Marin Clean Energy

Commercial Sector

Program Implementation Plan

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ACRONYMS

The following acronyms are used throughout the document:

- AMI - Advanced Metering Infrastructure
- CEC - California Energy Commission's
- CEUS - California Commercial End-Use Survey
- CRM - Customer Relationship Management
- DG - Distributed Generation
- DR - Demand Response
- EE - Energy efficiency
- EM &V - Evaluation, Measurement and Verification
- EMIS - Energy Management Information Systems
- EVs - Electric Vehicles
- HVAC - Heating, Ventilation and Air Conditioning
- IDSM - Integrated Demand Side Management
- IOU - Investor Owned Utilities
- LED - Light-Emitting Diode
- M&V - Measurement and Verification
- O&M - Operations & Maintenance
- PACE - Property Assessed Clean Energy
- PIP - Program Implementation Plan
- QA - Quality Assurance
- QC - Quality Control
- S-CEI - Strategic and Continuous Energy Improvement
- SMB - Small to Midsize Business
- SPOC - Single Point of Contact
- TRC - Total Resource Cost

Implementation Plan: Commercial

Introduction

Marin Clean Energy (MCE) has identified the commercial sector as an important area for tailored and strategic energy efficiency program offerings.

The commercial program is structured to transition from focusing primarily on technical assistance, rebates and incentives, and financing to incorporating cutting-edge strategies like demand side management bidding, web-based tools and software, behavioral campaigns and competitions, and strategic and continuous energy improvement. Many of the proposed strategies are relatively new to the marketplace, so will be phased in to closely evaluate and quantify the success of the transition.

A core tenet of the program is delivering a seamless platform for integrating opportunities across energy efficiency (EE), demand response (DR), distributed generation (DG), renewables, electric vehicles (EVs), and water efficiency. Collectively, these opportunities are called integrated demand side management (IDSM).

The commercial program will maximize both customer and program benefits by offering a flexible yet structured approach to IDSM. The full-service approach provides technical assistance, rebates, financing, assistance finding contractors, quality assurance, and project management. The program offers a targeted and personalized approach through software and data analytics to identify best candidates and develop a savings action plan. MCE is committed to providing excellent customer service and satisfaction through dedicated staff resources and tools.

Targeted users include all non-residential customers within MCE's service territory, including office buildings, storage facilities and warehouses, schools, restaurants, municipalities, hospitals, retail facilities, hotels, and motels.[1]

Market Characterization

MCE has analyzed energy consumption, building data, barriers, triggers, key market actors, and energy efficiency adoption to better understand the opportunities that exist within the commercial sector.

Energy Consumption

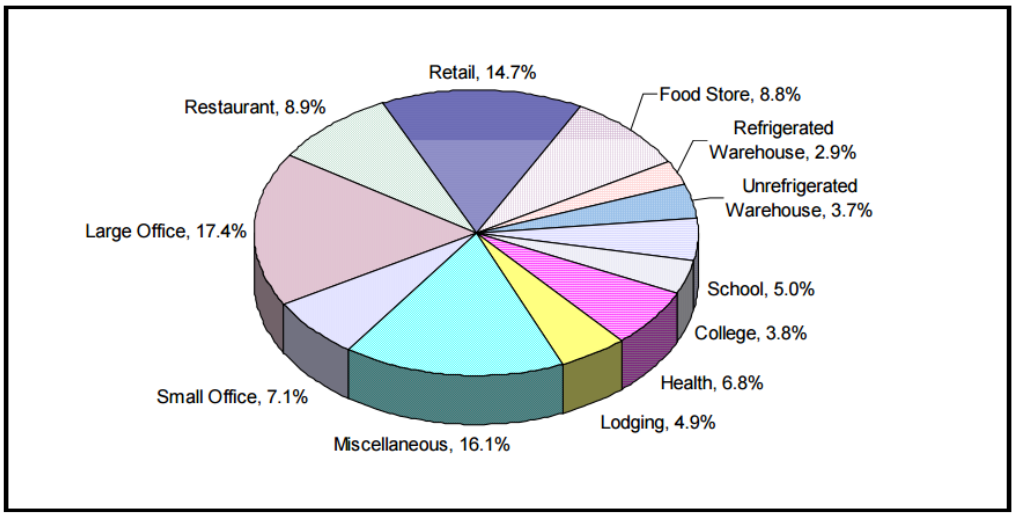
Commercial businesses account for ten percent of MCE's accounts, yet represent about 50 percent of its electrical consumption. This demonstrates the importance of targeting the commercial sector to achieve energy and greenhouse gas emission reductions.

Since typical commercial energy consumption profiles vary considerably across California and within MCE's service territory, MCE anticipates working with partners that understand the diversity of its customer base and tailoring strategies accordingly.

The following graphics depict statewide commercial electricity and gas usage by building type and end use. The data is from the 2006 California Commercial End-Use Survey (CEUS), which is a comprehensive study of commercial energy use across thousands of commercial facilities in California.

[1] Agricultural and industrial customers will be served under MCE's agricultural and industrial programs.

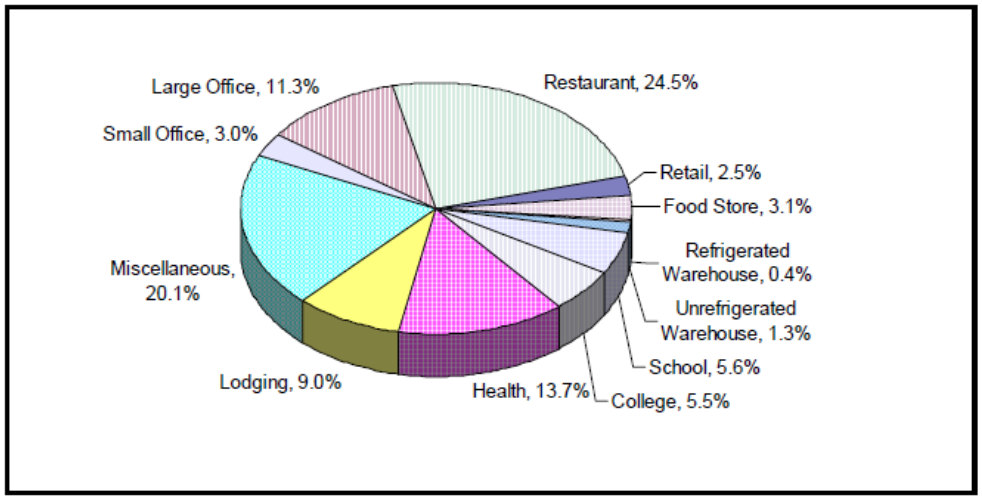
Figure 1. California Commercial Electricity Usage by Building Type



Source: California Commercial End-Use Survey (CEUS). California Energy Commission. Accessed June 9, 2015. http://www.energy.ca.gov/ceus/

On a statewide basis, electricity and gas use varies considerably across commercial customer segments. For example, on a comparative basis, restaurants' natural gas use is a more significant cost driver than it is for large offices. Meanwhile, on an absolute basis, the large office segment represents the highest electricity use segment while restaurants represent the highest gas use segment. This points to a need for targeted, relevant program offerings.

Figure 2. California Commercial Natural Gas Usage by Building Type

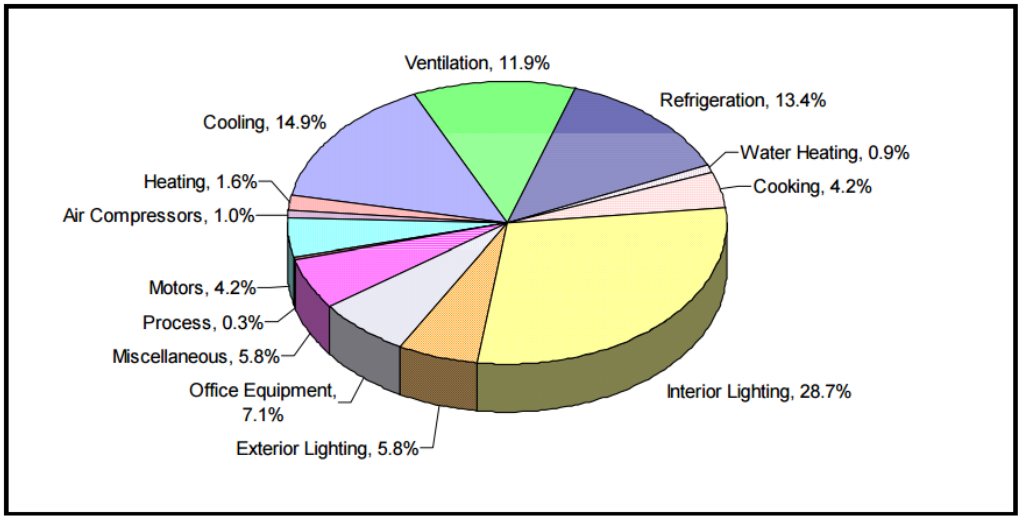


Source: CEUS

In the commercial sector, the primary electricity end uses are interior lighting, cooling, ventilation, and refrigeration. The top three gas end uses are heating, water heating, and cooking, which comprise over

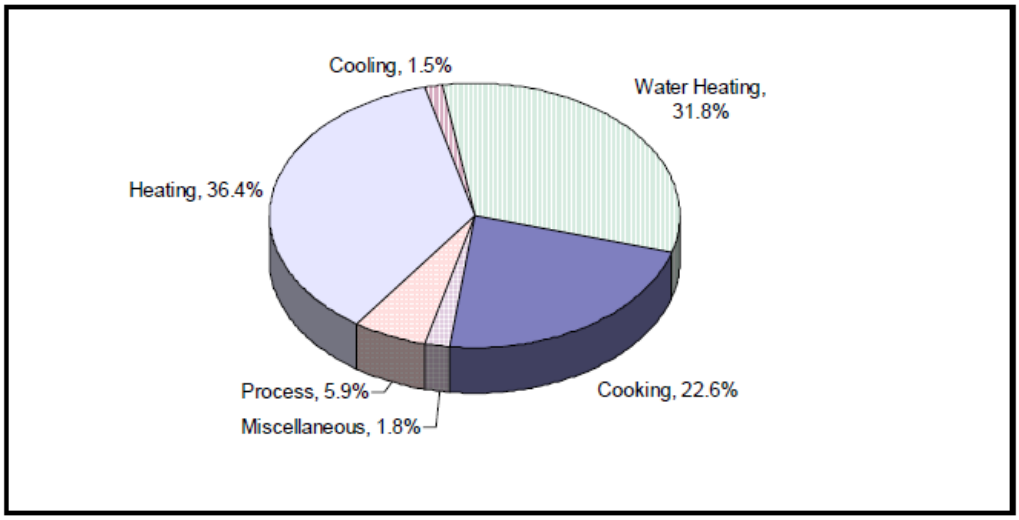
90% of the sector's gas usage. The following breakdown provides insights into the top-consuming measures, which can serve as a useful tool for targeting energy efficiency opportunities.

Figure 3. California Commercial Electric Usage by End Use



Source: CEUS

Figure 4. California Commercial Natural Gas Usage by End Use



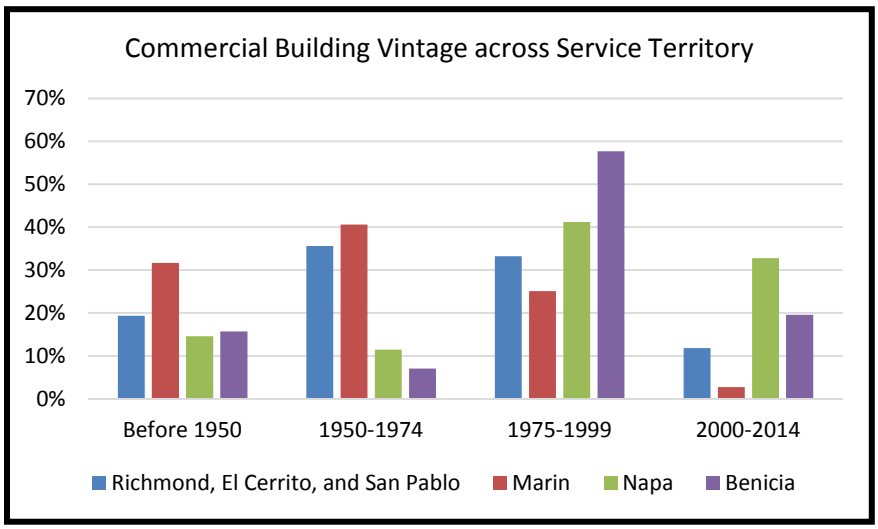
Source: CEUS

Building Data

MCE's service territory contains a diversity of commercial building vintages, which provides insights into trends affecting construction and growth. Marin County, for example, has seen declining growth since the mid-1970s due to planning regulations and growth limits, while Benicia has seen considerable

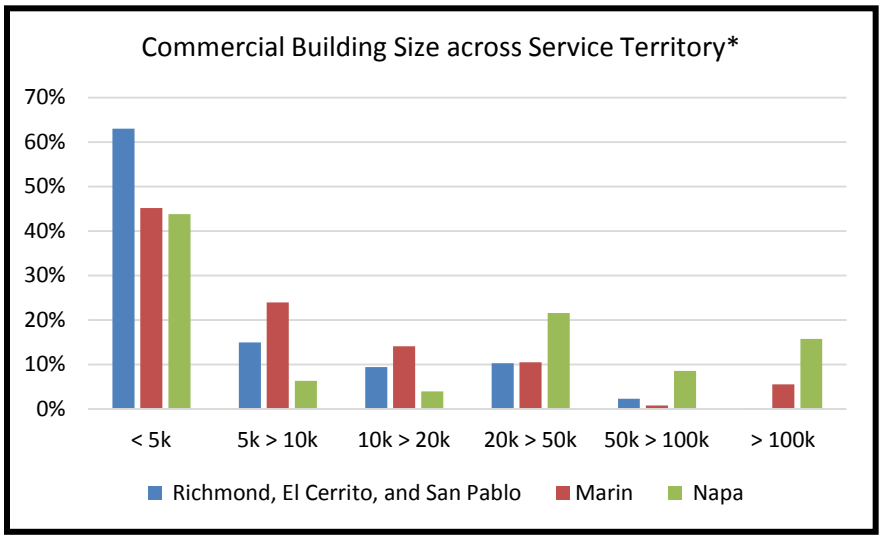
growth and expansion during that same time period. Building vintage provides useful insights into energy efficiency program planning and marketing strategies.

Figure 5. Commercial Building Vintage across Service Territory



The size of commercial buildings varies considerably across MCE's service territory. To effectively serve its diverse customer base, MCE tailors its energy efficiency strategies according to customer needs. For example, strategies focused on serving the small commercial segment may be better suited to Richmond, El Cerrito, and San Pablo (with the greatest number of commercial buildings under 5,000 square feet); meanwhile, there may be more significant opportunities for large commercial upgrades in Napa and Marin (which have the greatest share of commercial facilities over 100,000 square feet).

Figure 6. Commercial Building Size across Service Territory



**Data not available for Benicia.*

Barriers

There are several barriers that may prevent the commercial sector from fully taking advantage of energy efficiency opportunities. These barriers include:

- **Financial Constraints.** Payback requirements are 3.6 years on average.[2] This can be a challenge for two reasons. First, it can limit deeper retrofits. Second, many small commercial building owners change properties every 2 to 5 years, so are not incentivized to pay for efficiency upgrades where they may not reap the rewards during ownership. Some entities are constrained by barriers separating capital development and operating funds, and can be limited by lowest-bid regulations. Accessing capital funds often requires approval from fiscal managers, who are tasked with balancing many competing priorities across business lines.
- **Split Incentive Issue.** The "split incentive" issue refers to the challenge of encouraging energy efficiency upgrades in facilities where the tenant pays for electricity, but does not own the equipment. This arrangement is very common in the commercial sector, and can make it challenging to get buy-in and financial backing for efficiency upgrades. Potential savings are fragmented across a high diversity in business type and large geographical area.
- **Contractor Limitations.** There are a limited number of contractors with technical knowledge of integrated and comprehensive demand-side management and a dearth of contractors that also have the business, sales, and project management skills needed to convert lead generation to complete projects.
- **Visibility of Improvements.** Energy efficiency improvements are not as visible as other clean energy strategies, such as rooftop solar panels. As a result, efficiency improvements may not increase property values in the way that other clean energy strategies do.
- **Small to Midsize Business (SMB) Barriers.** This customer segment tends to be difficult to engage due to the high number of businesses, fragmentation of savings across many small accounts, and difficulty getting the attention of busy small and midsize business owners.
- **Large Commercial Business Barriers.** Energy efficiency may represent a relatively small portion of the large commercial operating budget. Some businesses may be concerned about impacts of energy efficiency on products and productivity. Furthermore, it can be challenging to reach decision makers in large commercial facilities.
- **Lack of Awareness.** Commercial customers have a general lack of awareness of energy efficiency benefits and MCE programs. There is also uncertainty in achievable savings, time constraints, and a lack of dedicated energy managers in the commercial sector. Finally, there is a need for greater sub-metering to gain insight into energy consumption.

MCE's commercial program is designed to address these barriers by reaching customers at trigger points and offering tailored solutions.

Triggers

Trigger points are moments of opportunity when the likelihood of engaging customers in an energy efficiency program is highest. Trigger points for commercial customers include:

[2] McKinsey & Company. Unlocking Energy Efficiency in the US Economy. 2009. Page 58.

- **Turnover and Upgrades**. Periods of change, such as office space turnover (signing or renewing a lease), turnover in retail or restaurant space, and major facility renovations or upgrades (restaurants, hospitals, hotels, groceries, offices, etc.).
- **Change in Law or Regulation.** MCE will use upcoming or anticipated changes in codes, standards, and regulations as a trigger point to motivate commercial customers to act on resource conservation. Where there is a change of law or a sunset to an existing law, there is also opportunity for a SPOC to engage. MCE closely tracks developments including, among others:
    - *Regulations*: California Green Building Initiative Executive Order (S-20-04), California Energy Benchmarking and Disclosure Law (AB1103), California Comprehensive Energy Efficiency Program for Existing Buildings (AB758), and California Global Warming Solutions Act (AB32)
    - *Standards*: California's energy codes in retrofits (Title 20), California's energy codes in new construction Title 24, International Organization for Standardization's Energy Management Standard (ISO 50001), American National Standards Institute (ANSI) certification; Leadership in Energy & Environmental Design (LEED); Green Building Initiative's Green Globes, and Department of Energy codes and standards (commercial HVAC equipment, lighting, appliances, etc.)
    - *Goals*: California Long Term Energy Efficiency Strategic Plan and the Governor's GHG emission reduction goals (Executive Order B-30-15)

  MCE will help customers comply with benchmarking regulations (such as AB1103) and use benchmarking tools (such as Energy Star Portfolio Manager) to gather baseline building information and track efficiency updates.
- **Equipment Failure.** Given capital constraints, commercial operations are unlikely to replace equipment that is not at or near the point of failure. Furthermore once equipment fails the ability to replace it quickly becomes key. Establishing a relationship with these customers prior to equipment failure will be crucial to MCE's ability to influence the efficiency of the replacement equipment. Alternatively, partnering with the contractors who most often provide equipment replacement will also ensure customers are presented with efficient alternatives at the right time.
- **Seasonal Triggers.** If the operation experiences regular seasonal periods of relatively lower activity, the best time to engage a customer for equipment upgrades would be a sufficient period of time before the low point of activity and would allow upgrades to be planned for that time period. Conversely, the best time to target a customer for behavioral or operational efficiency offerings might be during periods of high use when there is the most opportunity to save.
- **Operating Budget Cycles**: Particularly for large commercial customers, an awareness of their budget planning cycle can be crucial to timing discussions about strategic and continuous energy management.

MCE's objective is to utilize these trigger points to effectively engage customers in energy efficiency measures. To achieve this, MCE must identify and understand the entities that influence this sector.

Key Market Actors

There are many entities that influence the commercial sector. It is important that MCE understand the role that each entity plays and how this can affect efforts to promote energy efficiency:

- **Energy consumers** (end-use decision maker): Owners, renters, staff, and other occupants of a commercial facility
- **Legislative and regulatory bodies** (tax laws, regulations, codes and standards): Federal and State Legislatures, California Energy Commission, California Public Utilities Commission
- **City and county organizations** (regulatory influence, financial incentives and customer/constituent relationships): Development agencies, Planning Commissions, environmental task forces/committees/commissions
- **Community organizations** (customer/constituent relationships): Chambers of Commerce, RichmondBUILD, [San Pablo] Merchants Association, Marin Economic Commission, Marin Builders Association, Workforce Investment Boards, West County Council of Industries, and other trade associations and green certification programs
- **Business partners** (marketing, outreach and implementation)**:** Energy consultants, implementers and visionaries, and financial lending institutions
- **Other key market actors:**
    - Construction industry (customer influence): designers, architects, builders, general contractors
    - Contractors (customer influence and implementation): HVAC and refrigeration, lighting, controls, installation, maintenance service companies, DG contractors
    - Equipment manufacturers (equipment supply)
    - Vendors/commercial supply store (customer influence): retail displays and staff
    - Research & development industry (pipeline of new measures)
    - Media (marketing and outreach)

MCE tracks key market actors in order to best understand policy opportunities and challenges, and the impact of these entities on a customer's energy efficiency decision-making.

Adoption and Penetration

Before implementing commercial program strategies, MCE evaluated current adoption and penetration of energy efficiency programs to identify opportunities and determine market gaps.

Existing commercial programs have focused on low-hanging fruit, which presents a challenge. However, significant opportunities remain for certain measures (LEDs and advanced rooftop HVAC controllers, for example) and in certain sectors (SMB, for example). To make significant inroads at penetrating the SMB market, energy efficiency programs must develop creative solutions to address structural market barriers like the tenant-occupant split incentive. In the large commercial sector, relatively low cost opportunities like retrocommissioning can be paired with more capital-intensive measures and deep retrofits. Trendy measures like energy dashboards or subsidized electric vehicle infrastructure can be used as a hook to get a customer in the door and interested in comprehensive IDSM upgrades. Likewise, leveraging upcoming regulations (such as building benchmarking) can be a leverage point for large commercial customers. A tailored and integrated approach is crucial to making significant progress in increasing commercial efficiency penetration rates.

Commercial participation rates vary significantly across program administrators and by sector and programmatic approach. For example, Rhode Island's SMB direct install program achieved a participation rate of 4.8% of eligible customers between 2008 and 2013; meanwhile, New York's SMD direct install reached 16.9% of eligible customers between 2010 and 2014.[3] Participation rates for

[3] Lime Energy. Direct Install Utility Programs are defined as the systematic delivery of energy efficient equipment and technology to reduce customer demand on electricity. Accessed June 8, 2015. http://www.lime-energy.com/utilities

commercial financing programs are predominantly 0.5% or less. A few notable exceptions are the Kansas How $mart program, which reached 1.3% of commercial and residential customers after just 3 years of operation, and Connecticut Light & Power Commercial and Industrial and Small Business Energy Advantage programs, which reached 8.2% of commercial and industrial customers after a decade of operation.[4]

Likewise, penetration rates vary significantly. For example, a study on measure-by-measure savings evaluation, conducted as part of the California Investor Owned Utilities (IOU) Evaluation Measurement and Verification (EM&V) process, point to a 1-6% range for commercial measures like PC power management and LED case lighting, with a few outliers providing up to 12% savings.[5] A 2011 ACEEE report on financing programs also looked at annual energy savings and found a savings range of 12-17% for eligible commercial customers.

From 2013 to present, over 1,317 businesses have been audited through the joint MCE-PG&E direct install program, SmartLights, managed by Community Energy Services Corporation, and 401 projects have been completed, resulting in nearly 3,000,000 kWh in savings.

Based on the market characterization analysis, MCE has developed, improved upon or leveraged the commercial program offerings and projected a budget for the first four years.

Budget

The proposed budget for the first four years of the commercial program is as follows:

Table 1. Budget Summary

Budget Category	Year 1	Year 2	Year 3	Year 4
Administrative	$ 120,310	$ 142,310	$ 200,000	$ 200,000
Marketing	$ 196,455	$ 177,468	$ 161,076	$ 161,076
Direct Implementation	$ 479,846	$ 515,758	$ 859,821	$ 859,821
Incentives	$ 435,084	$ 653,210	$ 643,757	$ 817,734
Evaluation, Measurement and Verification (EM&V)	$ 50,000	$ 50,000	$ 80,000	$ 80,000
TOTAL	**$ 1,281,695**	**$ 1,538,746**	**$ 1,944,654**	**$ 2,118,631**

The expected total resource cost (TRC) and estimated savings are detailed below:

[4] American Council for an Energy-Efficient Economy. September 2011. What Have We Learned from Energy Efficiency Financing Programs? Accessed June 8, 2015. http://www.pacenow.org/wp-content/uploads/2012/08/ACEEE-Sep-2011-paper.pdf

[5] California Public Utilities Commission. 2013-2014 Final EM&V Plan. Accessed June 9, 2015. http://www.energydataweb.com/cpuc/home.aspx#

Table 2. Cost Effectiveness Summary

Sector Summary	Year 1	Year 2	Year 3	Year 4
Total Resource Cost Test (TRC)	0.99		1.32	
Budget	$1,281,695	$1,538,746	$1,944,654	$2,118,631
Estimated Savings	1,127,513 kWh 32,204 therms	1,812,079 kWh 47,649 therms	2,607,821 kWh 60,529 therms	3,165,620 kWh 83,512 therms

Commercial Program

MCE's commercial energy efficiency program is designed to serve both large and small commercial customers. The program acknowledges inherent differences in opportunities between small and large commercial properties, and emphasizes integrating diverse program strategies under one umbrella. The program will focus on customer satisfaction with the energy upgrade experience, and ultimately drive market transformation.

The commercial program will offer low- or no-cost audits for small commercial properties, and will provide extensive audits with customizable incentives for larger properties. Upon completion of the audit, an integrated assessment process will streamline multiple program strategies into one customer report. MCE will deploy user-friendly customer management software that allows for an ongoing relationship between the business and the program.

The program will provide participants with a SPOC who will serve as a facilitator and customer advocate, and help to guide the business owner through the process from initial contact to project completion. There are many benefits of a SPOC program. For example, projects may be more attractive to customers and easier to accomplish when all savings opportunities are bundled together and follow a clear, uniform presentation. In addition, the SPOC delivery model can provide more personalized attention and more follow-through to reduce customer confusion and increase the project completion rate. Project phasing is yet another benefit; MCE can remain in contact with participating properties over time and encourage property owners to implement projects in phases according to customer needs.

To meet aggressive targets, MCE will employ software and data analytics platforms to target buildings and tailor strategies according to demographics and energy savings opportunities.

To help ensure a successful outcome, MCE proposes a phased rollout, particularly for the strategies that are relatively new. Some of the new strategies are relatively unproven, yet represent an exciting opportunity for the communities that MCE serves to demonstrate leadership and serve as pioneers forging new approaches to energy efficiency. The rollout will likely follow the order of the strategies as presented below, depending on factors like customer demand and regulatory guidance.

Retrofit

This program offers technical assistance, incentives (including kickers for whole building and multiple measures), and financing options to upgrade existing nonresidential facilities. In addition, customers

who achieve zero net energy will receive a bonus incentive. Savings can be estimated with either a performance-based or widget-based approach, depending on the type of project. Rebates will be offered for lighting, HVAC, refrigeration, insulation, building envelope, plug loads, and other measures as appropriate. For a more detailed list of measures, see the E3 calculator.

MCE will offer tailored approaches, recognizing that small businesses have different needs and barriers to entry than larger commercial facilities. For example, as a generalization, small to midsize businesses (the SMB sector) may face more stringent payback period thresholds – and therefore may be a better candidate for financing to ensure deeper retrofits.

Green Business Certification

Green Business Certification provides proof of a company's commitment to conserving energy and water, minimizing waste, preventing pollution, and reducing its carbon footprint. This certification can be a powerful tool to encourage companies to conduct energy assessments and invest in the efficiency of their operations. MCE partners with local governments' sustainability departments to provide assistance in the certification process by helping customers navigate certification options and providing audit verification. MCE will facilitate marketing and outreach for green businesses to help publicize their commitment to sustainability and generate demand locally for green business. In addition, MCE will promote green building rating schemes, and educate customers on the value of building labels.

*Table 3. Certified Green Businesses in MCE's Service Territory**

City/County	Number of Certified California Green Businesses
Benicia	1
El Cerrito	22
Marin County	434
Napa County (unincorporated)	4
Richmond	30
San Pablo	13

Source: California Green Business Program. Accessed June 24, 2015. http://www.greenbusinessca.org/

**It is important to note that this table represents the number of businesses certified through one reporting agency and is not representative of absolute numbers of green businesses across MCE's service territory. Equally important to note is that this table includes both small cities and relatively large counties, so cannot be used to make relative numerical comparisons between the areas presented.*

Demand Side Management Bidding

MCE will pay incentives to customers based on measured and verified savings. The "pay-for-performance" approach would leverage AMI data and innovative using meter-based performance strategies. The intent is to capture real, verified savings in a more timely and administratively efficient way across demand side resources and allow for some load shed to be aggregated and bid into the California Independent System Operator market. Advocates explain that the approach, "is intended to spur private sector innovation and investment by building a market for efficiency bundled with DR, solar, EVs, and DG".[6] Furthermore, "if implemented correctly, this approach would create transparent and real time accounting for savings using Smart Meter data and increase quality efficiency installations by making contractors accountable to measured performance. This would ultimately reduce EE program administration and evaluation costs by making the industry (and not just the program) responsible for performance risk".[7]

Another key innovation with the demand side management bidding strategy would explore the use of a transaction structure in which a third-party investor finances building efficiency upgrades. MCE would then buy the actual energy savings from the third-party investor, while the building tenant or owner would reduce electricity consumption costs. MCE would partner with industry leaders to pilot this innovative approach to using energy efficiency in procurement.

This strategy will be tailored and aligned with the comparable program offerings in the industrial sector.

Data Analytics and Behavioral Approaches

These approaches offer a wealth of innovative tactics to inform, engage, and motivate customers to change their energy consumption habits. Displaying monthly usage over time and highlighting issues and opportunities for customers can encourage behavior changes in usage patterns. Many of the same tools can also serve as powerful tools to target customers for participation. Data analytics and software systems are leveraged to enable continual measurable feedback for assessing opportunities, project tracking, lead generation, and measurement and verification (M&V).[8] Examples include everything from benchmarking platforms (like Energy Star Portfolio Manager), to load disaggregation software, to fault detection and diagnostics software. These tools could also enable dashboard control of plug load technology, and provide information to the customer to control existing plug load energy use.

Behavioral approaches can couple these tools with the principles of social norming. Possible strategies include comparative energy reports, competitions, green teams, interactive energy-use kiosks, social media, and games.

Specific approaches will be tailored according to customer need and demand. Consistent with the other program strategies, data analytics and behavioral approaches will allow for integration with DR, DG, plug load control, and EVs.

This program could be combined with the retrofit program, providing rebates for lighting, HVAC, refrigeration, insulation, building envelope, plug loads, and other measures as appropriate. For a more detailed list of measures, see the E3 calculator.

Strategic and Continuous Energy Improvement (S-CEI)

[6] TURN, Response to R.14-10-003, page 8

[7] Ibid.

[8] Measurement and verification differs from evaluation, measurement, and verification (EM&V) in that it is information gathered real time and analyzed in house for the purposes of immediate program improvement. EM&V is traditionally bid to an independent third party to provide an analysis of program improvement for regulatory processes.

S-CEI aims to promote energy efficiency as a lifestyle. The typical pillars of an S-CEI program include: obtaining management support for ongoing energy efficiency enhancements, conducting ongoing assessments, trainings and improvements, and periodically developing and reviewing strategic efficiency goals. An emerging best practice is to offer energy management certification to help ensure the long-term success of projects. The goal is to create lasting changes driven from management and facilities personnel alike.

S-CEI projects can be a mix of retrocommissioning (RCx) in that they typically target more behavioral and operational measures; however, they go beyond RCx by emphasizing leadership buy-in and ongoing updates to energy management plans.

Anticipated benefits to MCE include measurement of actual savings, plus a higher likelihood of deeper savings, greater persistence, and improved customer satisfaction.

Rebates will be given for lighting, HVAC, refrigeration, insulation, building envelope, plug loads, and other measures as appropriate. For a more detailed list of measures, see the E3 calculator.

New Construction

This targets new facilities or major renovations that require a building permit and trigger code compliance. MCE offers education, performance-based incentives, and financing options to foster greater adoption of energy efficient and green building practices. Exceeding Title 24 requirements requires significant investment and technical knowledge. To help overcome this barrier, outreach will be conducted to architects and builders to encourage factoring energy-efficient technologies and strategies into cost estimates and design plans. Performance-based incentives will be offered to encourage investment in long-term energy savings. In addition, MCE will connect property developers with emerging financing programs that can help eligible customers to help defray the higher upfront cost (for example, PACE). Finally, customers who achieve zero net energy[9] will receive a bonus incentive.

MCE will offer tailored approaches, recognizing that small businesses have different needs and barriers to entry than large commercial facilities.

Rebates will be offered for lighting, HVAC, refrigeration, building envelope, plug loads, and other measures as appropriate. MCE will evaluate offering tiered incentives for exceeding code. For a more detailed list of measures, see the E3 Calculator.

Financing

MCE will help customers navigate the landscape of financing offerings available and encourage them to participate to the extent that it facilitates energy efficiency upgrades.

Green Business Loans

This provides eligible customers with a low interest loan they can repay on their monthly utility bills. As of July 2015, the interest rate is 5% for $10,000 to $265,000 projects, with 5 to 10 year payment terms (subject to change). Up to 30% of the loan value can be used for non-energy related projects.

Leveraging Other Programs

MCE also intends to promote all products available in its service territory including those described below.

[9] ZNE is defined as, "The societal value of energy consumed by the building over the course of a typical year is less than or equal to the societal value of the on-site renewable energy generated." (IEPR Workshop on the Definition of ZNE, July 2013)

Property Assessed Clean Energy (PACE)

PACE is a tool where property owners can voluntarily opt into a tax assessment, which is then tied to the property. Advantages of PACE include transferability with the property, helping to mitigate concerns over payback period and average tenancy in a building, and the fact that it is paid on property taxes. PACE financing also enables investment in renewable energy and water savings improvements, and in some cases can be a source of financing for new construction projects.[10]

Currently MCE is working with the County of Marin to establish an Open Market PACE model where any provider who can agree to a minimum set of best practices would be eligible to operate in Marin. MCE will seek to work with other parts of its service territory to expand this approach to PACE. MCE maintains a financing marketplace web portal where information about all available financing products is presented to the customer. Additionally, SPOCs will refer customers to PACE providers.

On-Bill Financing

Currently the IOUs have a program where ratepayer funds are offered to offset the upfront cost of a project and the customer can pay back the improvements over time on the utility bill. This product, offered at 0% and available for loans between $5,000 and $100,000, requires participants to limit the payback of projects financed through the loan to five years. However, this program may be a powerful motivator – particularly for small business customers who may have limited time tenancy in the property. MCE proposes that commercial consumers can qualify for OBF regardless of whether their efficiency upgrades are completed through PG&E or MCE programs.

Statewide Financing Pilots

The IOUs have been directed to offer a variety of financing tools for energy efficiency improvements. MCE will monitor the development of these products and ensure that customers are made aware of them as a possible means to complete upgrade projects.

Implementation Elements

Across the commercial program offerings, MCE will utilize these implementation strategies to help customers achieve energy reductions.

Marketing and Outreach

MCE will undertake the following activities to market the program and promote awareness of energy efficiency and resource conservation in its service territory:

- **Single Point of Contact (SPOC).** The SPOC will manage relationships with customers in the commercial program. MCE's Customer Relationship Management (CRM) software organizes data for lead generation and follow-up. The SPOC will use this data to engage existing participants in additional energy efficiency opportunities, converting leads into active and completed projects. Additionally, the SPOC will request feedback from customers on what types of assistance would best help them save energy, increase employee productivity and improve customer satisfaction.
- **Targeted Outreach.** MCE will use energy usage data to conduct outreach campaigns at properties with high energy consumption. These campaigns will be aligned with trigger points. MCE will also use property specific data, such as assessor records and advanced metering infrastructure (AMI) data, to develop pre-assessment opportunity reports to present to decision makers. This

[10] Some PACE providers utilize SB 555 (2012) as the enabling legislation; this follows the Mello-Roos style assessment (rather than the Streets and Highways Code assessment enabled under AB 811 [2008]), which can be used for new construction.

information will be a powerful tool for the SPOC to use in communicating with customers about opportunities and benefits of the program.

- **Messaging.** MCE will produce data-driven, segment-specific marketing materials to distribute at events, on MCE's website, and via partner channels. MCE's energy efficiency message will also be distributed via print ads, television, and radio channels. There will be a broad social media effort. MCE will develop its own YouTube channel, combining original content with Energy Upgrade California resources and other online videos on energy efficiency and renewable energy. This enables the community to begin associating MCE as a resource for energy efficiency information.
- **Recognition Campaigns**. MCE will host award ceremonies conducted by an emcee or local luminary to recognize customers with the greatest energy savings and contractors who provide the most customer leads or complete the greatest number of projects. These local energy efficiency leaders will be given free publicity on the MCE website and may be featured in MCE's Energy Efficiency Demonstration Room. MCE will also work to develop labeling campaigns for customers who have completed projects, such as signage, window stickers, and other public recognition.
- **Referral Bonuses.** Technical assistance providers, contractors, and property management professionals are encouraged and incentivized to refer participants to the program. Referrals that result in a completed project will receive a bonus.

Key Partners

MCE will partner closely with other organizations promoting resource conservation, including water districts, climate coalitions, renewable and distributed generation companies and installers, and electric vehicle companies. MCE will communicate regularly with these entities to ensure that they are armed with the latest program information. MCE will facilitate program participants' applications for rebates with these partner agencies and to the extent possible integrate those applications with the MCE application to streamline the participation process.

MCE will adjust its partnership strategy throughout the program cycle based on key performance indicators, and customer needs and drivers. MCE constantly seeks new partnership opportunities to help achieve its end goal of deeper energy and greenhouse gas savings.

The table below maps strategies to key partners. It is not intended to be fully comprehensive, but rather, a visual representation.

Figure 7.Key Partners

		Commercial Strategy						
		Retrofit	**Green Business Certification**	**Green Business Loans**	**DSM Bidding**	**Data Analytics and Behavioral Approaches**	**S-CEI**	**New Construction**
Key Partners	**Contractors (HVAC, lighting, etc.)**	X		X		X	X	X
	Community Groups and Chambers of Commerce	X	X	X		X	X	X
	City and County Organizations	X	X	X				
	Business Partners (implementers, software and web tool providers, etc.)	X	X	X	X	X	X	X
	Trade Allies	X		X		X	X	X
	Green Building Groups	X	X			X	X	
	Property Management Companies	X		X				X
	Commercial Real Estate Organizations	X		X	X		X	X
	Financial Lending Institutions	X		X	X		X	X

Health and Safety

MCE will not offer rebates for any upgrades that are required by federal, state, or local regulations. MCE will consider incorporating health and safety messaging in program outreach and marketing efforts. For example, MCE may work with the contractors and green business certification auditors to encourage the inclusion of gas and refrigerant leak detection in the standard certification checklist.

Quality Assurance & Quality Control

This section describes the quality assurance (QA) and quality control (QC) approach for each of the seven strategies.

- **Retrofit.** For all projects, contractors will be subject to 100% pre- and post-installation verification for their first ten projects with the program. MCE will pilot an approach to reduce the number of pre- and post-verification visits once contractors have successfully completed the ten initial projects with no issues. At that point, MCE may accept photos and associated documentation to confirm the

existing conditions and proposed replacement. After the completion of the first ten projects, MCE proposes to conduct pre-installation site visits for approximately 25% of projects, selected randomly. If contractors are found to have made errors or provided false information, they will be subject to repeating the ten successful projects at 100% pre and post site visits. In addition, Operations & Maintenance (O&M) training and documentation will be offered to ensure ongoing persistence of energy savings.

- **Green Business Certification.** Bay Area Green Business Program responsible for QA/QC.
- **Green Business Loans.** MCE will work with lending institutions to ensure loan applications continue to require creditworthy participants, to minimize loan default rate.
- **Demand Side Management Bidding**. A major benefit of meter-based measurement is the potential for greater accuracy at a lower cost. However, a baseline must first be established and the model must be proven (including accounting for variables like weather, occupancy, changes in tenant behavior and production, etc.).
- **Data Analytics and Behavioral Approaches.** For QA, MCE will launch a small-scale pilot to ensure tools work smoothly and data is accurate before opening the door to all eligible customers. For QC, MCE will leverage benchmarking tools and billing data to ensure accuracy. Program participants will be encouraged to participate in MCE's O&M training, where appropriate, to encourage persistence of savings.
- **Strategic and Continuous Energy Improvement.** For QA, MCE will consider employing benchmarking tools, billing and meter data analysis, facility production and operations data, weather data, or existing energy management information systems (EMIS) data in baseline calculations. For QC, retrofit savings will be estimated in accordance with the retrofit strategy guidelines; behavioral savings will be estimated according to an experimental design approach comparing a treatment group to a control group with regression analysis.[11]
- **New Construction.** QA/QC is built into the savings estimation process. MCE's new construction projects will conform to the California Energy Commission's (CEC) standards and list of approved energy analysis computer programs that are in accordance with Title 24 code. Approved software programs include CBECC-Com, IES Virtual Environment, and EnergyPro.[12] These software programs are important tools for analyzing efficiency choices and estimating savings.

MCE staff reviews all savings estimates and appropriate documents and plans to ensure reporting accuracy. Owners are encouraged to develop and implement operations and maintenance plans to ensure the building and its equipment and appliances continue to operate optimally.

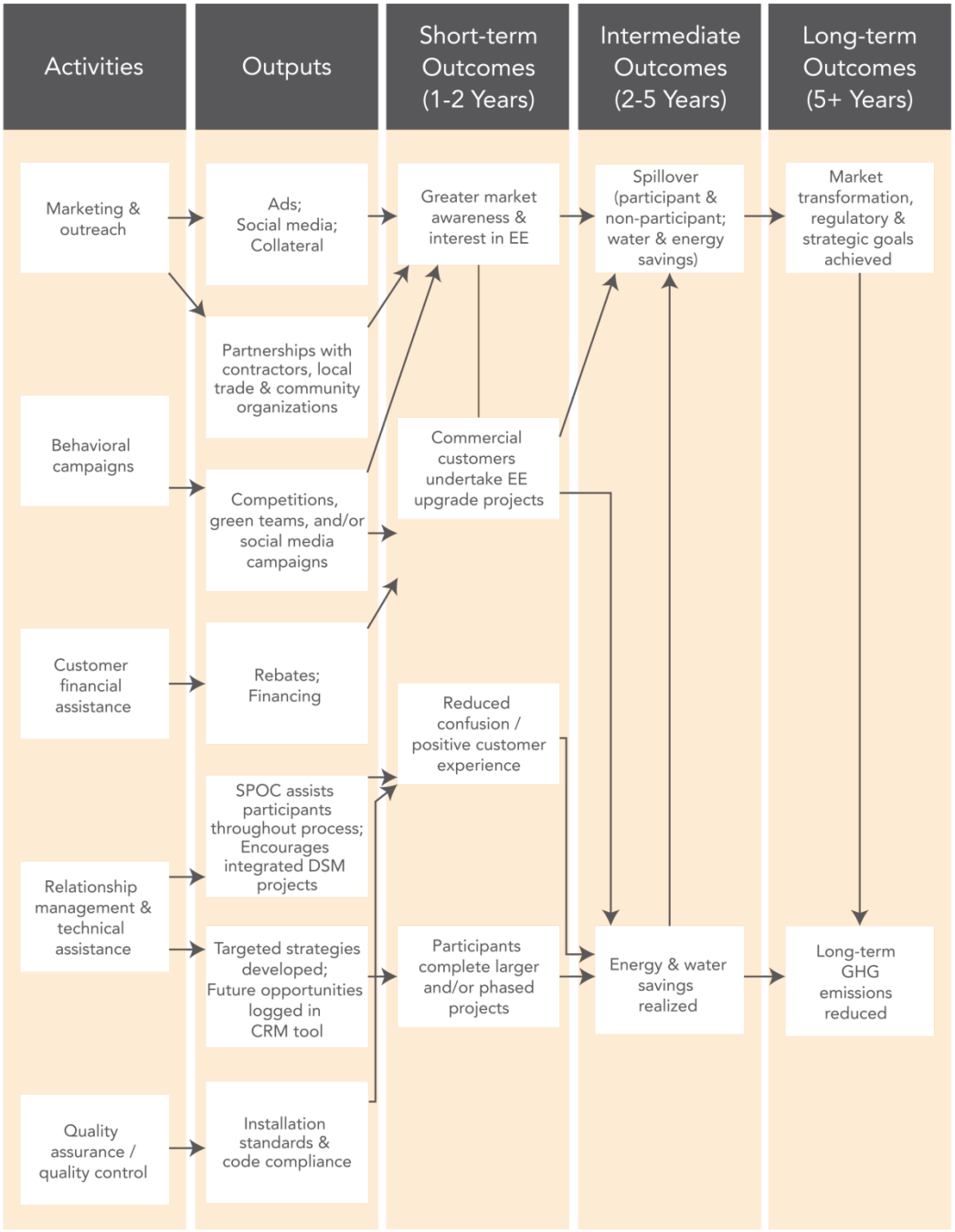
[11] See, for example, steps adopted from Cadmus study on "Estimating Energy Savings from CEI": Page 2. http://www.energydataweb.com/cpucFiles/pdaDocs/903/Appendices%20A%20-%20G.pdf (accessed June 11, 2015)

[12] For details, visit the California Energy Commission's 2013 Building Energy Efficiency Standards Approved Computer Compliance Programs website: http://www.energy.ca.gov/title24/2013standards/2013_computer_prog_list.html (accessed June 25, 2015). An alternate calculation method can be employed if an application to the CEC is successfully approved. For details, visit 2013 Nonresidential Alternate Calculation Method Approval Manual: http://www.energy.ca.gov/2012publications/CEC-400-2012-006/CEC-400-2012-006-CMF-REV.pdf (accessed June 25, 2015)

Measuring Success

Logic Model

Figure 8. Logic Model



Performance Metrics

MCE takes an adaptive management approach to continuously evaluate program performance. To enable an interactive approach, MCE has a process for gathering information: Advanced Metering Infrastructure (AMI) data, customer feedback, participation surveys, and other sources. This feedback loop enables MCE to make improvements throughout the program cycle. For the commercial sector, MCE proposes to track the following performance metrics (subject to data availability and regulatory guidance):

1. **Participation Metrics.** Number of participants for each county within MCE service territory. Number of hard-to-reach customers. Number of repeat participants. Number of projects provided with technical assistance.
2. **Customer Satisfaction**. Number of repeat participants. Number of referrals. Customer satisfaction as reported by customers.
3. **Savings Metrics**. Total net and gross energy and demand savings. MCE plans to employ a mix of deemed, widget-based methodologies as well as custom and performance based methodologies.
4. **Measure-level Information**. Total number of installed measures.
5. **Incentive Metrics.** Total amount offered. Largest rebate amount.

Strategy-specific Metrics:

1. **Retrofit.** Number of customers that implement EE projects or participate in new construction projects *plus* participate in DR, EV, DG, water, or other MCE or partner programs. Number of projects receiving a whole building or multiple measures kicker.
2. **Green Business Certification.** Increase in certification of green businesses; number of green businesses that implement energy efficiency retrofits as part of their certification process.
3. **Green Business Loan.** Number of loan applications. Average loan amount. Default rate. Mix of measures financed through the program.
4. **Data Analytics and Behavioral Approaches.** Number of participants (at both a company and employee level) in behavioral campaigns.
5. **Strategic and Continuous Energy Improvement.** Number of strategic energy management plans written. Non-energy benefits like increased productivity and other operational impacts.
6. **New Construction.** Number of customers that participate in new construction projects, *plus* participate in DR, EV, DG, water, or other MCE or partner programs.

Evaluation, Measurement and Verification (EM&V)

To supplement any EM&V activities conducted by the CPUC, MCE proposes to undertake the following Impact and Process Evaluations.

- **Impact Evaluation.** To evaluate the novel savings methodologies outlined in the data analytics and DSM bidding strategies, MCE will conduct side-by-side project studies comparing savings estimated by the meter and software programs to savings estimates from traditional M&V approaches (i.e., pre- and post-inspections for lighting and HVAC measures).

- **Process Evaluation.** For the strategic and continuous energy improvement strategy, MCE proposes an independent survey of participants to gather qualitative information on program design, marketing and outreach, program implementation, participation experience, and market barriers. [13] In addition, MCE will conduct a cross-program process evaluation of the SPOC offering to determine to what degree it helps alleviate customer confusion and encourages repeat participation through project phasing.

[13] MCE proposes a process consistent with that in the Cadmus study on "Estimating Energy Savings from CEI": Page 2.