

# MARIN ENERGY AUTHORITY

## ENERGY EFFICIENCY PROGRAM PLAN (Amendment for 2012 Only Plan)



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## Chapter 1 – Introduction

The Marin Energy Authority (“MEA” or “Authority”), a local government agency, was formed in December 2008 for the purposes of implementing a community choice aggregation (“CCA”) program and other energy-related programs targeting significant greenhouse gas emissions (“GHG”) reductions.

The Marin Energy Authority (MEA) administers the first community choice aggregation program in the State of California. MEA currently serves 14,000 customers, and at full implementation will serve approximately 96,000 customers throughout Marin County. MEA is structured as a Joint Powers Authority made up of 12 local government members including: the City of Belvedere, Town of Corte Madera, Town of Fairfax, City of Larkspur, City of Mill Valley, City of Novato, Town of Ross, Town of San Anselmo, City of San Rafael, City of Sausalito, Town of Tiburon, and the County of Marin.

The purpose of the Marin Energy Authority is to address climate change by reducing energy related greenhouse gas emissions and securing energy supply, price stability, energy efficiencies and local economic and workforce benefits. It is the intent of MEA to promote the development and use of a wide range of renewable energy sources and energy efficiency programs, including but not limited to solar and wind energy production at competitive rates for customers.

The California Public Utilities Code provides the relevant legal authority for the MEA to become a Community Choice Aggregator and invests the California Public Utilities Commission (“CPUC” or “Commission”) with the responsibility for distributing energy efficiency funds collected through nonbypassable charges to customers of CCA programs, allowing CCA programs to administer energy efficiency programs as described below. The CPUC has registered the Authority as a Community Choice Aggregator and continues to ensure compliance with basic consumer protection rules. The CPUC certified MEA’s Implementation Plan in February 2010 and certified MEA’s Revised Implementation Plan on January 3, 2012.

### *Legislative Mandate*

Assembly Bill 117 (2002) and Senate Bill 790 (2011) contain specific provisions for energy efficiency programs by community choice aggregators. The approval of each bill resulted in modifications to the California Public Utilities Code to enact the legislative mandate. The California Public Utilities Code as directed in AB 117 and SB 790 authorizes a community choice aggregator to, “elect to become a 3rd-party administrator of funds collected from the

aggregator's electric service customer and collected through a nonbypassable charge authorized by the commission for cost-effective energy efficiency and conservation programs.”

Specifically, the California Public Utilities Code states:

Sec. 7. 381.1. (e) The impartial process established by the commission shall allow a registered community choice aggregator to elect to become the administrator of funds collected from the aggregator's electric service customers and collected through a nonbypassable charge authorized by the commission, or cost-effective energy efficiency and conservation programs, except those funds collected for broader statewide and regional programs authorized by the commission.

Sec. 7. 381.1 (f) A community choice aggregator electing to become an administrator shall submit a plan, approved by its governing board, to the commission for the administration of cost-effective energy efficiency and conservation programs for the aggregator's electric service customers that includes funding requirements, a program description, a cost-effectiveness analysis, and the duration of the program. The commission shall certify that the plan submitted does all of the following (plan location of details for these items in parenthesis):

- (1) Is consistent with the goals of the programs established pursuant to this section and Section 399.4.
- (2) Advances the public interest in maximizing cost-effective electricity savings and related benefits. (Chapter 2: Cost Effective Analysis)
- (3) Accommodates the need for broader statewide or regional programs. (Chapter 3: Support of Existing Programs)
- (4) Includes audit and reporting requirements consistent with the audit and reporting requirements established by the commission pursuant to this section. (Chapter 7: Audit and Reporting Requirements)
- (5) Includes evaluation, measurement, and verification protocols established by the community choice aggregator (Chapter 8: EM&V).
- (6) Includes performance metrics regarding the community choice aggregator's achievement of the objectives listed in paragraphs (1)

to (5), inclusive, and in any previous plan. (Chapter 9: Program Performance Metrics)

### *MEA Energy Efficiency Plan Overview*

As a community choice aggregator, and also as part of its authority as a local government, MEA elects to administer an energy efficiency program beginning in August, 2012. Pursuant to CA Public Utilities Code 381.1 MEA puts forth this two-phased Energy Efficiency Program plan to administer Energy Efficiency Programs using funds collected from MEA customers. In Phase 1, MEA elects to administer funds under Public Utilities Code 381.1(e) and (f) provisions for funds collected in 2012; and, in Phase 2, MEA plans to administer funds under the provisions of Public Utilities Code (e) and (f), or Public Utilities Code 381.1(a), as shall be specified in a subsequent filing or submittal to the CPUC.

This amended plan for 2012 only, approved by the MEA Board, includes the following elements and schedule for Phase 1 (Aug-Dec 2012). The longer term MEA Energy Efficiency Program Plan (Phase II schedule below) was also approved by the MEA Board and is attached for reference in Appendix C. This amended plan does not seek Commission certification of post-2012 energy efficiency program activities identified below and approved by the MEA Board in Appendix C. The post-2012 (Phase 2) program activities are provided in order to place MEA's 2012 (Phase 1) request for certification in the context of MEA's broader long-term vision of energy efficiency program administration for its customers.

#### Phase I (August 2012 – Dec 2012)

1. Direct Service Element
  - The Multifamily Energy Efficiency Project
2. Support for Existing Programs
  - Support for Energy Upgrade California (expanded to Multifamily)
  - Coordination and Outreach with Marin Energy Watch Partnership
3. Financing Element: Pilot On-Bill Repayment for Multifamily Energy Efficiency Improvements
  - Plan for Property Assessed Clean Energy in 2013
  - Plan for Standard Offer Procurement for Energy Efficiency

Phase 1 Budget: \$428,270

Phase 1 Savings: The Multifamily Energy Efficiency Project will achieve a reduction 719,474 kWh during the initial 5 months of the program. The program will also result in 45 kW of peak demand savings during that period.

Phase 1 Program Portfolio Cost-Effectiveness: TRC= 0.82, PAC = 1.73

Phase II (Jan 2013 – March 2015) – *Informational Only*

1. Additional Direct Service Elements

- Continuance of Multifamily Energy Efficiency Program
- Convenience Store & Small Grocer Energy Efficiency Deployment
- Restaurant Energy Efficiency Project

2. Support for Existing Programs

- Support for Energy Upgrade California (expansion to Small Commercial Programs)
- Coordination and Outreach with Marin Energy Watch Partnership

3. Financing Element:

- Property Assessed Community Energy
- On-Bill Repayment for Energy Efficiency Improvements (expanded to small commercial)
- Pilot Standard Offer for Energy Efficiency Procurement

***Organization of the 2012 MEA Energy Efficiency Plan***

The content of the MEA Energy Efficiency Plan complies with the statutory requirements of AB 117 and SB790. Consistent with requirements identified in the CA Public Utilities Code Section 381.1(f), the MEA Energy Efficiency Plan addresses:

- Program Description
- Program Deliverables and Benefits
- Projected Energy Savings with Cost Effective Analysis
- Program 'Value Add' Benefits including:
  - Accommodating the need for Broader Programs
  - Avoiding Redundancy
  - Workforce Development and Job Creation
  - Steering Benefits to Economically Disadvantaged Areas
- Funding Requirements
  - Staffing
  - Program Budget
- Audit and Reporting Requirements
- Evaluation, Measurement, and Verification Protocols
- Program Performance Metrics

## Chapter 2 – Direct Service Element

The Direct Service Element for this plan will allow for streamlining of resources and will facilitate program evaluation for the multifamily building energy efficiency program. This element, in addition to the other direct service (Phase II) elements will result in energy efficiency installations and retrofits in the aggregate that will reduce demand (including peak demand), consequently reducing strain on the grid and lowering required grid capacity. This will help allow California to take some of the least efficient and highest polluting power plants off-line. Each component of the direct service element is described below.

### **Multifamily Energy Efficiency Project (MFEEP)**

The Multifamily Energy Efficiency Project (MFEEP) will provide cost-effective residential energy efficiency improvements that will benefit low-income occupants and owners of multifamily buildings in Marin County. MFEEP will be carried out in partnership with existing community partners such as the Marin-based team: Renewable Energy Management Solutions (REMS) and Marin City Community Development Corporation (MCCDC).

The project offers building owners two types of assessments. The first type covers electrical upgrades, primarily refrigerators and lighting, which are well established as cost-effective measures. The second type of assessment is a comprehensive building assessment to capture the building's overall condition and performance. The project will then directly install efficiency measures that are determined to be cost-effective.

Buildings owners that choose to participate in MFEEP will be provided with the opportunity to receive incentives for many selected installations and will also be provided with access to financing programs.

MFEEP is targeting an untapped sector of buildings with a high potential as multifamily building have characteristics that make them particularly conducive to energy efficiency modifications. First, multifamily housing is inherently more energy efficient than single-family housing due to size per unit, exterior exposure, and other structural differences. In addition, multifamily housing is older on average than single-family housing and thus tends to have less efficient heating, cooling, plumbing, and lightning systems.

A Community-based marketing approach will be undertaken that includes the Marin Housing Authority and multifamily property owners. This approach can effectively reach customers with information about the benefits of retrofits and the process of getting them completed. The MFEEP program will achieve 719,474 annual kWh of energy savings and 45kW of peak demand savings.

### **Market Sector Targeted**

The Multifamily Energy Efficiency Project (MFEEP) will provide cost-effective residential energy efficiency improvements that benefit low-income occupants and owners of multifamily buildings in Marin County. About one-third of California households reside in multifamily buildings. For lower income Californians (<\$25,000/year income), this figure is closer to 60%, and most of these individuals reside in buildings with less than 5 units. Multifamily buildings statewide consume roughly 9 GWh/year of energy. Because many multifamily buildings are older, the savings potential associated with reducing energy use for 15% of the multifamily units in California by 25% is estimated at 534,000 MWh/year of electricity.

Based on current data the total number of apartment facilities in Marin County is estimated to be between 150 and 200 with over 10,000 individual units. MFEEP will perform installations in approximately 50 multifamily units.

### **Deliverables**

The MFEEP will provide direct installation of a comprehensive set of energy efficiency measures specifically tailored for multifamily residential units by local licensed project contractors. Project contractors will perform facility assessments to determine energy savings potential, installation cost and operational feasibility. Incentives will be offered on the package of measures to bring the installed cost down to a one-year payback term. In Phase 2, MEA plans to offer financing for up to 100% of the remaining project cost for those customers that do not have available capital to invest in energy efficiency.

The project will also offer maintenance contracts for the air conditioning, refrigeration and lighting systems to increase savings persistence levels. A toll free customer service line will be active throughout the duration of the project to answer customer questions efficiently and address any customer issues that occur.

General measures to be offered include:

- Central HVAC tune ups
- Digital thermostat allowing automatic setback after override (new technology)



- Interior general lighting retrofit or replacement
- Exterior lighting retrofits or replacement
- Exterior lighting controls
- High efficient exit signs
- Wireless and/or wired indoor lighting controls
- Wall and attic insulation
- Window film for 2<sup>nd</sup> floors (or higher)
- Thermal blankets for water heaters

Energy efficiency opportunities for tenant – occupied spaces include:

- Digital thermostat allowing automatic setback after override (new technology)
- Interior general lighting retrofit or replacement
- High efficient exit signs
- Wireless and/or wired indoor lighting controls
- High efficiency fluorescent lighting, occupancy sensors, and LED exit signs
- EnergyStar® labeled ceiling fans with EnergyStar® CFL(s)
- Energy efficient package terminal air conditioners and heat pumps
- EnergyStar® labeled room air conditioners
- EnergyStar® labeled refrigerators and kitchen appliances

Energy efficiency opportunities for common areas will include:

- High performance dual pane windows
- Attic and/or wall insulation
- Energy efficient storage central water heaters
- Outdoor lighting controls (photocells / dual-level lighting controls)
- Exterior lighting retrofits with LED and / or induction technologies
- Central HVAC tune ups and / or upgrades
- Heating system upgrades to high efficiency equipment
- Heating control installation, including energy management systems, boiler reset controls, and optimization control strategies
- Roof and heating pipe insulation
- Window film for 2<sup>nd</sup> floors (or higher)
- Thermal blankets for water heaters
- Premium efficiency motors for pumps and fans (central equipment / or common areas systems)
- Central air conditioning upgrades (central cooling / heating plants)
- Solar collectors for central hot water systems and swimming pools
- Covers for swimming pools

### **Project Innovation**

MFEEP is innovative in that it is the first project of its kind to package a comprehensive set of measures specifically designed for the multifamily residential market segment and offer direct

installation of all measures. The program will incorporate the latest technology available applicable to the multifamily residential market and will use advanced marketing techniques and software for customer engagement and administration. Incentives will be customized to bring project cost down to a one-year payback term if possible, and financing will be offered to allow customer participation without up-front capital outlay.

### **Project Process**

**Task 1 – Marketing and Customer Recruitment:** Marketing materials describing the project participation process and benefits will be prepared for direct mail and handout to customers. A community-based marketing approach will then be undertaken that includes the Marin Housing Authority and multifamily property owners. This approach will reach customers with information about the benefits of retrofits and the process of getting them completed. A community-based approach is often more effective than traditional marketing approaches in this sector. Trusted information channels will be used such as neighborhood associations, churches, senior citizen groups, and athletic organizations. The community-based approach will deliver information through face-to-face interactions, often from people that customers already know. Such an approach generates momentum and enthusiasm by emphasizing the fact that others in the neighborhood are receiving energy efficiency improvements in their apartment or townhome.

All multifamily residential MEA customers will be eligible to participate in the project. Real Estate Investment Trusts (REITs) and apartment owners will be specifically targeted in the project's initial outreach efforts in order to achieve economies of scale and initial participant ramp-up. Customers will be qualified in this task, for both their interest in following through with project implementation and for financing if needed. After a customer meets the qualification criteria, a program participation agreement will be signed.

### **Automated Audit with Customized Action Plan**

Because an in building audit can be costly and somewhat time consuming, some customers may prefer to use an automated audit combined with a customized action plan as a first step. This option would allow the customer to quickly determine what savings might be achieved by participating in the program. The automated audit will be offered to all customers at no charge to the customer.

Software has been developed and tested in the Sonoma County Energy Independence Program (SCEIP) that can automate the highly complex energy-economics optimization calculations needed for each unique home. With such automation many hours of in-building analysis can be

reduced to a number of minutes, allowing for streamlined identification of measures with the most potential for savings and a reasonable 'pay back' period.

A 20-question simulated on-line audit would be used that calculates long-term savings of a range of measures tailored to the customer. Results would be provided in the form of a 'customer action-plan.' The action plan will also include a list of local services and next steps for implementation. By identifying customers with the most to save, making them aware of the savings potential, and giving them a no-cost audit online, customer participation and resulting energy savings is likely to be accelerated.

Customers participating in the automated audit should also consider an in-building audit, but they would be able to do so with more information available and may be more likely to follow through with implementation.

**Task 2 - Multifamily Assessments:** Multifamily unit assessments will be performed for those customers meeting the qualification criteria from Task 1. Assessments will be performed by licensed local project contractors. Project contractors will be specifically trained in the application and use of all project measures and in the specific operation and maintenance of energy consuming equipment and systems found in the multifamily residential market segment. An assessment report will be provided to the multifamily residential owner which will present a description of the recommended measures, installation cost, energy and maintenance savings, incentives, net cost and financing options. All recommendations will be tailored to the multifamily residential units being assessed.

**Task 3 – Implementation:** After a customer selects a set of measures to implement, an installation agreement will be executed and a project contractor will install / implement the measure. If the customer selects financing, a project finance agreement will also be executed along with the installation agreement.

### **Project Commencement Date and Activities**

The project commencement date will be August 1, 2012. The following activities will occur August 1 through December 31, 2012:

- Premarketing and Customer Recruitment
- Marketing Tools Development
- Marketing and Customer Recruitment
- Initial Assessment and Project Development
- Multifamily Portal Setup for customers, contractors, and administration

- ECO installation
- Year –end Program Evaluation
- Year-end Program Reporting

### **Cost Effective Analysis**

MEA has performed a cost- effectiveness analyses consistent with the indicators and methodologies included in the California Standard Practices Manual: Economic Analysis of Demand-Side Management Programs (SPM) using the most current published E3 calculator and DEER database. The purpose of the analysis is to identify costs of demand side management versus benefits of avoided costs. The detailed results are included in Appendix B: MEA Multifamily Cost Effectiveness Calculations 2012. The analysis includes administrative costs of hiring one full-time Energy Efficiency Coordinator position, as described in Chapter 6. The Program Total Resource Cost (TRC), as per the E3 derived calculation is 0.91. The Program Administrator Cost (PAC) is 2.15. While the TRC is less than 1.0 and does not meet that cost effectiveness test, we would expect that over the longer term of our program, the TRC would be higher. Adding in additional services beyond multifamily as we expect to offer in 2013 and beyond, would further increase benefits as our program cost ratio would be reduced relative to benefits. The PAC test was easily passed as the participant costs are not considered a program cost in this calculation. Because the program passes the PAC test, MEA finds the program cost-effective in 2012.

### **Demand Reduction, Energy Savings, and Other Measurements of Success**

Annual energy savings for the project will be 719,474 kWh with 45 kW of demand reduction. The other key success measure for the Program is customer participation. Due to its unique and targeted design, the project expects to achieve a high level of participation from the multifamily residential market segment which will raise awareness and build more demand for energy efficiency in the future.

### **Budget Requirements**

The project budget for the MFEEP Direct Service is \$428,270. Table 6 breaks down the budget by individual tasks.

**Table 6: MFEEP Project Budget**

<b>Marin Energy Authority</b>	
<b>Energy Efficiency Programs</b>	
Program Name: Multifamily Energy Efficiency Program	
Proposer Name: Renewable Energy Management Solutions, LLC	
	As derived from E3 Calculator 2012
Administrative	
Other Administrative	\$26,965.50
Overhead	\$52,919.50
Direct Implementation	
Financial Incentives	\$124,998.00
Installation	
Rebate Processing & Inspection	\$34,512.00
Contract Service Fees	\$119,105.00
Marketing	
Program Specific Marketing	\$69,770.00
<b>Total Program Budget</b>	<b>\$428,270.00</b>

## Chapter 3 –Collaboration With Existing Programs

### **PG&E MFEER Program**

MEA is aware that PG&E offers the MFEER program in the MEA territory. MEA will make every effort to ensure the programs are complementary and compatible, ensuring that branding and marketing efforts clarify offerings and avoid any customer confusion with the programs. MEA will conduct outreach to implementation contractors in the multifamily market to clarify distinctions between the two programs. MEA will collect data through evaluation activities to determine if any MEA customers participate in both programs.

### **Energy Upgrade Program Multifamily Program**

Energy Upgrade California (EUC) is a regional and state-wide program that assists homeowners and landlords in making their dwellings more energy efficient through energy audits and retrofits. The program objectives include:

- Helping property owners make valuable upgrades to their buildings
- Enabling property owners and/or building occupants to save money on utility bills
- Reducing local greenhouse gas emissions that contribute to climate change
- Boosting the local economy
- Expanding opportunities for local construction workers

Marin County, a member of MEA, participated in early implementation activities of the EUC program. On October 7, 2010 the MEA Board approved a \$10,000 budget allocation to provide rebates of \$500 to active MCE customers who participate in the Energy Upgrade California program in Marin.

The EUC has recently extended the focus of its residential programs to include the Multifamily segment with LA and Sacramento among the counties that are implementing programs through the EUC Program. The MEA Energy Efficiency (EE) Program Coordinator will collaborate with these counties that are implementing the EUC Multifamily programs. For 2012, MEA is not seeking budget for EUC Support under 381.1 (f).

### **Marin Energy Watch Partnership Collaboration**

The Marin Energy Management Team (MarinEMT) was formed in 2004 with a \$700,000 grant from the California Public Utilities Commission (CPUC) as a collaborative program between the

County of Marin, local energy professionals and local cities and school districts. The County of Marin provided energy consulting services, workshops and peer networking events, energy efficient demonstration rooms and energy accounting services to Marin's local governments, school districts and special districts. Leveraging the success of this program, the MarinEMT expanded in 2006 to become one of PG&E's 18 Local Government Energy Watch Partnerships to assist not only public agencies with energy efficiency but also residents and businesses. The efforts of the various Marin Energy Watch Partnership (MEWP) programs have resulted in annual energy savings of over 12,700,000 kWh across all sectors and a GHG reduction of approximately 3,247 metric tons annually.

Within the Partnership, each sector is served by its own program: the residential sector is served by the CA Youth Energy Services Program operated by the Rising Sun Energy Center; the commercial sector is served by the Smart Lights program operated by the Community Energy Services Corporation; and the public sector is served by the Marin Energy Management Team (MarinEMT) comprised of County staff and local energy efficiency experts. Each program, in partnership with MEWP and PG&E staff, selects applicable energy efficiency measure offerings.

The programs target residents, businesses, and public agencies that receive electric and/or natural gas distribution service from PG&E and are located within County boundaries (including unincorporated and incorporated portions of the county).

The County of Marin currently oversees and manages all MEWP programs and all programs are currently funded by California ratepayers under the auspices of the California Public Utilities Commission. MEA is collaborating with the existing Marin Energy Watch Partnership program to ensure that existing program elements are leveraged while existing resources and capacity are expanded.

MEWP expects to achieve or exceed the following electricity goals during the 2010-12 program cycle:

- Reduce electricity use by 8,855,000 kWh
- Reduce peak electricity load by 1,275 kW

Because the Marin Energy Watch Partnership is an existing local government partnership serving the 11 cities and unincorporated areas of Marin County, the partnership provides a mix of elements that focus on overcoming the common barriers to obtaining energy savings from smaller hard-to-reach customers for multifamily residents. It also leverages existing initiatives,

community channels and other assets of the County government to provide better market access, integration, and collaboration. The MEWP's overarching goal is to provide a more comprehensive and integrated solution to overcoming local market barriers, addressing each community's needs and capturing available energy savings.

Going forward MEA will work with MEWP to continue and expand its work to achieve immediate energy and peak demand savings and to establish a permanent framework for sustainable, long-term energy savings across all sectors. Together, MEA and MEWP will build on the success of local initiatives to pioneer integration of energy efficiency, distributed generation and demand response programs that will help inform other partnerships, PG&E and the state energy agencies.

MEWP is currently:

- continuing the Marin Energy Management Team (MEMT) program that provides comprehensive energy efficiency services to all 12 local governments, 19 school districts, and 32 water, sanitary and other special districts in Marin County
- continuing its small commercial program to provide comprehensive energy efficiency services
- continuing its residential direct-install program to reach more homes with both energy and water efficiency measures
- pioneering strategies for integration of energy efficiency, distributed generation and demand response programs

These existing MEWP program elements will be enhanced with the multifamily program elements described and the financing options that will be offered to customers.



## Chapter 4 –Financing Element Planning

The high up-front installation costs for energy efficiency have prevented the market from responding on a broad scale to energy saving opportunities. Often, the overall cost of energy efficiency installations or retrofits is net positive, meaning that in addition to the significant environmental benefits of the improvement, there is a financial benefit to completing the installations or retrofits. MEA will develop programs to reduce up-front financial barriers by providing easy-to-access financing options combined with technical support to assist customers utilizing the program.

Two financing options will be made available to both residential and eventually commercial customers; In 2012, MEA will begin development of an On Bill Repayment (OBR) Program and Property Assessed Clean Energy (PACE) Program for launch in 2013. These two programs will allow the customer to avoid the up-front cost associated with substantial energy upgrades; however one allows the customer payback to occur via the property tax bill while the other allows for pay-back to occur on the monthly electricity bill.

In addition to the customer-based financing options MEA will also develop plans for a standard offer program for energy efficiency procurement to launch in 2013. This program will be modeled after similar programs in place in the Texas market and in the New England market. Rather than targeting property owners, this program will be tailored to third party vendors who bid energy savings to MEA as a way to reduce MEA resource adequacy procurement.

### **On Bill Repayment**

In 2012, the MEA EE Program Coordinator will develop an on bill repayment (OBR) program for energy efficiency to launch in 2013. MEA does not seek budget under 381.1 (f) for 2012. The OBR program will allow for energy efficiency improvements to be handled in one simple package for multifamily residential and, eventually commercial building owners. OBR would be used to encourage customers to make substantial energy upgrades to their home or business and pay the cost of those upgrades over time on the energy bill. OBR allows for projects to be cash flow positive for building owners from day one.

The financing package would be provided by a third-party finance partner. There will be a cap on the loan such that the customer maintains bill neutrality. For example, if the loan term is 5 years, then the customer will only be able to borrow 5 times the annual estimated cost savings resulting from the project.

MCE will conduct outreach to customers announcing the program, and building owners will be able to apply for the program for a simple fee of \$99. Funds from the MEA Energy Efficiency Program will be used to cover the cost of initial benchmarking and auditing. Financing for the energy efficiency improvements will be offered typically through a 5 year loan. Any building that has the potential to create a reduction of 10% will be eligible for the program. Additionally OBR programs can allow the underserved segments such as multifamily/multi-tenant to affordably pursue energy efficiency improvements by keeping the repayment obligations tied to the meter rather than the utility customer. MEA will explore the potential to use this approach as part of the OBR program.

As described in Chapter 2, MEA will use qualified contractors to provide initial benchmarking and audit services, and to identify potential energy efficiency opportunities. This will help insure checks and balances in program operation. The contractor will provide information to the customer regarding PACE and OBR opportunities for financing their project so that the customer can select the program that is the best fit, with the goal of making project cash flow positive for the building owner immediately. The contractor will also provide information about other rebates that may be available for the energy efficiency measures to bring down the overall project cost.

The OBR program will leverage existing outreach occurring to the multifamily customers as part of the direct service elements described above, the interface with the EUC program and the MEWP program. It will also leverage outreach related to the PACE program in 2013.

The OBR program will enable project implementation to be highly cost effective and allow the other project components described herein to benefit.

### **Property Assessed Clean Energy**

In 2012, the MEA EE Program Coordinator will develop a property assessed clean energy (PACE) program for energy efficiency to launch in early 2013. MEA does not seek budget under 381.1 (f) for to implement the PACE program 2012. This program will be built on the foundation of the existing property-based financing programs in California which use AB 811 as the enabling legislation. As discussed below, various local programs and partners will be leveraged to increase the impact of the PACE Program. At the customer level, this project will directly connect with the market because each property owner decides, with the guidance of the program, which installations he/she wishes to make. MEA expects an average 10% reduction in energy demand from each program participant.

This program will work in combination with the existing Energy Upgrade California program to drive customers to utilize the resources being provided there. Where applicable, it will also be offered as part of the direct installation program described above in Chapter 2.

In 2012, MEA will work with financial partners to develop a financing pool available to customers. In 2013 and beyond, funds from the MEA Energy Efficiency Program would be used to cover the cost of the initial benchmarking, any remaining audit costs, and the costs of processing of the financing application, while the financing pool will be used to cover any remaining cost of implementation after rebates and other incentives have been exhausted. Applicants from the multifamily direct install program, EUC program and MEWP program will be informed of the PACE program to consider as a way to defray up-front costs.

Given the strong environmental awareness and support of Marin County residents, the potential economic benefits to the customer, and the success of the PACE programs in Sonoma County, just north of Marin County, MEA expects strong local market demand for this property-based financing program for energy efficiency installations and retrofits.

### **Pilot Standard Offer for Energy Efficiency Procurement**

A Standard Offer (SO) means the opportunity to save energy is offered under the same terms and conditions to any applicants with proper licenses and a clean business record. Energy savings could be bid in from an applicant for any category of customer (i.e.: residential, commercial, or non-profit institutions such as schools, hospitals and government buildings)

Similar to a feed-in tariff program, selection is first-come, first-served. Payments for energy savings in each customer class are based on "avoided costs" of energy demand or other energy related costs.

MEA does not seek budget under 381.1 (f) for 2012 to implement the SO program. The MEA EE Program Coordinator will develop the SO Program in 2012 and in 2013, MEA plans to pilot a SO program that offers rolling selection, where applicants may apply at any time, as long as there are still demand reduction needs available for the given year. Each applicant will be permitted to only hold one contract at a time, and to reserve no more than 20% of the demand reduction needs in each category (such as residential, commercial, or non-profit institutions) for a given year. Approved applicants will enter into a contract with MEA to deliver energy efficiency reductions. The demand reduction need and price will be reset annually.

Applicants selected will be subject to the same third-party EM&V process used for MEA's other energy efficiency program components. MEA's EM&V standards are described in Chapter 7. Payments from MEA will likely be based on the amount of energy demand reductions

delivered subject to the savings measurements described below. Savings may be calculated in one of three ways:

**Deemed savings:**

These savings are calculated using the Database for Energy Efficiency Resources (DEER) developed by the California Energy Commission. Each measure in DEER has been studied to determine the savings that it generates on average. For example is a showerhead installed in multifamily residential unit saves x kWh and y kW and will last, on average, z years.

**Simplified savings:**

The simplified savings methodology uses a measurement plan. For example, we know that lights are used approximately 4000 hours per year in an average office building. A lighting retrofit would result in a reduction in lightning load depending on wattage before and after replacement. If the office building uses air conditioning the customer can achieve additional savings because reductions in lighting will reduce heat output in the space.

**Direct measurement after installation:**

Direct measurement would likely be used for most large commercial energy efficiency projects and it must occur after the installation is complete. This measurement approach is more resource intensive, but it is the most accurate. The measurement would compare savings to a baseline calculation and it must include one summer peak period. This method can also be used for a small commercial or residential program if the contractor anticipated a higher energy savings than deemed or simplified savings.

Deemed or simplified savings are paid in full when verified that they are actually installed. Direct measurement saving are paid in full after the measurement process is complete.

### Consistency with CPUC Goals

Implementation of MEA's Energy Efficiency Program will produce cost-effective energy savings. The reduction in customer demand will benefit customers through long-term savings on energy bills. In addition, the program will contribute to the safe and reliable operation of the electric distribution grid by reducing peak demand. The focus on multifamily dwellings furthers the alignment with State goals described in Public Utilities Code section 399.4 and also aligns with the CPUC Strategic Plan. The collaboration with local community-based organizations and local programs conforms with State Public Utilities Code requirements as well as state and regional goals to add value to existing programs.

The MEA Energy Efficiency Program accommodates the need for broader statewide and regional programs. The CPUC Ruling 09-110-14 issued by Administrative Law Judge Darwin Farrar on December 7th, 2011 outlines goals for the next phase of energy efficiency programs and directs a focus on financing programs. The MEA Energy Efficiency Multifamily program, although launching before the 2013-2014 transition period, will serve as testing ground for multifamily programs, going far beyond lighting retrofits to achieve deeper energy saving.

CPUC R.09-11-014 includes, in Attachment A, recommendations from the Energy Division that align with the MEA Program focus on workforce training as follows:

F) Residential EE Program Workforce Training. Since the residential sector consumes one-third of California's electricity, about one third of ratepayer funded workforce, education and training (WE&T) budgets should logically be allocated to programs strategically designed to advance the state's residential energy efficiency goals. Primary recommendations from the WE&T Needs Assessment relevant to the residential sector was for the reorientation of WE&T program budgets to focus on integrated sector strategies and training that culminates in skills assessment tests (written and in the field), certifications, and on-going apprenticeship and mentoring opportunities.

Codes and Standards have been another method identified to reduce energy use statewide. Uniform standards will likely have the greatest impact and for this reason, MEA is not currently including a codes and standards component in the initial energy efficiency program. However, this is an area that has been explored and may be taken up in a subsequent cycle, if statewide discussions progress, due to MEA's close relationship with local city and town planning departments.

The CPUC has discussed the inclusion and implementation of new program elements targeting residential behavior change (OPOWER comparative energy use pilots, for example) and is considering undertaking research necessary to expand such approaches in the residential sector in 2013 and beyond. In response to D.09-09-047, PG&E has initiated a 60,000 person comparative energy use report pilot. PG&E has also made additional changes to its online energy reports and interface. In 2011-2012 evaluation teams will assess the level and persistence of energy savings from the comparative energy use pilot with results due in late 2012. If successful, this pilot should be considered for expansion across IOUs and service territories in 2013-2014.

MEA is eager to provide behavior-related messaging to customers and looks forward to seeing the outcome of the PG&E pilot in order to weigh the benefits of broader application to reach all MEA customers.

### **Continuity of Programs and Avoiding Redundancy**

MEA has a foundation of intergovernmental cooperation. Historically, many joint powers authorities have formed to address issues affecting the cities and towns across the county of Marin such as the Marin Street Light Acquisition Joint Powers Authority and the Marin Emergency Radio Authority. MEA is a Joint Powers Authority that leverages the knowledge and experience of local government members. Energy efficiency programs have been operating in Marin County for many years and would not only continue, but would expand as part of the MEA Energy Efficiency Program, building on the history and knowledge of existing Marin programs.

The Marin County Green Business Program was launched in April of 2002 as a voluntary partnership among business leaders, government agencies and nonprofit organizations to recognize and promote businesses that demonstrate continuous compliance with applicable environmental regulations, conserve energy, water, and other materials, and prevent pollution and waste generation. To date, Marin County has certified over 427 green businesses and it is one of the fastest growing programs in the Bay Area.

The County of Marin has also been promoting green buildings through a variety of measures. In 2010, the County of Marin along with the City of Novato, City of San Rafael, and Town of San Anselmo adopted a comprehensive model green building ordinance that requires sustainable design and construction techniques to be implemented in all residential and commercial new construction, addition, and remodeling projects. In addition, the Single Family Dwelling Energy Efficiency Ordinance was updated in 2008 to require that all new single family dwellings, as well as additions and substantial remodels, resulting in 1,500 square feet or larger,

exceed State Title 24 energy efficiency standards by a minimum of 15%. Since the initiation of the original ordinance in 2002, the requirements have resulted in energy savings of over 2.5 million kilowatt hours (kWh) and a greenhouse gas (GHG) reduction of approximately 781 tons annually.

Since 2003, the Marin County Construction & Demolition ordinance has required that all remodel or demolition projects recycle or reuse at least 50% of construction material. This results in an annual reduction of 75,000 tons of waste and 150,000 tons of GHG emissions.

For the future PACE program, MEA is reaching beyond Marin to work with the County of Sonoma to learn from and coordinate efforts with their PACE program, Sonoma County Energy Independence Program (SCEIP). MEA will be looking to SEIP for programmatic coordination and third-party vendor services. Coordinating the PACE programs will serve the customer by minimizing confusion stemming from any program differences and by leveraging 'word of mouth' from program participants between the two counties.

Overall, MEA programs are structured to avoid redundancy with existing energy efficiency programs in the region and statewide. Programs described herein are additive to existing programs to ensure effective use of funds.

### **Reducing Energy Use, Peak Demand and GHG Emissions**

Energy reduction, peak demand reduction and GHG Emission reductions are a critical element of the Energy Efficiency Program. Program participants will typically see a reduction in their energy bills through reduced energy consumption. For the financing programs, MEA expects an average 10% reduction in energy demand for each customer. The financing program makes the installation of energy efficiency upgrades possible for individuals who would not otherwise be able to or willing to pay for the up-front costs of energy saving, cost-effective and environmentally beneficial projects.

In the aggregate, these energy efficiency installations will reduce demand (including peak demand), consequently reducing strain on the grid and lowering required grid capacity. This, in turn, will allow California to take some of the least efficient and highest polluting power plants off-line. This project is scalable, and MEA expects that direct investments of over \$10 million will take place in Marin County through the continuation of the financing programs over the course of the next decade, creating continually increasing peak load reduction and GHG emission reduction benefits. On a state-wide and comprehensive basis, Energy Efficiency Program will aid in greenhouse gas reductions, enabling California to meet its AB 32 mandate, and providing significant and necessary environmental progress.

### **Participant Recruitment and Local Communications**

MEA will take a strategic and targeted approach to implement communications for effective, coherent, and clear messaging. MEA will produce strategic branding, framing and messaging; develop communications, publicity, and public relations strategies and materials; and create and implement community outreach activities, leveraging relationships with public agencies throughout the region. These marketing and communications efforts will result in MEA raising awareness of the Energy Efficiency Program through paid and free advertising and media, collateral distribution, and direct mail. MEA's web services will educate and motivate customers by highlighting the Energy Efficiency program as a tool to interface with both new and current project participants, helping consumers quickly analyze how they can optimize their demand reduction with alternative generation opportunities. Outreach events will include presentations to community groups, hosting and participating in public meetings, and tabling at farmers' markets and other public events. MEA will develop and leverage relationships with neighborhood associations, environmental groups and others to increase awareness and encourage participation.

MEA will also undertake information dissemination to keep community members apprised of the progress of the program and to encourage other communities to undertake similar programs. MEA will achieve this through press releases, progress reports to media outlets and local government associations, interviews, presentations and conferences, and public outreach.

The efforts of the Marin City Community Development Agency will focus on engagement of communities that have many low income residents and current limited involvement in energy conservation programs and practices. The programs provided by MEA will be the focus of MCCDC's outreach and awareness of energy conservation practices. An outreach worker will coordinate community organizing efforts, and MCCDC intends to partner with Dominican University MBA student interns to work on additional aspects of marketing to communities key energy usage issues. MCCDC will also engage local businesses that participate in agency social ventures and identify incentives and other cost savings.

### **Workforce Development and Job Creation**

While the current employment picture for the construction industry as a whole is bleak, the green building sector in the North Bay region shows significant promise due to local and regional clean building and retrofit programs such as the PACE Program, the Energy Upgrade Program and the availability of training opportunities. To ensure an adequate local workforce to implement the energy efficiency program MEA will partner with the Marin Employment



Connection, the Marin City Community Development Corporation and the Marin Workforce Investment Board. This will allow for the training of underemployed and unemployed workers to take advantage of emerging opportunities by developing linkages to certification-based training pathways, providing training and supportive services, and by placing workers in jobs that are entry-points to long-term career pathways in an economic sector that has been clearly prioritized by local government.

This redirection of the building industry to green, more environmentally sustainable and energy conserving practices is further reinforced in the North Bay region by the strong policy directions taken by local county governments and, in the case of the proposed financing programs, the allocation of significant resources to enable implementation of these policies.

The MFEEP program will create jobs in the local economy during the life of the program. Local subcontractors are likely to benefit from the installation of the Multifamily Program measures.

MCCDC would be available to participate in this project as a 'workforce intermediary' to ensure that unemployed and underemployed residents learn about these opportunities and could participate as trainees and workers to gain marketable energy skills. The 'workforce intermediary' role would ensure that local residents are able to build work experience with a wide range of skills to support a potential career in the energy industry.

MCCDC is currently a provider of construction skills training for residents of Gateway Village public housing, and a provider of energy upgrades and other improvements as a contractor for the Marin Housing Authority. Since 2009 the MCCDC has provided training and work experience opportunities for low income residents in renewable energy, as well as energy efficiency improvements in collaboration with industry partners willing to actively participate in the preparation of trainees and job seekers, provide on the job work experience, hire trainees, and advance successful workers. MEA could utilize this experience and expertise by implementing the program with partners such as MCCDC, and REMS to provide cost-effective residential energy efficiency improvements in multifamily buildings in Marin City and low income communities in San Rafael. By participating, these communities would also be engaged in MEA programs that promote energy conservation. The projects described herein will also provide continued skills training and employment opportunities for residents by training them to perform both routine and more complex maintenance and repairs. MCCDC would also hire those who complete their work experience training in the agency's business enterprises, Hire Smart, an alternative staffing agency and growing venture that provides energy improvements such as weatherization and retrofitting for low income households.

Workforce impacts include:

1. Residents in economically underprivileged communities will have work and training opportunities on these projects.
2. Jobs will be created for the duration of the program
3. Those participating in the project will also be enrolled in the Thriving Families Network<sup>1</sup> Initiative for ongoing employment and career support, and will be supported by MCCDC, and outcomes tracked by independent evaluators of the Marin Community Foundation for income and career advancement results.

Additional workforce partner agencies may include Tamalpais Adult School's GED and Basic Skills Program, College of Marin's Workforce Services Division, Dominican University's Green MBA program, Marin Employment Connection, Marin Workforce Investment Board Construction and Green Industry Committee, Marin Builder's Association, Marin Building and Trades Council, and other key business partners and stakeholders in the energy domain.

Community Partners may include: Marin City Health and Wellness Center, the Phoenix Project, Bridge the Gap, Hannah Project, Community Action Marin, Homeward Bound, Thriving Families Network, Sparkpoint Marin, The Canal Alliance, Department of Rehabilitation, Grassroots Leadership MLK Coalition, Faith Based Organizations, and other local, community based agencies.

### **Economically Disadvantaged Areas**

One of Marin's unique characteristics is its significant ageing population. Many elderly Marin residents own their homes but are on a fixed income. In many cases this population may not meet the economically disadvantaged threshold. The Energy Upgrade Program, when coupled with OBR and PACE Programs, is extremely well suited to this population which may not have the capital funds available for upgrades but are especially vulnerable to energy cost fluctuations.

In addition, the County is targeting three key populations in its workforce training endeavors: (1) unemployed construction workers; (2) underemployed construction workers; and (3) unemployed and underemployed workers from other sectors who are interested in pursuing training, certification, and employment in the green building economy. These individuals will be recruited and selected from the most economically disadvantaged areas of Marin). Target areas for recruiting workforce trainees will be Marin City, the Canal district, and other impacted areas. MCCDC currently serves these areas, and in 2011 met the following income levels:

- 61% have no income
- 17% have an annual income of less than \$10,000
- 11% have an annual income between \$10,001 and \$20,000

- 6% have an annual income between \$20,001 and \$30,000
- 2% have an annual income between \$30,001 and \$40,000
- 1% have an annual income between \$40,000 and \$50,000
- Less than 1% have an annual income between \$60,001 and \$70,000

The vast majority of all of those served by MCCDC are below the thresholds of low and moderate income (LMI) in Marin County; in most cases, extremely below. Approximately 98% of the people that MCCDC serves meet or exceed the LMI criteria. Therefore, this workforce component would serve those most at need for gaining entry to the green job sector, entering a growing workforce with high growth potential.

## Chapter 6 – Funding Requirements

### Staffing and Contract Support

MEA will staff a full time Energy Efficiency Coordinator to coordinate all energy efficiency activities for the implementation of the 2012 MEA Energy Efficiency Plan. For 2012, the primary focus will be implementing initiatives for the Multifamily Direct Service Program and planning for 2013 OBR, PACE, and SO pilot development. This will include energy retrofit project management, community outreach and education, and support for the development of MEA policies that fulfill the goals set forth in the CPUC Long-term Energy Efficiency Strategic Plan. The Energy Efficiency Program Coordinator will be responsible for interfacing with partner agencies and stakeholder groups, coordinating activities of sub-contractors, interacting with customer groups, and communicating with the CPUC, CEC and other regulatory bodies as needed. The Energy Efficiency Program Coordinator will participate in relevant CPUC regulatory proceedings and prepare plans and filings to administer energy efficiency programs in the post-2012 period in accordance with MEA's longer-term Energy Efficiency Program Plan (Appendix C).

The position will require knowledge of energy efficiency technologies, demand response technologies, and application in a variety of built environments. The position also requires basic understanding of the construction trade and green building techniques, familiarity with the local permitting process, knowledge of energy demand reduction software services, and the ability to utilize industry benchmarking methods to track, evaluate, measure, verify, and compare energy efficiency performance. Technical experience in the commercial utility industry is preferred.

MEA will also draw on legal and technical contract services to develop programs including OBR, PACE and SO. Marketing services will be used to reach out to the relevant customer segments and ensure that the public is well informed about available services. It will also be used to provide real-time feedback through software so that users can track results.

### Budget

MEA Energy Efficiency Plan	
Aug - Dec 2012 Budget Summary	
Category	2012 Budget
<b>Staffing</b>	
Energy Efficiency Program Coordinator (1)	\$56,270
<b>Contract Services</b>	
Direct Service (MF)	\$79,000
Legal Services	\$22,500
Technical Support	\$20,000
Marketing Services	\$70,000
<b>Direct Incentives</b>	

Financial Incentives	\$125,000
Rebate Processing and Inspection	\$34,500
<b>Evaluation Measurement &amp; Verification</b>	
EM&V Provider	\$21,000
<b>Total:</b>	<b>\$428,270</b>

## Chapter 7 – Auditing and Reporting Requirements

### **Energy Efficiency Program Audit**

MEA utilizes a third party to perform and publish an audit of the financial statements at the end of each fiscal year. MEA will extend the auditing and reporting requirements from the existing (generation side) auditing to also encompass the energy efficiency program. These are released publically and can be found on the MEA website.

### **Energy Efficiency Reporting**

MEA will submit monthly and annual reporting for energy efficiency performance to the Board of Directors. Reporting categories will include inquiries, applications, audits, contracts, projects, measures, energy/GHG reduction, funding, jobs created, and budget.

MEA will submit a copy of all reports to the Energy Division for informational purposes only.

## Chapter 8 – Evaluation, Measurement and Verification

### **Third Party Verification**

To measure effectiveness of the MEA Energy Efficiency Program an independent evaluation, measurement and verification (EM&V) contractor will be identified and contracted with to measure the effectiveness of the program. Use of a third-party EM&V contractor will avoid a conflict of interest that would result from self-reporting. Success of the program will be determined by the number of participants in each component of the program and the energy savings that are generated by facility upgrades on a cumulative basis.

A database will be maintained to track participation in all activities of the program and to track energy efficiency opportunities and potential savings even for participants who do not reach the implementation phase. The evaluators will be able to use this information to follow up with surveys to determine what was or is planned to be done within the timeframe of the program, and will allow for future follow up after the program is completed.

Evaluation reports will include, but are not limited to:

- Number of participants that are reached through the program
- Number that implement energy efficiency and conservation measures
- kWh saved based on pre- and post- usage analysis

A standardized energy accounting system will be used by evaluators to determine what savings have occurred within the timeframe of the program.

### **International Performance Measurement and Verification Protocol**

The evaluator will verify energy savings by initially collecting twelve months of actual electrical data from each customer and creating a baseline that will reflect conditions prior to program participation. The utility data will be entered into the Energy Star Portfolio manager so it can be tracked by each individual customer and updated if they wish. To verify savings the evaluator will use the International Performance Measurement and Verification Protocol (IPMVP). A cost-benefit analysis will then be performed to determine savings achieved by dollar spent for each subset of the program.

The IPMVP defines four broad options for measurement and verification of energy savings. Each option is applicable to specific situations; and, oftentimes, more than one option is possible. Multiple options may be applied to a single project. The broad categories of the IPMVP lay out as follows:

Option A	Partially Measured Retrofit Isolation	End-use measurements, some stipulations
Option B	Retrofit Isolation	Complete end-use measurements
Option C	Whole Building	Energy use analysis on multiple systems
Option D	Calibrated Simulation	Computer-modeled building savings

Implementation of a measurement and verification (M&V) plan for the diverse types of energy saving opportunities (ECOs) can require a combination of methods to successfully measure savings. Even for a given ECO, verification categories may be crossed by combining a stipulated end-use measurement component into the savings calculation.

Factors that guide the selection of an M&V method for each ECO include:

- Cost of measurement vs. savings
- Timing of ECO installation
- Likelihood of future ECOs at the same facility
- Likelihood of future construction at the facility
- Degree of sub-metering within the facility
- Complexity of ECOs to be installed
- Level of interaction between ECOs
- Dynamics of the facility's energy baselines
- Likelihood of sustainable savings from the ECOs

The following paragraphs detail the four M&V options defined by the IPMVP and discuss a fifth non-IPMVP protocol which may be relevant: Entirely Stipulated Savings.



### **Option A: Partially Measured Retrofit Isolation**

Option A allows for the energy savings to be calculated by using a sampling of field measurements combined with stipulated parameters. The savings, once calculated, are usually stipulated for the life of the project. Ongoing actual measurements may or may not be used in this verification technique, depending on whether the predicted savings and/or volatility of the ECOs implemented warrant the expenditure on additional field measurements.

A possible application for using this option would be for lighting efficiency improvements whose performance may be relatively stable and not interdependent with other ECOs. The savings for the lighting upgrade would be quantified by measuring the before and after power consumption for a representative sample of lighting circuits and by stipulating or agreeing to the hours of operation of each circuit.

### **Option B: Retrofit Isolation**

Energy savings performance of ECOs are measured and verified at the end-use site. Option B techniques are designed for projects where long-term continuous measurement of performance is desired and warranted. Under Option B, individual loads are continuously monitored to determine performance, and this measured performance is compared with a baseline to determine savings.

A possible application for Option B measurement would be for chiller efficiency improvements in a setting of continuous change at a facility. The savings for the chiller upgrade would be quantified by measuring the existing chiller's performance in kW per ton at several points in the load while maintaining a steady condensing temperature. The same chiller performance curve would be developed for other steady condensing temperatures, resulting in a three-dimensional load curve for the existing chiller or chillers. After the retrofit, a similar 3-D load curve would be measured for the chiller. Instrumentation would be installed to sample the actual tonnage being delivered to the building cooling loads during the entire measurement period, and the power reduction interpolated from the before and after performance curves.

This type of measurement can be expensive and complex, but may be implemented as an alternative to Option C to ensure the long-term success of the ECOs.

### **Option C: Whole Building**

Option C verification techniques measure savings by comparing the post-retrofit overall energy use in a building or facility with pre-retrofit energy baselines. Implicit in this measurement option is the necessity to identify and account for the effects of change to the facilities during the measurement period that are beyond the scope of the ECOs installed. The impact of building additions, changes in operating hours, remodeling projects, etc., that are implemented by the customer during the measurement period must have their energy impact accounted for if the true savings from the ECOs is to be assessed. This process can be time-consuming and expensive in facilities that are dynamic.

There are, however, many benefits to an Option C measurement. When significant interactions between energy-consuming systems and ECOs are present, and for assessing savings for measures that are not easily measured directly, Option C may be the only viable method. Option C savings calculations also most closely emulate the electricity bills from the utility, and the calculations are easy to understand and explain. The typical calculation of savings is as follows:

$$\text{Total Energy Savings (\$)} = (\text{Energy Use Baseline} - \text{Actual Usage}) \times \text{Contractual Energy Rates}$$

*Where:*

Energy Use Baseline is the historical energy consumption, modified over time to account for changes to the facility.

Actual Usage is the actual energy usage measured through the meter.

Contractual Energy Rates are the energy rates derived from current utility bills and rate structures, which are used for the calculation of dollar savings.

#### **Option D: Calibrated Simulation**

Option D verification techniques calculate savings by using a carefully calibrated hourly building simulation model to examine building performance before and after the digital implementation of the ECOs. A high degree of comfort in both the simulation and the operator is necessary for this method to work to the satisfaction of both parties.

#### **Entirely Stipulated Savings**

While not directly defined as an IPMVP option, the Entirely Stipulated Savings protocol recognizes that there are instances when measurement and verification of

the savings is not warranted. In cases where the cost of measurement is too high as compared to the savings, where the parameters preclude accurate measurements, or where the confidence of the savings projections is high, MEA and the Evaluator may agree to stipulate to those projected savings for the term of the project without any measurement or verification of the savings.

**Recommended Measurement & Verification Program**

Table 7 represent a sample M&V approach that balances the M&V cost with the value of savings associated with each ECO.

**Table 7: List of ECOs and the Proposed M&V Options**

ECO #	Description	Savings Component	M&V Option
1	Install new air-side economizers	kWh, therms	Option C
2	Repair existing air-side economizers	kWh, therms	Option C
3	Install energy efficient motors	kWh	Option C
4	Reset condenser water temperature	kWh	Option B
5	Install VFD on condenser water pump	kWh	Option B
6	Implement demand controlled ventilation using CO <sub>2</sub> sensors	kWh, therms	Option C
7	Upgrade to premium T8 lamp/ballast	kWh	Option A
8	Retrofit/replace MH upright wall floods with fluorescent lamps	kWh	Option A
9	Retrofit T12 with T8/EB	kWh	Option A
10	Retrofit outdoor MH with pulse start MH	kWh	Option A
11	Install voltage reduction systems	kWh	Option A
12	Install exterior high/low occupancy sensors for parking lot lights	kWh	Option A
13	Install photocells to control lights in areas with skylights	kWh	Option A

**Data Collection**

As specified in CPUC D.09-09-047 at 92 and CPCU Resolution E4385 performance metrics will be maintained and tracked in the Energy Efficiency Groupware Application (EEGA) database. In addition, all REMS programs will be tracked in MS Access to facilitate program monitoring and reporting. The reporting system will

generate automatic reports to support the performance metrics that are maintained and tracked in the EEGA.

The creation of program databases and cost reporting methodology has been developed with partner agencies allowing MEA to provide all program and expenditure detail in a clear and straightforward manner. The reporting experience of partner agencies will provide the flexibility to present the data of interest in reports and modify or add information as needed.

For example, for the direct services programs all equipment within each store will be captured during the audit, entered into the database and tracked during and beyond the term of the program. Energy conservation measure level reporting will include projected savings (costs, therms, kW, and kWh), individual measure costs, and projected incentives by project and measure. Additionally, actual savings (costs, therms, kW, and kWh), actual measure costs, and actual incentive levels by project and measure will also be tracked and reported on to the MEA Board on a regular basis.

## Chapter 9 – Program Performance Metrics

The following Program Performance Metrics (PPMs) will indicate progress of the MEA Energy Efficiency Program toward the short and long term market transformation goals and objectives in the CPUC EE Strategic Plan. These metrics are designed to be simple and cost effective when considering data collection and reporting requirements.

- Consistency with statutory goals
  - Tracking hard to reach customers
  - Progress towards zero net energy in multifamily
  - Program energy performance reporting (see Chapter 7)
- Cost effectiveness calculations including Total Resource Costs (TRC) and Program Administrator Costs (PAC) (see Chapter 2)
- Tracking of customers participating in both PG&E MFEER and MEA MFEEP programs
- MFEEP: Percentage of non-lighting measure savings as compared to the total EE measures adopted in the MFEEP.
- Evaluation, Measurement, and Verification process and tracking (see Chapter 8)

## **Chapter 10 – Appendices**

**Appendix A: Marin Energy Authority Resolution 2012-14**

**Appendix B: MEA Multifamily Cost Effectiveness Calculations for 2012**

**Appendix C: MEA Energy Efficiency Plan 2012-2015 (Approved by MEA**

**Board on February 2, 2012)**