating lease or service agreements) hold more appeal for certain market sector or sub-segments

Policy outcomes to be assessed include:

- The breadth of market segments that have access to or choose to utilize finance mechanisms that are sufficiently attractive
- Determination of whether the mechanism enabled a broader set of borrowers or deeper levels of EE investment
- The extent to which capital markets exhibit interest in offering finance products for EE/clean energy improvements, measured by the number, types, and transactions volumes of financial institutions participating
- The availability of transparent information to inform both project performance (e.g. ability of cash flow savings to support finance payment obligations) and finance transactions' performance (e.g. using repayment or default metrics)

Policy objectives to be assessed include:

- The potential for each finance mechanism to scale in response to market demand
- The relative value (or not) of the security functions associated with each type of transaction (e.g. property lien, risk of utility service shut-off, ease of collection for on-bill repayments)
- The relative appeal of different finance mechanisms to potential borrowers
- NOTE: I would NOT place much emphasis in this comparative evaluation on assessing the degree of consumer protection offered, as that would require digging into details of program implementation by individual contractors, lenders, or other transaction agents that is a level of detail and scrutiny that varies far more with and between "programs" and market "offerings" than the generic kinds of finance transaction arrangements being offered. If consumer protection somehow is "inherent" in a financing product, then it is fine to assess the relative satisfaction and performance of transactions using that.

Policy metrics to use should include:

- Loan qualification rates
- The credit or loan quality profiles of successfully underwritten transactions
- Loan or finance agreement performance data
- The cost of funds borrowed/ utilized (e.g. effective APR paid)
- The \$ size of transactions, and mix of EE or clean energy measures undertaken
- The \$ value of EE-specific measures included in a finance transaction (excluding costs of non-EE items), and the level of EE savings expected for that EE \$ investment.
- The extent to which finance transactions also include other public policy aims, such as renewable energy, water conservation EV or their infrastructure, seismic strengthening
- The effective leverage ratio of private capital \$ deployed per \$ of public or ratepayer funds used

Jeanne Clinton
Special Advisor for Energy Efficiency

Calif. Public Utilities Commission

Tel: 415/ 703-1159

e-mail: cln@cpuc.ca.gov or

jeanne.clinton@cpuc.ca.gov

From: [Dennis Quinn](#)
To: [CAEATEA; Bonnett, Ashley](#)
Subject: RE: Request for Written Comments on Proposed Comparative Criteria for Energy Efficiency Financing Programs

Dear Ashley,

Thank you for the opportunity to review the comparative criteria for energy efficiency programs. The comments presented during the workshop were quite thoughtful. Though the following may be redundant to some of the comments, we wanted to provide you our few thoughts:

Criteria differentiators:

Term of financing –

1. terms may be limited by creditworthiness or lender policies rather than tied to measure life. This may impact the measures ultimately adopted by the end-user (e.g. 5 year financing may not match the payback period of replacement roof-top HVAC unit).
2. May longer term financing offerings create a larger burden on the Loss Reserve?

Mix of measures – financings may not provide for eligibility of specific technologies (e.g. electric storage may only be offered with a limited number of financing vehicles).

Number of measures – do some financing vehicles limit the number of measures; may they only fund a single measure?

Is capital availability dependent on savings – Is the financing tied to savings or is it ultimately only a customer credit question?

Is capital repaid based on savings?

Do customers undergo differing underwriting processes from financier to financier for the same measures? Are the criteria related to cost of money?

To access financing, must a delivering contractor be certified or qualified (e.g. ICP)?

Origination – do all financing options have access to the same origination resources (e.g. State marketing, websites, incorporation into IOU program design?)

Does the financing have geographic or demographic limitations? Are some locations inadequately presented with financing options?

Are multiple or other credit-support mechanisms in place with some financings and not others?

I hope these thoughts somehow help in the overall criteria development.

Warm Regards,

Dennis Quinn

Dennis Quinn; COO
Joule Assets Inc.
(T)+1.914.977.3444x105
(m)+1.503.333.5475
www.jouleassets.com
Joule Assets logo final



The PFM Group

Public Financial Management, Inc.
PFM Asset Management LLC
PFM Advisors

601 South Figueroa
Suite 4500
Los Angeles, CA 90017

213-489-4075
213-489-4085 fax
www.pfm.com

May 6, 2016

Ashley Bonnett, Analyst
California Alternative Energy and Advanced Transportation Finance Authority
715 Capitol Mall, Room 457
Sacramento, CA 95814

Re: Proposed Criteria for Assessment of Energy Efficiency Financing Programs

Dear Ms. Bonnett,

Thank you for the opportunity to participate on the task force for development of criteria for comparative assessment of energy efficiency financing programs. We applaud the efforts of CAEATFA to be thorough, inclusive and thoughtful of the variety of different programs that may be impacted by any such criteria implementation.

PFM Financial Advisors, LLC is the nation's largest financial advisory firm, and I am the head of PFM's Environmental Finance Group. Our work is primarily serving as the fiduciary financial consultant to government agencies that are working to implement programs, or to make energy saving improvements to their municipal assets. PFM's role is to assist with the identification, evaluation, implementation and ongoing program operations (in some cases) of financing options available to our clients in order to achieve their project or program goals. As professionals, based in California, and working in this sector throughout the Country, we have a strong interest in "getting this right," since most, and perhaps all, of our work will eventually be impacted by any metrics that are implemented. As such, our comments are largely based on the impact that we foresee on our various California clients, which includes: PACE program sponsoring agencies, cities, school districts, municipal utility districts, and other municipal and non-profit agencies.

With regard to the proposed criteria, we will make comments on each item individually. After which, we will provide some thoughts on additional items that we would recommend for consideration by the team. We respect that the task is to propose criteria independent of methodology; however, as practitioners in the field, we find it practically impossible to consider the criteria without thinking about implementation methods as a gauge of whether the criteria is reasonable.



- 1. Energy savings attributable to program financing.** This attribution item suggests that the savings from projects that would have been done regardless of the financing are not attributable.

We dispute this specific exclusion as unreasonable because many energy efficiency projects are done as part of ongoing property maintenance or replacement of inefficient equipment. We believe that any time that old, inefficient equipment is replaced with higher efficiency equipment the State benefits and credit should be given. In our experience, the impact of financing availability suggests that the purchaser (whether public or private sector) may consider higher efficiency than base model equipment, and that they may expand their purchases to multiple measures. The level of equipment eligible for purchase is typically defined at the program level, and thus dictates a degree of savings over existing or base model equipment.

Furthermore, attribution given to only a single financing program for projects that combine sources of capital from multiple programs, may discourage use of multiple financing tools on a single project. We often seek to combine multiple funding programs in order to reduce the overall cost and maximize savings opportunities. However, if not handled properly, these programs may be in competition for attribution.

We would be supportive of attribution criteria that provides all financing programs included in an overall project to be credited with savings. This way, when seeking aggregated project or consumer-based data, the financing programs used would be identifiable; and when looking at financing program data, the projects and consumers that utilized the program would be available.

- 2. Cost-effectiveness: A comparison of a program's benefits to its costs.** Generally, we agree with the reasoning behind this criteria. We caution that as the methodology is developed, the parties involved should focus on simplicity and standardization so that the deployment is not a deterrent to market participants. Additionally, while this data can be considered "comparative," there are many additional qualitative factors specific to individual programs that will not be conveyed through simply looking at this data point. We suggest consideration of another name, instead of "cost effectiveness," since this name is one that draws attention to this singular factor without consideration of the additional more qualitative aspects.



3. **Savings, cost-effectiveness, and market penetration by market segment and project type.** We support this criteria as long as the methodology is not overly burdensome to financing recipients and program administrators. We also note that this information will need to be acceptable in varying degrees of specificity depending on program funding sources. *Simple* data collection at the closing of the financing is encouraged as a way to achieve participation from the broadest group of market participants.
4. **Customer experience Customer satisfaction.** We would suggest excluding this from the criteria in favor of more financing-specific data to be elaborated upon below. Customer experience is a “nice to know” item, but can be burdensome to collect and comparatively unreliable given the qualitative interpretation of experiences.

To the extent that Customer Experience information is included, we suggest that it includes information related to the timing involved to receive approval and close the transaction.

Additional Items

In lieu of the Criteria for Customer Experience, we recommend that information related to the composition of capital is collected. The items in the final workshop presentation discussing Market Transformation and Finance Program Elements seem most relevant to the overall direction that has been stated in California (and elsewhere): i.e. using ratepayer and taxpayer dollars to assist with market development to encourage participation from private capital; and, as the market demonstrates the ability to function effectively, to reduce and eventually withdraw the ratepayer and taxpayer funds. To this end, we suggest that identification of funding sources (private and public), in combination with the project and customer data included in the proposed criteria 2 and 3, in order to most efficiently determine financing program effectiveness. Over time, this identification of private capital participation will give the State access to a broader group of market stakeholders, whose participation can be considered in order to more effectively target the limited ratepayer and taxpayer funding.

Another category for consideration, as an addition to the criteria, would be economic development features related to the workforce expansion. Many financing programs state job growth as a goal, in addition to improving the efficiency of the built environment. This item, may be a future addition, but could also fit into proposed criteria 3. We consider this item as optional, but relevant to the overall consideration of criteria.

Our experience, assisting with financing for numerous project types, a variety of public agencies, as well as programs that are used by the private sector, leads us to believe that the most reliable information will be collectible as a condition of receiving funding; that is, as a condition of closing, along with signing the closing documents, any information required for program compliance would be required. We



Ashley Bonnett

May 6, 2016

Page 4

recognize that this is crossing into the methodologies, however, we believe that a strong data set from each project, with key information, would provide a basis for aggregation of information to allow for better comparison of financing programs.

We believe, that if properly established, criteria can be collected at the close of financing through a simple, standardized questionnaire for each project. CAEATFA would be the logical repository of this information, hopefully with the support of a robust database that can manage the data for analytical reports to legislators, administrators, municipalities and consumers. PFM recommends maintenance of a simple, standardized approach to data collection in order to maximize participation by financing programs.

In closing, we again thank you for the opportunity to participation in this process. Please feel free to contact me directly (213-415-1625 or frankel@pfm.com) if you would like to further discuss our suggestions.

Warm regards,

A handwritten signature in blue ink, appearing to read "Laura Franke", is positioned above the typed name.

Laura Franke
Managing Director

May 6, 2016

Ashley Bonnett, Analyst
CAEATFA
915 Capitol Mall, Room 457
Sacramento, CA 95814

Re: Draft Criteria for a Comparative Assessment of Energy Efficiency Financing Programs Available in California

PG&E appreciates the opportunity to comment on the Draft Criteria as outlined during the April 27th stakeholder meeting. While responding to the questions posed by CAEATFA in their email dated April 28th, PG&E also suggests items for further consideration. CAEATFA intends that these financing evaluation criteria apply to a broad variety of energy efficiency financing programs, including “other types of financing and incentive programs administered by entities such as local governments, public utilities, and other state entities,” besides PACE, CHEEF Pilot Programs, and On-Bill Financing. PG&E’s comments are intended to support the differentiation between programs, as well as the collection of information at a discrete enough level to allow for meaningful analysis. At the same time, these comments should not be interpreted as advocating any preference or outcome in the analysis of any particular financing program.

Thus, these comments on the Draft Criteria are centered around the following concerns:

Whether the draft proposal missed any potential comparative criteria;
Should any of the proposed criteria not have been included; and,
Whether there are any additional issues or challenges that should be raised regarding the implementation of the proposed comparative criteria.

I. Potential Comparative Criteria

1. Source of funds used for financing and/or program administration:

The assessment criteria should identify whether public funding, versus private funding, supports any portion of the financing program, such as its administration, disbursed funds, or other form of financial assistance. The source of funding generally determines the flexibility of a financing program, such as participant eligibility, the forms and terms of financial assistance, the scope of measures that can be financed, and sizes of projects that can be financed. In particular, the criteria should differentiate between taxpayer-funded programs that may support broader initiatives such as economic development from ratepayer-funded programs that should focus on

benefits to the utility ratepayers (both participating and non-participating) that provide the funding.

2. Common definitions to be used in comparative criteria, including in the development of logic models:

PG&E supports the suggestion that each financing program include a program logic model as it is being developed, and furthermore, recommends that the participants and products in each model be defined in consistent terms, to the extent possible, to enable accurate comparisons of the financing programs.

There are a number of actors, both programmatic and market-based, that participate in any financing program— including financial partners, project development and contractor partners, customers, and others. Depending on the structure of a given financing program, there could be many actors with a variety of roles.

Financing programs also differ in the type of financial products they offer. When comparing these programs, it is important to note the type of financing product being offered: loan vs. lease; secured vs. unsecured; or fixed vs. variable interest rate.

To ensure maximum comparability of programs and ensure that opportunities to collaborate are identified, PG&E suggests that CAEATFA develop common terminology to describe how partners and programs are structured and the types of products being offered. PG&E would be happy to assist in developing a framework that can be utilized by different partners.

II. Criteria That Should be Reconsidered or Excluded

Robust program evaluation can help to ensure that public funds are utilized appropriately and that private and public program administrators are following best practices. PG&E supports a robust evaluation protocol that leverages existing best practices. However, existing evaluation methodologies were developed from a regulatory perspective to provide incentives for utility management's successful deployment of customer-funded programs. This is not the purpose of CAEATFA's evaluation of energy efficiency financing programs. The portfolio subject to CAEATFA's review should be seen as support for the increasingly vital contribution of energy efficiency to California's future, as mandated by Senate Bill 350. Thus, while the evaluation criteria should build on the advanced technological resources now available, it should not be complicated by factors that are irrelevant to the comparison of broadly available financial vehicles for energy efficiency improvements.

It is important that the comparative criteria recognize and incorporate the new technology and innovations that are now available, such as smart meter data through resources like PG&E's ShareMyData functionality, and similar functionality available from the other California electric IOUs, that could provide better results than traditional measurement techniques.

PG&E highlights the following as examples of areas in which the criteria should be reconsidered to better incorporate the unique aspects of financing programs:

1. Attribution:

Attribution is one example of a pre-existing regulatory evaluation criteria that, if misapplied to financing evaluations, could stifle financing programs and undermine broader energy efficiency goals. PG&E agrees that it is important to determine the extent to which an energy efficiency financing program influenced a customer to undertake an energy efficiency measure. Program administrators and implementers (“participants”) in CPUC-jurisdictional energy efficiency financing programs are expected to demonstrate savings from their financing measure. However, each unit of energy savings can be claimed by only one participant and attribution rules eliminate savings that were not shown to result exclusively from the participant’s deployment of that measure. Clearly, the regulatory attribution rule tends to discourage collaboration between energy efficiency program participants.

At the same time, California’s energy efficiency mandate requires us to reach more consumers, and consumers may more readily spend money for efficiency upgrades if cost, effort, and other risk are reduced through a complete package. It would be unfortunate, to say the least, if financing program participants were to avoid or not actively pursue collaborative opportunities with other program participants to offer consumers multiple measures, such as pairing rebates with incentives or pairing multiple financing products, out of a concern that doing so would reduce the attribution of energy savings to their programs. To avoid this, the evaluation of attribution for financing must be designed in a way to recognize that program collaboration stands to yield a whole larger than the sum of its parts, achieving better outcomes for both customers and the larger stakeholder community.

2. Measure and project characteristics – number of measures installed per project:

PG&E does not believe that this metric is particularly useful in determining the cost effectiveness or market penetration of a program. Successful programs may focus on a single measure type for the purpose of streamlining and reducing overhead costs, or may focus on comprehensiveness to achieve maximum energy savings. While it could be helpful to view cost effectiveness in the context of a program’s relative comprehensiveness, the metric suggested could value a truly comprehensive project as equal or even less than a lighting-only retrofit with multiple types of lighting fixtures being replaced.

Moreover, projects that include retro-commissioning, control systems, or other non-widget-based changes may appear to be less comprehensive by this metric, while their actual efficiency impact may be greater. Instead of attempting to quantify the measures installed, PG&E recommends taking advantage of smart meter data and other measurement and verification methods to focus

on the actual energy savings achieved as envisioned in Assembly Bill (AB) 802.¹ Using this data will facilitate the evaluation of overall project efficacy, including performance over time.

If this metric is included in the assessment criteria, PG&E would like to request additional clarification regarding how it is defined. “Number of measures” may be taken to mean the variety or number of unique measures or the size/scope of the overall project. It may be difficult to parse out the number of unique measures consistently. For instance, an HVAC retrofit could be conceived as a single measure or as multiple measures encompassing the HVAC unit itself, the ductwork, insulation, thermostats, and controls. As mentioned above, non-widgit-based projects will be difficult to quantify and should be kept in mind as the metric is defined further.

3. Measure and project characteristics – savings per project:

PG&E is concerned that this criterion would be over weighted to financing programs with longer loan terms, which may be less cost effective overall when interest and other costs are incorporated over the lifetime of the loan. Many customers prefer to repay their debt quickly. Although this would yield higher payment-to-energy cost savings ratios, it would also result in less interest accruing, potentially lower interest rates, and periods of positive energy cost savings after the loan term that would not be in the evaluation scope.

As proposed, the criterion may also favor programs with less comprehensive projects, targeting the ‘low-hanging fruit’ with high energy savings-to-cost ratios. Furthermore, it does not consider other potential financial benefits stemming from energy efficiency projects– such as reduced maintenance requirements, tax credits, depreciation benefits, and new equipment installation– that would not be reflected in utility bill savings.

Finally, the “share of projects with positive net savings” may not be a useful comparative criterion, as many programs are designed to fall at one end of the payment-to-savings ratio spectrum or the other. For instance, a program that offers 20-year loan terms may have positive net savings on nearly all of its loans; whereas a five-year lease program may have none of its loans meet this metric.

Instead, PG&E recommends another metric such as the net present value (NPV) of projects to properly incorporate all financial benefits and costs over the expected useful life of a project. Using NPV would facilitate direct comparisons between financing programs with different structures and loan product offerings, placing equal value on energy cost savings and other financial benefits.

¹ AB 802 (Stats. 2015, Ch. 599) amended Section 381.2(b) of the Public Utilities Code to require the CPUC to “by September 1, 2016, authorize electrical corporations or gas corporations to provide financial incentives, rebates, technical assistance, and support to their customers to increase the energy efficiency of existing buildings based on an estimated energy savings and energy usage reductions, taking into consideration the overall reduction in normalized metered energy consumption as a measure of energy savings.”

4. Customer experience – consumer protection:

PG&E supports the inclusion of consumer protection as an evaluation criterion. CAEATFA should also consider including rates of default or other metrics to reflect the performance of energy efficiency loans over the life of the program. Some programs may incur higher up-front costs to ensure that financing recipients are unlikely to default on the debt obligation.

PG&E looks forward to continued collaboration with CAEATFA and other stakeholders as the comparative evaluation criteria are developed. In the meantime, I would be happy to respond to any questions or comments that you may have.

Sincerely,

Al Gaspari
Manager
Transaction Services
245 Market Street, N6G
San Francisco, CA 94105

Alfred.Gaspari@pge.com
(415) 973-1697



May 6, 2016

Ashley Bonnett
California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA)
915 Capitol Mall, Room 457
Sacramento, CA 95814

Dear Ms. Bonnett,

Please find comments from Renew Financial below on CAEATFA's Proposal of Draft Comparative Criteria.

Draft Evaluation Criteria 1. "Energy savings attributable to program financing: The reduction in energy usage brought about specifically by the financing offered under each program, but not including savings that would have occurred in the absence of the offered financing."

Program evaluation should also include a metric to compare energy savings per public dollar invested. For example, PACE is enhanced by the \$10 million PACE Loss Reserve with project volume greater than \$1 billion in private capital invested. Programs should also be evaluated on success of leveraging public (or rate payer) investment to support the program.

We agree with the author "financing alone does not make a successful program and needs to be bundled with marketing and consumer satisfaction efforts to accelerate uptake and demand."

Attribution analysis should require determining how to parse out the impacts of financing alone versus other elements such as these that may be integrated into a financing program.

Draft Evaluation Criteria 2. "Cost Effectiveness -- Total Net Benefit Costs:"

Total Net Benefit and Benefit-Cost: Any cost effectiveness benefit analysis between programs is difficult to compare because of differing levels of public money subsidization. Each homeowner is different and one may prefer shorter term versus longer term financing, or vice versa. One homeowner may find it more cost effective to stretch payment over the long term even though a shorter term financing may be cheaper. The dollar value of energy savings to financing amount is difficult to compare because each homeowner has differing reasons for why they choose a particular financing product.

Draft Evaluation Criteria 4. "Customer Experience - Consumer Protection:"

The Consumer Protection evaluation criteria item should include not just feedback from customers, but should also include the actual consumer protections provided by each program. Related to this comment, but connected to other parts of the document, is whether or not each program has standards for the products (such as only high performing - e.g. Energy Star rated) each is allowed to finance. Assuming each program has some differences, and then objective criteria could be the impact of a program on the market share of such products.



The evaluation criteria "share of projects with positive net savings" is potentially problematic given that so many of the projects that PACE programs finance are reactive. Many times we are helping a homeowner in a bind (HVAC blew on the summer), providing better financing than a credit card, home improvement store's financing, a personal loan, or a credit union's loan where all of these options' interest rates could be relatively exorbitant for anyone with less than stellar credit.

In exchange for offering good terms we are require that a homeowner install a high performing item. On its face, the project may not have a positive net savings if looked at purely from annual payments relative to annual utility bill savings. But if looked at in comparison to the lifecycle costs of the inefficient HVAC that other financing may have paid for and the efficient HVAC that we require, then there are positive net savings.

We look forward to continuing the work with CAEAFTA to maximize the success of all energy finance programs in California.

Sincerely,

Joe Livaich
Renew Financial



May 5, 2016

Ashley Bonnet, Analyst
California Energy and Advanced
Transportation Financing Authority (CAEATFA)
916 Capitol Mall, Room 457
Sacramento, CA 95814
Tel.: (916) 651-5100
<http://www.treasurer.ca.gov/caeatfa>

RE: Draft criteria for a comparative assessment of energy efficiency financing programs available in California

Thank you for the opportunity to provide input and perspective on the draft criteria for a comparative assessment of energy efficiency programs available in California. Ygrene Energy Fund, a leading PACE administrator and funding partner of Golden State Financing Authority (GSFA), the Coachella Valley Association of Governments (CVAG), and over 200 cities and counties across the state, seeks to provide valuable contributions as a member of the working group and the development of assessment criteria. Ygrene respectfully submits the following information to assist in comparing energy efficiency financing programs in California.

Energy Savings Data & Reporting

Ygrene recommends that energy conservation projects, whether financed by PACE, On-Bill, CHEF or other mechanisms, capture, calculate, or estimate based on the appropriate industry-accepted tools or models, the amount of energy conserved or produced. These metrics should be presented in units of measure and in formats that are generally accepted with the industry that implements these measures and offers or approves the financing of such projects. It is important for this data to be collected and reported in the same or materially similar formats that other like programs utilize, in order to support comparative analysis of different programs.

Customer Experience & Consumer Protection

It is vital that consumers receive accurate and complete information that is reasonably consistent across similar energy efficiency programs. This is necessary in order for consumers to make accurate comparisons of the available programs, the total costs of such programs, and have available to them the information necessary to make an informed decision. The form of these disclosures should be in that of existing templates or documents that are currently utilized in consumer lending and comply with all existing laws and regulations.

Ygrene Energy Fund looks forward to continuing our engagement the working group and CAEATFA to develop effective criteria for the evaluation of energy efficiency programs.

Sincerely,

A handwritten signature in black ink, appearing to read 'Mike Lemyre', with a long horizontal flourish extending to the right.

Mike Lemyre
SVP, District Development & Government Affairs
Ygrene Energy Fund

c: 415.816.4966
t: 707.236-6608
f: 707.579.4617
e: mike.lemyre@ygrene.us
w: www.ygrene.us