

Application of San Diego Gas & Electric  
Company (U-902-M) for Approval of  
Electric and Natural Gas Energy Efficiency  
Programs and Budgets for Years 2009  
through 2011

Application 08-07- 023

Exhibit No.: \_\_\_\_\_

Witness: Athena M. Besa

**FIRST AMENDMENT TO THE MARCH 2, 2009  
AMENDED PREPARED DIRECT TESTIMONY OF  
SAN DIEGO GAS & ELECTRIC COMPANY**

**CHAPTER II**

**REVISED**

**Appendix B: Program Implementation Plans**

**Volume 1 of 3**

**IOU Core – Part 1**

**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA**

**MARCH 31, 2009**



## **Appendix B:**

**San Diego Gas & Electric Company**

**Program Implementation Plans**

## Table of Contents

<b>Appendix B: Program Implementation Plans</b>	<b>Page #</b>
<b>IOU Core</b>	
1) Statewide Residential Energy Efficiency	1
2) Statewide Lighting Market Transformation	132
3) Statewide Commercial Energy Efficiency	145
4) Statewide Industrial Energy Efficiency	247
5) Statewide Agricultural Energy Efficiency	310
6) Statewide New Construction	377
7) Statewide HVAC	462
8) Statewide Codes & Standards	569
9) Stateside Emerging Technologies	658
10) Statewide Workforce Education & Training	738
11) Statewide Marketing, Education & Outreach	818
12) Statewide Integrated DSM	846
<b>Partnerships/Local Programs</b>	
13) Local Institutional Partnerships	857
14) Local Government Partnerships	960
15) Comprehensive Home Performance Program (CHPP)	1063
16) Local Kitchen Learning Center	1073
17) Micro Grid Comprehensive Energy Efficiency Delivery Pilot	1083
18) Local Non-Residential Program (BID)	1104
19) On-Bill Financing (OBF)	1116
20) Strategic Development and Integration	1124
21) Sustainable Communities Case Studies Program	1128
<b>Third Parties</b>	
22) SDG&E Third Party Programs	1147

**I O U**

**Core**

**Programs**

# 2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan

- 1. Program Name:** Residential Energy Efficiency Program  
**Program ID:** TBD  
**Program Type:** This is a Statewide Core Program.

## 2. Projected Program Budget Table

Table 1<sup>1</sup>

Program #	Main Program Name / Sub-Programs	Total Administrative Cost (Actual)	Total Marketing & Outreach (Actual)	TOTAL Direct Implementation	Integration Budget Allocated to Other Programs (if Applicable)	Total Budget By Program (Actual)
<b>Market Sector Programs</b>						
	<b>SW Residential</b>					
	SW-ResA - Residential Basic Lighting	1,222,324	2,281,468	8,437,233	0	11,941,025
	SW-ResB - Advanced Consumer Lighting	1,222,324	2,281,468	309,084	0	6,593,876
	SW-ResC - Multi-Family	1,241,961	557,028	2,841,436	0	4,640,425
	SW-ResD - Home Efficiency Rebates	1,459,473	1,748,895	8,752,298	0	11,960,666
	SW-ResE - Home Efficiency Surveys	835,562	2,845,375	682,252	0	4,363,189
	SW-ResF - Appliance Recycling	526,368	860,000	5,348,178	0	6,734,546
	SW-ResG - Business/Consumer Electronics/Plug Load	485,044	1,382,535	3,163,017	0	5,030,596
	<b>TOTAL:</b>	<b>\$ 6,993,056</b>	<b>\$ 11,956,769</b>	<b>\$ 32,314,498</b>	<b>\$ -</b>	<b>\$ 51,264,324</b>

These budget numbers are presented in Appendix F: Energy Division Tables, Graphs Pie Charts: Table 7.1 - 2009 - 2011 IOU Strategic Planning Program Budget

## 3. Projected Program Gross Impacts Table

Table 2

Program #	Program Name Sub- Programs	2009 - 2011	2009 - 2011	2009 - 2011
		Three-Year EE Program Gross kWh Savings	Three-Year EE Program Gross kW Savings	Three-Year EE Program Gross Therm Savings
<b>Market Sector Programs</b>				
	<b>SW Residential</b>			
	SW-ResA - Residential Basic Lighting	261,403,520	22,078	0
	SW-ResB - Advanced Consumer Lighting			
	SW-ResC - Multi-Family	11,617,193	1,234	929,891
	SW-ResD - Home Efficiency Rebates	7,244,884	3,755	2,150,285
	SW-ResE - Home Efficiency Surveys			
	SW-ResF - Appliance Recycling	65,333,400	10,066	0
	SW-ResG - Business/Consumer Electronics/Plug Load			
	<b>TOTAL:</b>	<b>345,598,996</b>	<b>37,133</b>	<b>3,080,176</b>

<sup>1</sup> Definition of Table 1 Column Headings: Total Budget is the sum of all other columns presented here  
Total Administrative Cost includes all Managerial and Clerical Labor, Human Resource Support and Development, Travel and Conference Fees, and General and Administrative Overhead (labor and materials).  
Total Direct Implementation – includes all financial incentives used to promote participation in a program and the cost of all direct labor, installation and service labor, hardware and materials, and rebate processing and inspection used to promote participation in a program.  
Total Marketing & Outreach includes all media buy costs and labor associated with marketing production.  
Integrated Budget Allocated to Other Programs includes budget utilized to coordinate with other EE, DR, or DG programs.  
Total Budget is the sum of all other columns presented here  
Definition of Sub-Program: A “sub-program” of a program has a specific title; targets; budget; uses a unique delivery or marketing approach not used across the entire program; and for resource programs, has specific estimated savings and demand impacts.

# 2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan

These savings values are presented in Appendix F: Energy Division Tables, Graphs & Pie Charts: Table 7.2 - IOU 2009 - 2011 Program Savings Estimates

## 4. Program Description

### a) Describe program

The State of California has set ambitious goals of reaching all 13 million existing homes with comprehensive energy efficiency improvements by 2020. To achieve significant progress toward this goal, programmatic efforts must be more integrated, coordinated and scaled significantly over the next 11 years. To work towards this goal California's Investor Owned Utilities (IOUs) will work more closely with Publicly Owned Utilities (POUs), water agencies, and other organizations across the state. The IOUs will continue in the 2009 – 2011 program cycle to offer comprehensive activities to reach across California's diverse population, climate zones and socio-economic classes to tap the economic potential available while advancing the initiatives of California's Long Term Energy Efficiency Plan<sup>2</sup> (Strategic Plan).

The Residential Energy Efficiency Program (REEP) is designed to offer and promote specific and comprehensive energy solutions within the residential market sector. The Residential portfolio employs various strategies and tactics to overcome market barriers and to deliver programs and services aligned to support the Strategic Plan by encouraging adoption of economically viable energy efficiency technologies, practices, and services. The ultimate focus of the program is:

- To facilitate, sustain, and transform the long-term delivery and adoption of energy-efficient products and services for single and multi-family dwellings.
- To cultivate, promote and sustain lasting energy-efficient behaviors by residential customers through a collaborative statewide education and outreach mechanism.
- To meet consumers' energy efficiency adoption preferences through a range of offerings including single-measure incentives and more comprehensive approaches.

The 2009-2011 REEP is designed to begin the shift towards comprehensive energy efficiency changes in homes that are the goal of the Strategic Plan. It does this through a multi-pronged, comprehensive set of offerings that capture much of the current potential for single-measure savings while building the framework for the longer term need for more costly changes in building envelopes, HVAC systems, and occupant behavior patterns.

The current system of upstream and midstream rebates is the most efficient and effective method for widely installing most forms of energy efficient equipment into the building stock because it minimizes overhead costs of the program while allowing access to vast swaths of the market. Simultaneously, local programs that focus on

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<sup>2</sup> Strategic Plan refers to the CPUC's Long Term Energy Efficiency Strategic Plan, as adopted on September 18, 2008, located at [www.CaliforniaEnergyEfficiency.com](http://www.CaliforniaEnergyEfficiency.com).

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

comprehensive change within the home are being continued and piloted, with growth planned as more is learned about the requirements for success. These are described further in section 6. These two major program approaches are not inconsistent, but rather mutually supportive of achieving the largest total of cost-effective short and long-term energy savings.

To date, the California investor-owned utilities (IOUs) have offered a number of residential existing-building subprograms that are in various stages of maturity and availability across the state, including Home Energy Efficiency Survey, Appliance Recycling, Home Energy Efficiency Rebates, and Multifamily Energy Efficiency Rebates. In addition, a variety of efforts focused on lighting, HVAC, and appliances. For 2009-2011 and beyond the IOUs will continue to integrate and coordinate all subprograms to increase comprehensiveness of measure delivery. Beginning in 2009 the IOUs will further expand integration efforts to include consumer electronics, workforce education and training, marketing education and outreach, low income programs and demand side management integration.

The IOUs will employ multiple strategies and tactics that integrate, leverage and build upon existing delivery channels and customer relationships such as: direct install, upstream, midstream and downstream mass market channels and web-based tools in order to surmount market barriers. Market transformation and direct energy savings and demand reductions will be achieved through a series of sub-programs that are described in detail in separate Program Implementation Plans (PIPs) and are summarized below.

### **Residential Lighting Incentive Program for Basic CFLs**

The Residential Lighting Incentive Program for Basic CFLs provides customers with incentives in the form of discounts that greatly reduce the cost of energy-efficient lighting products. It introduces energy-efficient lighting products to the market and strives to influence future purchasing behaviors of customers. More than 370 retailers at over 2,700 store locations are expected to participate.

### **Advanced Consumer Lighting**

The Advanced Consumer Lighting program, likewise, provides customers with incentives in the form of discounts that greatly reduce the cost of energy-efficient lighting products, and introduces energy-efficient lighting products to the market and strives to influence future purchasing behaviors of customers. A broad array of product types, models, and technologies are available for this program's incentives. Typical technologies include specialty CFLs, LEDs, cold cathode, and high-efficiency incandescent (HEI). In addition, the IOUs will collaborate on a statewide Lighting Market Transformation program strategy.

### **Home Energy Efficiency Rebates**

The Home Energy Efficiency Rebate (HEER) Program is a continuation of the existing HEER program. In accordance with the Strategic Plan, this program advances comprehensive energy efficiency measures, including: whole house



## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

solutions, plug load efficiency, performance standards, and integration opportunities with local government and DSM.

HEER meets the need of consumers either in need of a single measure or multiple devices by encouraging the adoption of energy-efficient choices when purchasing and installing household appliances and equipment. It does this by offering customers educational materials on energy efficiency options and on rebate and other incentive offerings. In addition to influencing efficient purchases, the program educates customers on how to use products correctly and guides customers to explore other demand-side management opportunities, including Demand Response (DR), as appropriate. In addition to an on-line rebate application process, the program offers immediate (point-of-sale, or POS) rebates for many measures at the retailer's cash register.

### **Appliance Recycling Program**

The Appliance Recycling Program (ARP) is a continuation of the existing ARP. The program picks up operable but inefficient appliances from residential dwellings and businesses and prevents their continued operation by recycling them in an environmentally safe manner. In accordance with the Strategic Plan, this program advances several comprehensive energy efficiency measures including: whole house solutions, plug load efficiency, performance standards, local government and DSM integration opportunities. ARP produces cost-effective energy savings and peak reduction in residential and non-residential market sectors.

### **Business and Consumer Electronics**

The Business and Consumer Electronics Program (BCEP) is a new addition to the 2009 - 2011 residential energy efficiency portfolio. The BCEP provides midstream incentives to retailers to increase the stocking and promotion of high-efficient electronic products including computers, computer monitors, cable and satellite set-top boxes, televisions, smart power strips and additional business and consumer electronics as they become available to the market. The program continues to expand the POS rebate delivery method and provides field support services to update marketing materials in retail stores and support education to the retailer sales force. The BCEP includes a linkage to an online information system designed to identify the most energy-efficient and environmentally friendly products available in the market for multiple categories, including televisions, appliances, and computers.

This program supports the Strategic Plan by motivating retailers to stock more efficient products which, in turn, can drive manufacturers toward the development and introduction of more efficient products into the market. Since the midstream incentives are offered on measures that have been identified as "plug load" products, BCEP addresses the "plug load" efficiency strategy identified in the Strategic Plan.

### **Home Energy Efficiency Surveys**

The Home Energy Efficiency Survey (HEES) Program is a continuation of the existing HEES Program. In accordance with goals of the Strategic Plan, the HEES

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

Program will work towards advancing whole-house energy solutions. HEES will also pursue innovative initiatives to reverse the growth of plug load energy consumption through behavioral solutions, and, as warranted, DSM integration opportunities. The HEES Program is used to reach out to customers in multiple languages through different delivery channels to perform a variety of energy surveys. The program provides survey results to enable participants to understand how their energy use varies throughout the year and how their household compares with similar households. This multi-language approach enhances the program’s ability to reach California’s diverse culture and provides efficiency recommendations based on a stand alone and whole-house system approach. Additionally, HEES provides information and referrals to other energy efficiency programs, water conservation efforts, demand response and low-income programs, as applicable.

**Multifamily Energy Efficiency Rebates**

The Multifamily Energy Efficiency Rebate (MFEER) Program is a continuance of the existing Residential Multifamily Energy Efficiency Rebate Program. The program promotes energy efficiency and provides equipment rebates to owners and tenants of multifamily properties, including residential apartment buildings, condominium complexes, and mobile home parks.

**b) List measures:**

<b>Heating and Cooling</b>	<b>Lighting</b>
Electric storage water heaters	T5 or T8 Lamps w/electronic ballasts
Central system natural gas water heaters	Exterior CFL fixtures (ENERGY STAR Qualified)
Natural gas water heater and/or boiler controllers	
Natural gas storage water heater	Screw-in CFLs (ENERGY STAR Qualified)
Tankless water heaters	Screw-in CFL Reflector bulbs (ENERGY STAR Qualified)
Attic and/or wall insulation	Interior CFL Fixtures (ENERGY STAR Qualified)
Whole House Fans	Bare Spiral CFLs > 30 Watts
--	Specialty and high performance CFLs
	CFLs of advanced quality (Super CFLs)
Central natural gas furnace	Exterior and interior fluorescent fixtures
Room air conditioners (ENERGY STAR® Qualified)	Night lights (including LED)
	Interior screw-in LEDs for task, accent, and area lighting
Package terminal air conditioners & heat pumps	Interior hardwired LED fixtures
<b>Appliances</b>	Exterior LEDs
Refrigerators (ENERGY STAR® Qualified)	LED holiday lights
Freezers	Other variations of fluorescent lighting such as cold cathode and induction

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

<b>Heating and Cooling</b>	<b>Lighting</b>
High efficiency Dishwasher	Screw-in halogen lights (early compliance with codes for 2011 and beyond)
High-efficiency Clothes Washer	Floor lamps
<b>Pools and Spas</b>	Torchieres
Two Speed Pool Pumps and Motors	LED night lights
<b>Electronics</b>	LED holiday lights
>ENERGY STAR® Televisions	Occupancy sensors
LCD monitors	Photocells
ENERGY STAR 4.0® Qualified Computers	Table/desk lamps
<b>Other incentives</b>	Exit Signs
Shower Heads	
Faucet Aerators	

**c) List non-incentive customer services:**

Non-incentive customer services consist of energy surveys offered through the HEES program and significant advertising and promotional activities to increase customer participation. Details of this and other non-incentive customer services are provided within the sub-program descriptions.

**5. Program Rationale and Expected Outcome**

**a. Quantitative Baseline and Market Transformation Information**

Market transformation (MT) metrics proposed in Tables 3 and 4 are preliminary. The proposed metrics are meant to initiate a collaborative effort to elaborate meaningful metrics that will provide overall indicators of how markets as a whole are evolving. MT metrics should neither be used for short-term analyses nor for specific program analyses. Rather, should focus on broad market segments.

Market transformation is embraced as an ideal end state resulting from the collective efforts of the energy efficiency field, but differing understandings of both the MT process and the successful end state have not yet converged. The CPUC defines the end state of MT as “Long-lasting sustainable changes in the structure or functioning of a market achieved by reducing barriers to the adoption of energy efficiency measures to the point where further publicly-funded intervention is no longer appropriate in that specific market.”<sup>3</sup> The Strategic Plan recognizes that process of transformation is harder to define than its end state, and that new programs are needed to support the continuous transformation of markets around successive generations of new technologies<sup>4</sup>.

<sup>3</sup> California Public Utilities Commission Decision, D.98-04-063, Appendix A.

<sup>4</sup> California Public Utilities Commission (2008) *California Long Term Energy Efficiency Strategic Plan*, p. 5. Available at <http://www.californiaenergyefficiency.com/docs/EEStrategicPlan.pdf>

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

Market transformation programs differ from resource acquisition programs on 1) objectives, 2) geographical and 3) temporal dimensions, 4) baselines, 5) performance metrics, 6) program delivery mechanisms, 7) target populations, 8) attribution of causal relationships, and 9) market structures<sup>5</sup>. Markets are social institutions<sup>6</sup>, and transformation requires the coordinated effort of many stakeholders at the national level, directed to not immediate energy savings but rather to intermediary steps such as changing behavior, attitudes, and market supply chains<sup>7</sup> as well as changes to codes and standards. Resource acquisition programs rely upon the use of financial incentives, but concerns have been raised that these incentives distort true market price signals and may directly counter market transformation progress<sup>8</sup>. According to York<sup>9</sup>, “Market transformation is not likely to be achieved without significant, permanent increases in energy prices. From an economic perspective, there are 3 ways to achieve market transformation: (1) fundamental changes in behavior, (2) provide proper price signals, and (3) permanent subsidy.”

The question of what constitutes successful transformation is controversial because of a Catch-22: Market transformation is deemed successful when the changed market is self-sustaining, but that determination cannot be made until after program interventions are ended. Often, however, the need for immediate energy and demand savings or immediate carbon-emissions reductions will mean that program interventions may need to continue, which would interfere with the evaluation of whether MT is self-sustaining. Market transformation success has also been defined in terms of higher sales of efficient measures than would have otherwise occurred against a baseline absent of program interventions. The real world, however, provides no such control condition. Evaluators must estimate these baselines from quantitative factors such as past market sales that may be sparse and/or inaccurate - particularly for new products. Evaluations must also defer to expert judgments on what these baselines may have been as well as on the degree of successful market transformation<sup>10</sup>. Due to the subjective nature of these judgments, it is imperative that baselines as well as milestone MT targets be determined and agreed upon through collaborative discussion by all stakeholders, and these targets may need periodic revision as deemed necessary by changing context.

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<sup>5</sup> Pelozo, J., and York, D. (1999). “Market Transformation: A Guide for Program Developers.” Energy Center of Wisconsin. Available at: <http://www.ecw.org/ecwresults/189-1.pdf>

<sup>6</sup> Blumstein, C., Goldstone, S., & Lutzenhiser, L. (2001) “From technology transfer to market transformation”. Proceedings of the European Council for an Energy Efficient Economy Summer Study. Available at [http://www.ecee.org/conference\\_proceedings/ecee/2001/Panel\\_2/p2\\_7/Paper/](http://www.ecee.org/conference_proceedings/ecee/2001/Panel_2/p2_7/Paper/)

<sup>7</sup> Sebold, F. D., Fields, A., Skumatz, L., Feldman, S., Goldberg, M., Keating, K., Peters, J. (2001) *A Framework for Planning and Assessing Publicly Funded Energy Efficiency*. p. 6-4. Available at [www.calmac.org](http://www.calmac.org).

<sup>8</sup> Gibbs, M., and Townsend, J. (2000). The Role of Rebates in Market Transformation: Friend or Foe. In *Proceedings from 2000 Summer Study on Energy Efficiency in Buildings*.

<sup>9</sup> York, D., (1999). “A Discussion and Critique of Market Transformation”, Energy Center of Wisconsin. Available at <http://www.ecw.org/ecwresults/186-1.pdf>.

<sup>10</sup> Nadel, S., Thorne, J., Sachs, H., Prindle, B., and Elliot, R.N. (2003). “Market Transformation: Substantial Progress from a Decade of Work.” American Council for an Energy-Efficient Economy, Report Number A036. Available at: <http://www.aceee.org/pubs/a036full.pdf>

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

Market transformation draws heavily upon diffusion of innovation theory<sup>11</sup>, with the state of a market usually characterized by adoption rate plotted against time on the well-known S-shaped diffusion curve. In practice, however, the diffusion curve of products may span decades<sup>12</sup>. Market share tracking studies conducted 3, 5 or even 10 years after the start of an MT program may reveal only small market transformation effects<sup>13</sup>. The ability to make causal connections between these market transformation effects and any particular program's activities fades with time, as markets continually change and other influences come into play.

These challenges mentioned above are in reference to programs that were specifically designed to achieve market transformation; and these challenges are only compounded for programs that were primarily designed to achieve energy and demand savings. However, since the inception of market transformation programs almost two decades ago, many lessons have been learned about what the characteristics of successful MT programs are. First and foremost, they need to be designed specifically to address market transformation. "The main reason that (most) programs do not accomplish lasting market effects is because they are not designed specifically to address this goal (often because of regulatory policy directions given to program designers.)<sup>14</sup>" The Strategic Plan recognizes that regulatory policies are not yet in place to support the success of market transformation efforts<sup>15</sup>, but also reflects the CPUC's directive to design energy efficiency programs that can lay the groundwork for either market transformation success or for codes and standards changes.

Above all else, the hallmark of a successful market transformation program is in the coordination of efforts across many stakeholders. The most successful MT programs have involved multiple organizations, providing overlapping market interventions<sup>16</sup>. The Strategic Plan calls for coordination and collaboration throughout, and in that spirit the utilities look forward to working with the CPUC and all stakeholders to help achieve market transformation while meeting all the immediate energy, demand, and environmental needs. Drawing upon lessons learned from past MT efforts, the Energy Center of Wisconsin's guide for MT program developers<sup>17</sup> suggests that the first step is not to set end-point definitions, progress metrics or goals. Rather, the first steps include forming a collaborative of key participants. As the Strategic Plan suggests, these may include municipal utilities, local governments, industry and business leaders, and consumers. Then, with the collective expertise of the collaborative, we can define markets, characterize markets, measure baselines with better access to historical data, and

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<sup>11</sup> Rogers (1995) *Diffusion of Innovations*, 5<sup>th</sup> Ed.

<sup>12</sup> Example in bottom chart of this graphic from NYTimes:

<http://www.nytimes.com/imagepages/2008/02/10/opinion/10op.graphic.ready.html>

<sup>13</sup> Sebold et al (2001) p. 6-5,

<sup>14</sup> Peters, J.S., Mast,B., Ignelzi, P., Megdal, L.M. (1998). *Market Effects Summary Study Final Report: Volume 1.* Available at <http://calmac.org/publications/19981215CAD0001ME.PDF>.

<sup>15</sup> CPUC (2008) Strategic Plan, p. 5.

<sup>16</sup> Nadel, Thorne, Saches, Prindle & Elliot (2003).

<sup>17</sup> Pelozo & York, (1999).

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

define objectives, design strategies and tactics, implement and then evaluate programs. The collaborative will also provide insights that will set our collective expectations for the size of market effects we can expect, relative to the amount of resources we can devote to MT. No one organization in the collaborative will have all the requisite information and expertise for this huge effort. This truly needs to be a collaborative approach from the start.

The metrics and baselines described below in Tables 3 and 4 are presented for the purposes of starting the much-needed discussion between all key participants. These are suggestions, intended to allow key participants to pilot-test processes for establishing baseline metrics, tracking market transformation progress, and for refining evaluation tools. Early trial of these evaluation metrics will reveal any gaps in data tracking so that we may refine our processes before full-scale market transformation evaluations take place.

The set of metrics we selected is intentionally a small set, for several reasons. First, as mentioned, the full set of metrics and baselines need to be selected by key participants. Second, we anticipate that market share data for many mid- and low-impact measures will be too sparse to show MT effects and not cost-effective to analyze. Third, we selected core measures and metrics that would both be indicative of overall portfolio efforts. These measures are also likely to be offered on a broad level by other utilities, providing a greater base of sales and customer data that could be analyzed for far-reaching MT effects.

The IOUs are proposing a metric that is believed to reliably detect market transformation for energy efficiency solutions in the residential sector. While all metrics fall short of a perfect measure, the ideal metric would have a baseline that is already established that includes a reasonable and easy method of duplication and comparison. Market transformation cannot be measured on a year to year basis but will take several years and measurements to reliably discern trends. With this in mind, the IOUs propose the following metric:

Over the past several years a good baseline of market saturation has been established in the California Lighting and Appliance Saturation Study (CLASS). The original study was completed in 2000 and then updated in 2005. The overarching goal for these studies is to provide efficiency levels of appliances in order to understand future energy savings potential and past accomplishments in the residential sector. The IOUs propose that the values in these studies and the data made available in the on-line “California Residential Efficiency Saturation Tool” be used as the basis for the metric for EE in the residential sector. Specifically it is proposed that a new California Lighting and Appliance Saturation study be conducted in 2010 to estimate again the efficiency levels for key measures. A comparison could then be made to the previous baseline studies of 2000 and 2005 and a determination made if a trend is taking place that indicates that more energy efficient solutions are being installed in residential households.

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

As market transformation is more than just market share of measures, the suggested metrics also include attitudinal and behavioral metrics.

Attitudinal change is an important part of any market transformation effort. This change may be tracked with a battery of questions that probes customer attitudes, knowledge and awareness (AKA) of energy efficiency. In order to gauge an attitudinal based metric for this sector a battery of questions probing AKA among customers would have to be created and used to scale AKA. Examples of AKA would include knowledge of energy efficiency lighting and other specific measures. Evaluators could also draw from customer surveys used in past program evaluation studies to determine whether any response patterns would be a useful indicator of market transformation, moving forward. The dimensions of any scale need to be selected by the MT collaborative. The baseline response pattern to the AKA scale would need to be established early during the program cycle. Customers could be surveyed on an annual basis and changes in their AKA tracked along the scale. Responses of customers for a particular sub-program could be pulled out for separate analysis, as needed.

In addition, behavioral change is an important part of any market transformation effort. This change may be tracked with a battery of questions that probes customer past behavior and intentions about energy efficiency. In order to gauge a behavioral based metric for this sector a battery of questions about energy efficient behaviors could be used to create a scale of Energy Behavior. Evaluators could also draw questions about specific behaviors from customer surveys used in past program evaluation studies to determine whether any response patterns would be a useful indicator of market transformation, moving forward. The dimensions of any scale need to be selected by the MT collaborative. The behaviors that could be probed include maintenance behaviors to keep EE measures operating correctly, and behaviors that maximize energy efficiency of existing equipment. Customers could be surveyed early in the program cycle and their responses on the scale could serve as the baseline for subsequent behavioral change. Customers could be probed annually and their Energy Behavior change measured along the scale. Responses of customers for a particular sub-program could be pulled out for separate analysis, as needed.

Therefore, for the Residential sector, the approach to quantitative baseline and market transformation information is as follows:

Table 3

Metric A	Metric B	Metric C
Energy efficiency saturation of the following appliances as measured by the CLASS on-site survey.	Ratio of survey participants that seek/consider EE when making purchase decisions.	Behaviors of Residential sector as gauged based on a scale developed to measure (EE/green) behaviors.

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

Appliance	2000	2005	Change	% Change
Freezer UEC	728.00	626.50	101.50	13.9%
Heating AFUE	77.91	79.32	1.41	1.8%
Refrigerator UEC	931.55	721.18	210.37	22.6%
Dishwasher EF	0.48	0.50	0.01	2.5%
Washing Machine EF	1.32	1.77	0.45	34.5%
Water Heating EF	0.58	0.59	0.01	1.4%
Cooling SEER	9.50	10.31	0.81	8.5%
CFLs per Home*	0.32	3.51	3.19	996.9%

\*In the 2005 CLASS report, Page 51 Table 30 shows that CFLs per home jumped from 0.32 lamps/home in 2000 to 3.51 lamps/home in 2005

**b) Market Transformation Information**

As stated above, market transformation draws heavily upon diffusion of innovation theory, with the state of a market characterized by adoption rate plotted against time on the well-known S-shaped diffusion curve. In practice, however, the diffusion curve of products may span decades. Market share tracking studies conducted 3, 5 or even 10 years after the start of an MT program may reveal only small market transformation effects. Therefore it is problematic, if not impractical, to offer internal annual milestones towards market transformation sectors and specific program activities.

As a consequence, it is not appropriate to offer more than broad and general projections. Any targets provided in the following table are nothing more than best guesstimates, and are subject to the effects of many factors and market forces outside the control of program implementers.

Table 4

Residential Sector Internal Market Transformation Planning Estimates			
	2009	2010	2011
Metric A	NA	Upward moving efficiency over time measured by CLASS	NA
Metric B	Upward moving average over time	Upward moving average over time	Upward moving average over time
Metric C	Upward moving average over time	Upward moving average over time	Upward moving average over time

**c) Program Design to Overcome Barriers:**

The residential customer base of all California IOUs constitutes one of the largest and most challenging groups of electricity, gas, and water consumers in the nation due to its diversity, complexity, and size. The residential energy efficiency portfolio of California IOUs has been developed to deliver a wide array of programs and services

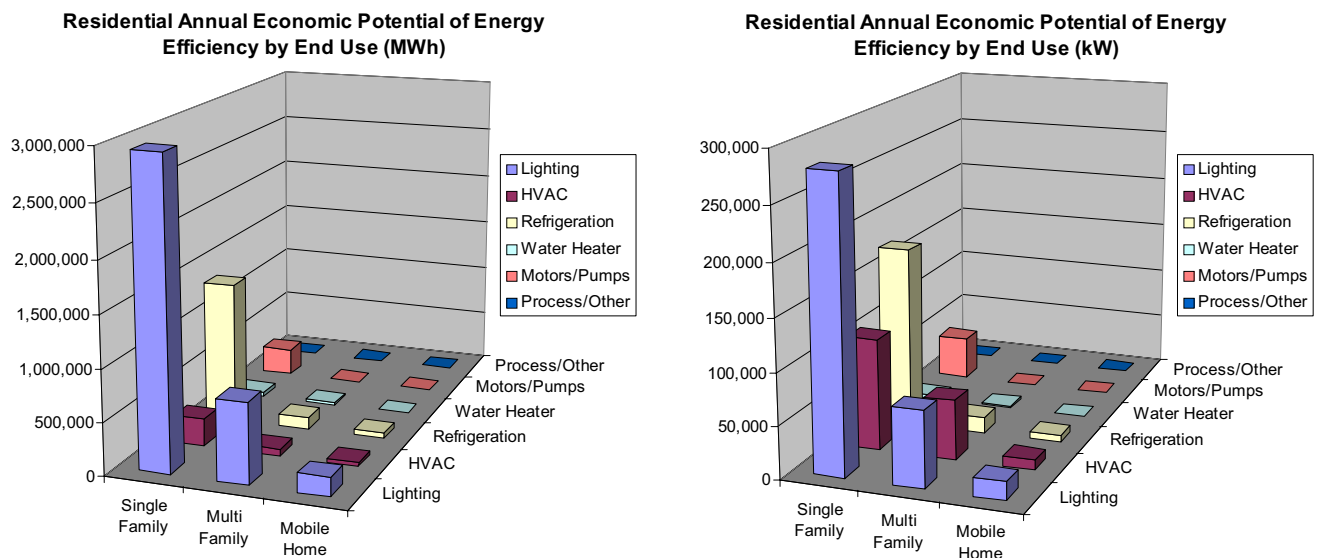


## 2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan

to increase awareness of energy efficiency, to provide relevant energy-efficient solutions, and to advance the policy ideals of the Big Bold Energy Efficiency Strategies (BBEES), the Strategic Plan, and the California Energy Action Plan (EAP) for the benefit of all customers.

The approach to the residential portfolio aims to advance energy efficiency through the modification of consumer behaviors and attitudes towards EE through education and reinforcement. The following figures represent the accepted annual economic potential of residential electricity consumption.

### Electric Economic Potential by End Use and Residential Segment<sup>18</sup>



<sup>1</sup> Economic potential refers to the technical potential of those energy conservation measures that are cost-effective when compared to supply-side alternatives. This chart is based on data extracted from multiple utility specific MS Excel workbooks that are referenced in appendices G, H, and I of the California Energy Efficiency Potential Study by Itron (May 24, 2006)

As evident in the figures above the prominent economic opportunities for the residential sector lie in the following areas: lighting, refrigeration, HVAC and motors and pumps. In terms of economic potential, consumer awareness, and motivating factors, the Residential market sector - defined as living quarters and energy-consuming devices of private households - differs from that of the Commercial, Industrial, and Agricultural sectors of the energy efficiency portfolio. The factors which influence or inhibit private citizens to respond to energy efficiency are broad and distinct. The residential sector is highly fragmented and diverse in terms of geography, consumption patterns, and demographics. Furthermore, the influences of

<sup>18</sup> Economic potential refers to the technical potential of those energy conservation measures that are cost-effective when compared to supply-side alternatives. This chart is based on data extracted from multiple utility specific MS Excel workbooks that are referenced in appendices G, H, and I of the California Energy Efficiency Potential Study by Itron (May 24, 2006)

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

legislative actions, policies, standards, and technologies have significant impacts on the delivery of residential programs. The REEP offered herein for this market segment is a product of the careful consideration of each of these factors and the realities of energy consumption by Californians, and results in a comprehensive, nimble and cost-effective portfolio for the 2009-2011 program cycle. In addition, this plan outlines the broad strategies and tactics that will advance the long-term policy goals of California and the United States.

Residential programs encounter many barriers to the adoption of energy efficiency measures, including:

- Evolutions in consumer use patterns
- The upfront cost of measures
- Lack of consumer awareness
- Incentives split between property owners and tenants
- Manufacturer and upstream market resistance
- The level of disruption necessary during the installation or retrofit of occupied dwellings (switching costs)
- Lack of a qualified supply of technologies and trained installers in the market
- Vintage cycles and unwillingness to replace working equipment
- Perceived uncertainty of savings
- Lack of enforcement for measures installed, and
- General indifference to energy efficiency.

In addition, some groups are particularly difficult to reach due to barriers such as language and income.

These factors contribute to a reliance on customer incentives, customer awareness, and outreach campaigns to create demand for new programs plus an increasing reliance on studies and research into emerging technologies

In view of the overall uniqueness, size, and diversity of the sector, California IOUs approach residential market segments as broad groups within the Residential portfolio along the lines of EE potential available. As such, the approach to the residential market is not program-specific. Instead, it is a combination of delivery and market-based activities to target the principal barriers to adoption in key sectors. Segmentation in this manner is warranted due to the scope and breadth of uses, barriers, and influential stakeholders.

These aggregate segments combine to enable the portfolio to reap the economic potential of cost-effective technologies and measures in the present, while moving towards the goals and objectives outlined in Strategic Plan. The objectives of the Residential EE portfolio are:

- To capture cost-effective energy savings and demand response opportunities for the benefit of all Californians.

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

- To encourage residential consumers across California to consider “energy efficiency first” in their daily lives.
- To promote support of and compliance with more stringent appliance and building standards.
- To move the residential market towards coordinated demand-side management, including self-generation and a "smart meter" initiative.
- To promote the adoption of comprehensive residential retrofits.
- To encourage, adopt, and integrate promising emerging technologies.
- To develop public awareness and to promote effective decision making to create a widespread demand for high efficient measures.
- To contribute to the ultimate transformation of energy consumption patterns.

**d) Quantitative Program Targets:**

Reference appropriate sections within sub programs for Quantitative Program Targets table.

**e) Advancing Strategic Plan goals and objectives:**

The REEP will work with businesses and industry to achieve the aspirational Strategic Plan goals for the residential and residential low income sectors by implementing the support and infrastructure needed to serve as many households as feasible.

The program will help to achieve the following near-term strategic goals identified in Sections 2 of the Strategic Plan:

- Goal 1: *Home buyers, owners and renovators will implement a whole-house approach to energy consumption that will guide their purchase and use of existing homes, home equipment (e.g. HVAC systems), household appliances, lighting, and “plug load” amenities.*

To address this goal, the IOUs present a comprehensive portfolio of solutions developed to reach energy consumers across California’s diverse climates, cultures, and demographic segments. These offerings range from informational and home surveys to an assortment of single-measure approaches to comprehensive residential solutions.

Home Energy Efficiency Surveys (HEES) are an important component of broader IOU efforts to raise awareness for steps that everyday Californians can begin to take on the path to more sustainable living. HEES provides opportunities for residents to assess the energy impact of their dwelling spaces, appliances and plug load devices. HEES programs, coupled with broader marketing efforts, are designed to move consumers from awareness towards attitude changes and action.

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

Single-measure approaches provide the greatest level of participation in ways that are most relevant to consumers through a range of mass market approaches. These approaches include upstream, downstream and point-of-sale activities through popular programs such as Home Energy Efficiency Rebates (HEER), the Business and Consumer Electronics Program (BCEP), lighting programs and Appliance Recycling Programs (ARP). By reaching great numbers of Californians in mass, program activities of this type are designed to be transformational.

Statewide comprehensive approaches for energy efficiency also include the multifamily market. Comprehensive solutions are also reached for residents through their combination of elements from programs such as HEER, ARP, BCEP and lighting programs in ways and over time periods that are most meaningful and attainable to them. In addition, IOUs are piloting several truly comprehensive “home performance” approaches to one-stop energy efficiency. As packaged comprehensive solutions are new, these particular efforts are reflected within individual IOU local or third party program elements.

Combined, each of these programmatic efforts not only will continue to deliver marked energy savings to reach viable economic potential, but continue to move energy efficiency programs towards more bundled solutions in ways that are most relevant to Californians.

- *Goal 2: Plug loads will be managed by developing consumer electronics and appliances that use less energy and provide tools to enable customers to understand and manage their energy demand.*

To address growing plug loads within California and to align with the objectives of the Strategic Plan, IOUs have developed the Business and Consumer Electronics Program. For 2009-2011, the BCEP will incorporate new measures that yield demonstrated energy savings and several that can enhance consumers’ abilities to manage their energy use through home energy management systems and/or AMI-enabled technologies.

The BCEP will be operated in close collaboration with the HEER program, market actors, and Emerging Technology programs, as appropriate, to assist in introducing efficiency technologies and tools that will enable Californians to better manage their energy consumption.

- *Goal 3: The residential lighting industry will undergo substantial transformation through the deployment of high-efficiency and high-performance lighting technologies, supported by state and national codes and standards.*

**2009-2011 Energy Efficiency Programs**  
**Statewide Residential Energy Efficiency**  
**Program Implementation Plan**

After many successful years of demonstrated results in managing Upstream Lighting programs, for 2009-2011 the IOUs offer several additions to the residential lighting portfolio. In recognition of the success of standard CFL measures in delivering energy savings and demand reductions to Californians, IOUs present the Advanced Lighting Program for 2009-2011 in response to the need to continue the penetration of increasingly more complex lighting solutions. Refer to the Advanced Lighting Program sub program element for details on this new initiative.

In addition, to specifically address the need for beyond compact-fluorescent measures, the IOUs have devised a Lighting Market Transformation (LMT) program strategy. The LMT strategy is an effort devised specifically to address the objectives of the Strategic Plan and will advocate and promote the development of ultra-high efficiency lighting technologies. This effort will work in close collaboration with IOU lighting technologies programs, codes and standards efforts and other market forces. The LMT program strategy is not a part of the IOU Residential portfolio; however, its efforts will directly influence the implementation of the Basic CFL and Advanced Lighting programs. Reference the LMT program narrative for specific details.

**6. Program Implementation**

**a. Statewide IOU Coordination:**

**i. Program name - Residential Energy Efficiency Program**

**ii. Program delivery mechanisms**

The Residential program portfolio includes an array of programs and services. Detailed descriptions of each supporting program are presented in the accompanying narratives and will not be repeated here. Rather, this document discusses several key components of the tactical approaches to implementing the proposed Residential portfolio. Additional items presented related to program implementation are: incentives, customer awareness and marketing, third party roles and responsibilities, cross cutting activities, DSM integration, and non-energy activities.

In order to address the diversity and breadth of the residential sector, the Residential portfolio employs a variety of tactical approaches to overcome barriers, tap available economic potential, and maximize EE benefits, including upstream, midstream, downstream, direct install, and outreach campaigns. The particular approaches have been planned to make the most of each program. Refer to the program details provided with each sub program PIP for additional information.

In addition to the economic potential of available resources, technologies, and approaches, many other market factors have significant influence on the delivery of the portfolio, including: California's Big Bold Energy Efficiency Strategies (BBEES), the California Long Term Energy Efficiency Strategic Plan (Strategic

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

Plan), California's Energy Action Plan (EAP), Low Income Energy Efficiency Programs (LIEE), Integrated Demand Side Management (IDSM), Assembly Bill AB32 (on greenhouse gas reductions), Emerging Technologies, Public Interest Energy Research (PIER), and Codes and Standards (C&S). Each of these factors, in addition to state and federal legislative activities, influences the goals, baselines, strategy, and composition of the Residential market plan. The discussion that follows briefly describes how the policy influences affect California IOUs' approach to providing energy efficiency and lists several programs within the portfolio that target this issue.

The REEP is part of the solution to meeting the goals of the Strategic Plan. Any major new effort by the IOUs, including REEP, must also be designed with careful consideration of the results of statewide potential studies and with evidence to demonstrate the value of the approach.

### **Incentive levels**

Reference measure list within appropriate subprogram.

### **iii. Marketing and outreach plans**

The 2009-2011 Residential program offerings are more comprehensive, integrated, and complete than ever. The REEP is the result of a calculated process to consider the factors that influence energy efficiency and deliver a cost-efficient portfolio. In addition, the Residential portfolio strives to ensure the maximum participation of customers throughout California. Through the California IOUs' portfolio approach, individual consumers have an opportunity to become aware of and make informed decisions about energy consumption in their homes. Indeed, the Residential EE portfolio offers a resource or solution applicable to each and every private dwelling within each IOU's service territory.

The design of programs within the portfolio has been closely coordinated with each utility's marketing unit to target various residential customer groups and drive the adoption of energy efficiency and the eventual transformation of energy use. Furthermore, the approach uses a comprehensive and integrated approach to Marketing, Education, and Outreach (ME&O) to modify consumer behaviors towards EE which not only can feed market demand for efficient products and services, but can also provide a reinforcing conduit for other DSM programs<sup>19</sup>.

Much care has been taken in the design of programs to maximize the economic potential through achievable measures, and the portfolio was developed employing recent EE potential information developed by studies funded by California ratepayers<sup>20</sup>. By continuing to tap large segments of economic

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<sup>19</sup> Other DSM programs include DR, CSI, SmartConnect and Electric Transportation. SCE's portfolio actively works to integrate all programs and initiatives where it is feasible to do so. Reference respective filings, testimony and program implementation plans for additional details.

<sup>20</sup> Largely refers to the 2006 EE Potential study (Itron).

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

potential through lighting and appliance recycling programs in the short term, the Residential portfolio simultaneously proposes calculated movements towards California's mid- and long-term policy goals through increased comprehensiveness in program design, implementation of viable technological advancements, supporting through incentives and cross-partnership campaigns, and additional training of resources to enhance the supply of qualified technicians and contractors.

In the near term, activities outlined are expected to position the portfolio for future growth through:

- Introduction of emergent technologies (such as LED & specialty lighting, consumer electronics) into the portfolio.
- Use of new technologies in delivery of programs (such as the Appliance Recycling and HEER programs).
- Use of mass marketing and other outreach campaigns and educational efforts to motivate consumer attitude shifts.

These near-term actions are expected to set the foundation for mid-term EE portfolios by advancing the market transformation of economically viable technologies while building a comprehensive array of measures and resources. These activities are intended to contribute to the long-term evolution in energy efficiency throughout California. The approach to addressing the complexity and diversity of residential market segments is an effective platform from which to tackle the technical challenges faced, the policy requirements in place, and the economic realities throughout the sector. Refer to the appropriate Program Implementation Plans for more details about each program.

Building consumer awareness and ultimately a broad and self-sustainable demand for residential EE is not only dependent upon the technologies and incentive structures enacted, but also on the effectiveness of outreach campaigns. The Residential portfolio recognizes and addresses the diversity of the residential sector from the program statement and rationale through strategy and marketing.

As presented in the respective sub-program elements, marketing, education, and outreach facets of the Residential portfolio will be implemented with specific segments of the residential market in mind. Portfolio deployment will include identification and prioritization of key customer action opportunities, as well as marketing tactics to address the deployment of economically efficient technologies. These actions will affect consumer attitudes and behaviors while simultaneously developing market supplies towards ultimate market transformation. The residential and IOU local government partnership programs will join efforts to provide coordinated outreach programs and increase the impact of outreach and awareness events.

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

This portfolio will conduct or promote outreach events that are applicable to the residential market. Where possible, all other energy efficiency, demand response, solar initiative, and low income programs will be promoted and integrated. In addition, REEP is ideally positioned to educate and inform consumers about the deployment and benefits of smart meters as they become a reality within California's residences. Combined, these offerings provide residential users with a diverse array of choices that will help them save money on their utility bills and reduce their impact on the environment with no loss to their health, safety, or comfort<sup>21</sup>.

### **iv. IOU program interactions**

In addition to advancing the initiatives of California's BBEES and Energy Action Plan, as advocated through the Strategic Plan, the Residential portfolio actively seeks to capture available opportunities through integrating applicable demand-side management schemes, incorporating the latest research through programs such as those in new construction portfolios. This portfolio will support educationally focused efforts to enhance public understanding of AB 32 by relating the carbon reduction effects of energy efficiency programs to program participants. Refer to sub-program descriptions of program interactions for detail.

In addition, the Residential portfolio offers several comprehensive and integrative EE, CSI, and green building programs for home audits. All programs offering lighting measures will be compliant with AB1109<sup>22</sup>. The portfolio also offers several rate assistance programs for income-qualified individuals. The 2009 - 2011 portfolio is more comprehensive than ever through offering several integrative programs that provide customers ways to not only lower their electricity use, but to lower their consumption of gas and water as well. The REEP sub-programs offer details about relevant program interactions, as appropriate.

### **v. Similar IOU and POU programs**

This program was developed as a collaborative effort among California's IOUs and the CPUC's Energy Division. As stated in the Strategic Plan, the coordination of demand-side management programs is necessary to increase the penetration of energy efficiency and to avoid lost opportunities. Through a tactical approach to customer outreach and marketing, the possibilities to create awareness and educate consumers about other programs will be maximized. This approach will create additional energy savings through inter-program referral and data sharing, and bundling of DSM solutions across energy efficiency, demand response (DR),

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<sup>21</sup> Refer to the respective program implementation plans for complete details.

<sup>22</sup> California Assembly Bill 1109 (the Huffman Bill) (August 31, 2007). [[http://info.sen.ca.gov/pub/07-08/bill/asm/ab\\_1101-1150/ab\\_1109\\_bill\\_20070717\\_amended\\_sen\\_v94.pdf](http://info.sen.ca.gov/pub/07-08/bill/asm/ab_1101-1150/ab_1109_bill_20070717_amended_sen_v94.pdf)]



**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

the California Solar Initiative (CSI), smart meters, and other IDSM initiatives<sup>23</sup>. The statewide residential energy efficiency programs will incorporate Integrated DSM opportunities as available. Several IOUs will implement directed IDSM efforts through pilot programs and benchmarking efforts within their portfolios. For example, SDG&E's local portfolio will offer a Comprehensive Home Performance Program aligned with the overall concept of IDSM. For details on this and other specific IDSM efforts, refer to appropriate sub-programs and local PIPs.

**b. Program delivery and coordination:**

**i. Emerging Technologies program**

As stated in the Strategic Plan, the long-term EE vision of California can only be attained through the long-term and continuous development and verification of new technologies and their acceptance into the market. The achievement of long-term goals requires new technology as well as information, training and market development to maximize the EE benefits of cutting-edge technologies. In recognition of the importance of emerging technologies, the Residential portfolio will include several programs that will be particularly active in integrating emerging technologies: Home Energy Efficiency Rebates, Business and Consumer Electronics (including Plug Load efficiency) and Residential Advanced Lighting Program. In addition, portfolio staff actively works to incorporate promising research and analyses from PIER projects into the EE portfolio. Sub program PIPs offer details on how these activities are coordinated and delivered.

**ii. Codes and Standards program**

The Strategic Plan's Strategy 1-5, Improve coordination of energy codes and standards with utility programs, describes the specific actions that the codes and standards program will employ to address Residential Portfolio program needs. On an ongoing basis, C&S staff communicates with program managers regarding potential adoptions of new standards. Depending on the opportunity, program managers may decide to provide incentives in advance of the effective dates of new standards in order to prepare the market. Sub program PIPs offer details on how activities are coordinated with Codes and Standards efforts.

**iii. WE&T efforts**

IOU residential EE programs are not directly linked to or directly fund Workforce Education and Training (WE&T) efforts, per se, however WE&T efforts do create a pathway to improved delivery and realization of DSM opportunities, which include Energy Efficiency. Reference sub-program PIPs for specifics on sub-program interactions with WE&T.

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<sup>23</sup> IDSM includes: energy efficiency, demand side self-generation and demand response, but also includes solar hot water, water efficiency, greenhouse gas reduction and towards objectives towards zero net energy building.

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

**iv. Program-specific marketing and outreach efforts (provide budget)**

Refer to the budget table within subprograms.

**v. Non-energy activities of program**

Non energy activities of this program include: Home Energy Efficiency Surveys, Workforce Education and Training outreach efforts, and statewide marketing and outreach efforts such as “Flex Your Power”. Details of non-energy activities are provided within the sub program.

**vi. Non-IOU Programs**

This joint IOU residential offering is a major advocate of DOE initiatives, which include a partnership in ENERGY STAR®. The ENERGY STAR partnership provides instant brand awareness of, and lends credibility to programmatic efforts. The IOU residential portfolio is also closely coordinated with the Council for Energy Efficiency (CEE) and the American Council for an Energy Efficient Economy (ACEEE). California’s IOUs will continue to seek and entertain ideas and influences from other organizations, utilities and resources throughout the program cycle to avoid lost opportunities and incorporate best practices.

**vii. CEC work on PIER**

Through joint IOU efforts to advocate the development and adoption of promising technologies, residential program staff works through statewide IOU Emerging Technologies efforts to influence the strategies and approaches for research and development that can improve future program delivery. Reference the joint IOU Emerging Technologies program implementation plan for insight into efforts such as PIER.

**viii. CEC work on codes and standards**

Through joint IOU efforts to advocate the development and adoption of advanced codes and standards, residential program staffs work through statewide IOU Codes and Standards programs to influence the strategies for research that can influence future program design and delivery. Reference the joint IOU Codes and Standards program implementation plan for insight into these efforts, and sub program PIPs for specific details, as appropriate.

**ix. Non-utility market initiatives**

As a partner in the Department of Energy’s ENERGY STAR initiative, the residential portfolio benefits from – but does not directly contribute to - statewide marketing and outreach efforts such as “Flex Your Power”. Refer to the joint Marketing, Education and Outreach program implementation plan for greater details on these efforts. Refer to the joint Workforce, Education and Outreach program implementation plan for greater details on these efforts. In 2009-2011 the utilities will work with local and statewide retailers, manufacturers, and contractors to encourage end-use marketing of the utilities statewide residential programs and services.

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

**c. Best Practices:**

California's Energy Action Plan (EAP) requires a decrease in per capita electricity use through increased energy conservation and efficiency measures<sup>24</sup>. The EAP requires that energy efficiency receive the first loading order in terms of adding energy generation resources. Through incentives, education, and outreach programs, the Residential EE portfolio has contributed to the increased growth and penetration of energy-efficient products into the marketplace as well as building a supply of qualified contractors and suppliers to support new market demands.

As stated in the Strategic Plan, eligible consumers who wish to participate in LIEE programs will be encouraged to do so, and will be provided the chance to participate in all cost-effective EE measures by 2020. LIEE is an income-qualified program that provides services and/or measures designed to assist low-income households conserve energy and reduce their electricity costs. The Residential portfolio has taken several steps towards fully integrating LIEE programs through a series of cross-marketing programs to ensure that low-income customers contacted through all program delivery channels are made aware of the California Alternate Rates for Energy (CARE) and Family Electric Rate Assistance (FERA) Programs. CARE provides a 20% discount on electric bills for qualifying customers, and FERA allows qualifying households with three or more persons to receive Tier 3 electrical services at Tier 2 rates. Primarily, the integration of LIEE into Residential EE will continue to rely upon cross-marketing efforts so that one program will funnel participants towards the other. For example, LIEE participants will be referred for home energy audits, and CARE customers will be encouraged to take advantage of other LIEE programs when completing surveys.

**d. Innovation:**

California's IOUs have coordinated efforts in the past, yet a key aspect of innovation associated with this application is in the depth of more comprehensive coordination of statewide IOU delivery channels and incentive levels offered. This deepened coordination can positively influence negotiations with program participants (i.e. retailers and manufacturers) and improve market availability of improved products.

Reference individual sub program implementation plans for specific details of innovative efforts undertaken.

**e. Integrated/coordinated Demand Side Management:**

The IOUs will coordinate program efforts with the local utility integration teams and the Statewide Integration Task Force to identify successful integration approaches and offerings, potential pilot programs and metrics.

**f. Integration across resource types**

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<sup>24</sup> EAP <http://docs.cpuc.ca.gov/published/Report/28715.htm>

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

As available, the IOUs bundle service offerings across resource types including; electric, gas and water. As possible, these offerings are packaged to streamline service offerings from a customer's perspective. Reference appropriate sub programs within the residential offerings for specifics on integration across resource types.

**g. Pilots:**

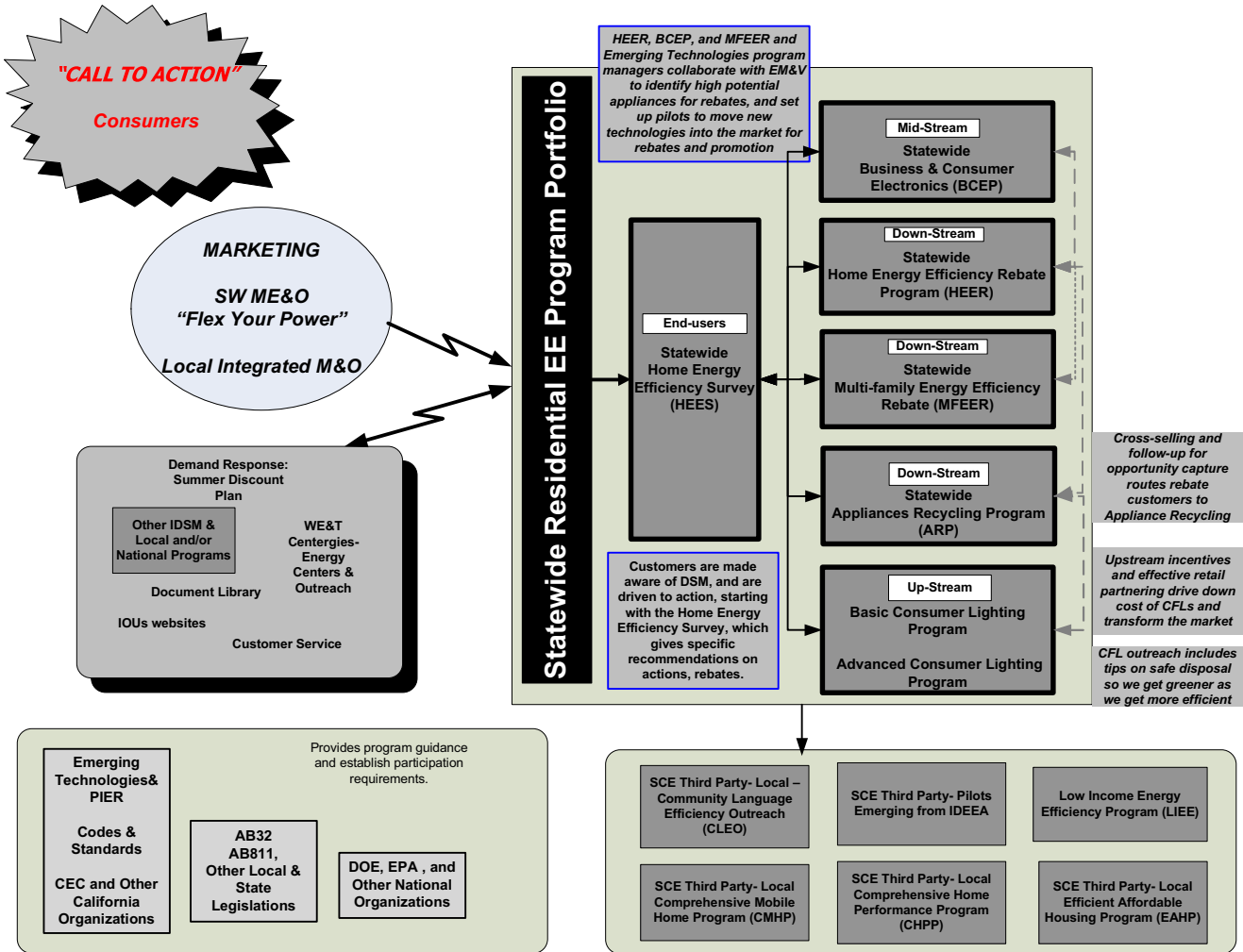
Joint IOU efforts include an Emerging Technologies offering, an element of which includes a pilot program offering named TRIO. For details on innovative approaches external to the residential portfolio offering, refer to the statewide Emerging Technologies program implementation plan.

**h. EM&V:**

The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2009-2011 after the program implementation plans are filed. This will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.

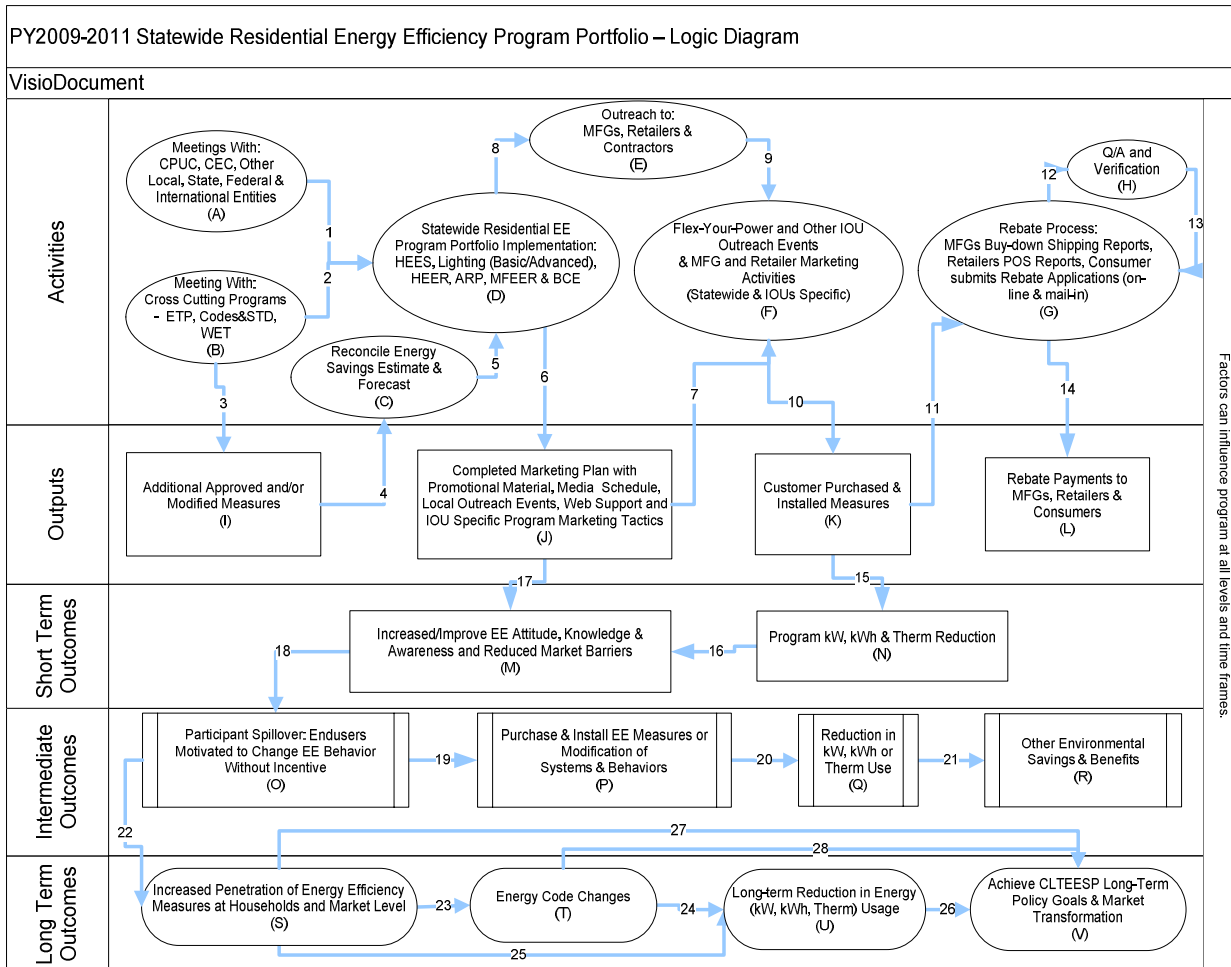
# 2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan

## 7. Diagram of Program:



# 2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan

## 8. Program Logic Model:



## 2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan

1. **Program Name:** Residential Lighting Incentive Program for Basic CFLs  
**Program ID:** TBD  
**Program Type:** Statewide

### 2. Projected Program Budget Table

Table 1<sup>1</sup>

Program #	Main Program Name / Sub-Programs	Total Administrative Cost (Actual)	Total Marketing & Outreach (Actual)	TOTAL Direct Implementation	Integration Budget Allocated to Other Programs (if Applicable)	Total Budget By Program (Actual)
<b>Market Sector Programs</b>						
	Core Program #1					
	Sub-Program #1					
	Sub-Program #2					
	Etc.					
	<b>TOTAL:</b>					

These budget numbers are presented in Appendix F: Energy Division Tables, Graphs Pie Charts: Table 7.1 - 2009 - 2011 IOU Strategic Planning Program Budget

### 3. Projected Program Gross Impacts Table

Table 2

Program #	Program Name / Sub-Programs	2009 - 2011	2009 - 2011	2009 - 2011
		Three-Year EE Program Gross kWh Savings	Three-Year EE Program Gross kW Savings	Three-Year EE Program Gross Therm Savings
<b>Market Sector Programs</b>				
	Core Program #1			
	Sub-Program #1			
	Sub-Program #2			
	<b>TOTAL:</b>			

<sup>1</sup> Definition of Table 1 Column Headings: Total Budget is the sum of all other columns presented here  
Total Administrative Cost includes all Managerial and Clerical Labor, Human Resource Support and Development, Travel and Conference Fees, and General and Administrative Overhead (labor and materials).  
Total Direct Implementation – includes all financial incentives used to promote participation in a program and the cost of all direct labor, installation and service labor, hardware and materials, and rebate processing and inspection used to promote participation in a program.  
Total Marketing & Outreach includes all media buy costs and labor associated with marketing production.  
Integrated Budget Allocated to Other Programs includes budget utilized to coordinate with other EE, DR, or DG programs.  
Total Budget is the sum of all other columns presented here  
Definition of Sub-Program: A “sub-program” of a program has a specific title; targets; budget; uses a unique delivery or marketing approach not used across the entire program; and for resource programs, has specific estimated savings and demand impacts.

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

These savings values are presented in Appendix F: Energy Division Tables,  
Graphs & Pie Charts: Table 7.2 - IOU 2009 - 2011 Program Savings Estimates

**4. Program Description**

**a. Describe Program**

The IOUs' Residential Upstream Lighting Incentive Programs represent a continuance of the existing Residential Lighting Incentive Programs within the IOUs' residential energy efficiency portfolios. For 2009-2011, the programs have been split into separate programs: the Residential Lighting Incentive Program for Basic CFLs and the Advanced Consumer Lighting Program. The lighting incentive programs have been an important part of utility EE portfolios for many years and have been successful in making inroads towards the market development of efficient lighting products within California's homes and businesses. Lighting remains the significant opportunity in terms of economic potential for California's electricity consumers<sup>2</sup>. A strategic aspect to IOU lighting programs that is new for the 2009-2011 program cycle is the Lighting Market Transformation strategy. The Residential Upstream Lighting Incentive Programs will be implemented in coordination with the Lighting Market Transformation strategy.

Much of the participant activity of this program is a result of targeting low income households through demographic-based allocations to stores in disadvantaged communities. This has an integrating effect when these households are given CFLs through low income programs, which generate customer acceptance and additional sales---

Within California's energy efficiency policy, and outlined in the California Long Term Energy Efficiency Strategic Plan (Strategic Plan), the energy intensity within residences will be addressed. Any activity to do so must include the adoption of efficient lighting technologies, and the IOUs' residential lighting incentive programs are positioned to deliver sustainable energy efficiency benefits for many years to come.

This program, the Residential Lighting Incentive Program for Basic CFLs, provides customers with incentives in the form of discounts that greatly reduce the cost of energy efficient lighting products to customers. It introduces energy efficient lighting products to the market and strives to influence future purchasing behaviors of customers. More than 370 retailers at over 2,700 store locations are expected to participate. No sub programs within this program will be implemented, whereas the Advanced Consumer Lighting program will house new subprograms and those repeated from previous years.

The program will integrate into its promotional materials messaging to promote other energy efficiency and low income programs, including numerous pathways to a variety of energy efficiency solutions.

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<sup>2</sup> California Residential Efficiency Market Share Tracking: Lamps 2005. Prepared by Itron, Inc., May 15, 2006.



## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

Although this program is designated as residential, it does have characteristics that result in nonresidential installations. By virtue of the fact that retail outlets cannot control whether products are purchased for residential or nonresidential, some installations will inevitably take place in business environments. This is beneficial for the program because of the greater energy savings and demand reduction in those environments. Where possible, the program attempts to drive increased penetration into nonresidential sectors by partnering with retailers that cater to businesses, such as large office supply stores, and club stores with business member discounts.

### **b) List of Measures:**

This program will offer ENERGY STAR® labeled screw-in compact fluorescent bare spiral lamps of up to and including 30 watts. Lamps must be single brightness. They must not be dimmable or 3-way products because those products will be part of the Advanced Consumer Lighting Program. The most common wattage and lumen levels are: 13 to 15 Watt at 800 to 900 lumens, 18 to 20 Watt at 1,100 to 1,200 lumens, and 23 to 26 Watt at 1,600 to 1,800 lumens. All other combinations up to 30 Watts will be acceptable if they are ENERGY STAR® listed. Although we use the term “bare spiral”, if bare tube CFLs of other shapes are introduced, they will fall into the category of this program.

This program will run concurrently with the Advanced Consumer Lighting program, which will include all dimmable, three way, specialty bulbs, “super” CFLs, fluorescent fixtures, and non-fluorescent products. All upstream measures from the two programs will be combined into one unified program offering to participants. This does not reduce the comprehensiveness of either the lighting portfolio or the bare spiral CFL measures. Reporting for the two programs will be separate.

For a full list of program measures see appropriate Attachment.

Basic CFL Lumens	Incentive
0 to 799	\$1
800 to 1,099	\$1.25
1,100 to 1,599	\$1.75
1,600 or greater	\$2

### **c) Non-incentive customer services**

These services include advertising and promotion, as well as activities that leverage other parts of the organization, such as energy efficiency customer phone line access, web access to lighting pages, access to web contact page to send messages to the program staff, education, information, and training. The program will also leverage other energy efficiency programs by mentioning them in its outreach materials, including links to energy survey pages and other pathways to efficiency. The IOUs have no plans to distribute free basic CFLs under this resource program.

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

**5. Program Rationale and Expected Outcome**

**a) Quantitative Baseline and Market Transformation Information**

**Table 3**

	Baseline Metric		
	Metric A	Metric B	Metric C
Overall Program			
Sub Program #1			
Sub Program #2			
Sub Program #3			

Refer to the overarching PIP section.

**b) Market Transformation Information**

**Table 4**

Market Sector and Segment	Internal Market Transformation Planning Estimates		
	2009	2010	2011
Metric A			
Metric B			
Metric C			
Metric D			

Refer to the overarching PIP section.

**c) Program Design to Overcome Barriers:**

Despite the huge market potential for non-dimmable bare spiral up to 30 Watts, steep barriers to tapping that potential appear to exist, indicated by the fact that according to the most recent saturation studies 80 of lamps sold in California are still non-CFL (incandescent, halogen and special)<sup>3</sup>. Based on most recent California Lighting and Appliances Saturation Study data, by RLW, in 2005, only 7.6% of SDG&E household sockets are occupied by CFLs (11.7% for PG&E and 11.4% for SCE). These data suggest that we still have a way to go to meet the proposed 60% market share or saturation goal. Although the Advanced Consumer Lighting Program features a wider variety of solutions to these barriers, this program is designed to continue aggressively in overcoming the most important barriers to non-dimmable bare spiral purchases and installations. The basic bare spiral will likely always be the least cost high quality choice of CFLs for consumers. Therefore, it has more growth potential to fill sockets currently containing incandescent lights than any other type of CFL.

<sup>3</sup> California Residential Efficiency Market Share Tracking: Lamps 2007 (draft report), prepared by Itron, Inc., April 2007.

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

The initial price market barrier still exists for these CFLs. This program is designed to mitigate high initial cost with its upstream incentive structure, which is synergistic because it results in price reductions in excess of the incentives. The program encourages low retail pricing and educates retailers that high volume sales at low prices generally produces their greatest profitability overall.

CFLs are not adaptable to all sockets due to issues like size and taper constraints. This creates a barrier. The program influences manufacturers to offer products using a T2 or smaller size, with a smaller more tapered base to fit into more sockets.

A large knowledge gap still exists among many customers who have never used CFLs. The program uses bill inserts, special events, and promotional materials to expose more people to the benefits of CFLs.

**d) Quantitative Program Targets:**

**Table 5**

Lighting Program for Basic CFLs	Program Target by 2009	Program Target by 2010	Program Target by 2011
Increase Participating Retail Locations	10% over 2008	10% over 2009	10% over 2010
Increase Retailers Visited and Trained	10% over 2008	10% over 2009	10% over 2010
Increase Retailer Mailings Featuring Program Requirements and Selling Tips	20% over 2008	20% over 2009	20% over 2010
Increase products over 26 Watts	10% over 2008	10% over 2009	10% over 2010

**e) Advancing Strategic Plan Goals and Objectives:**

This program aggressively advances the goals, strategies and objectives of the California Long Term Energy Efficiency Strategic Plan by encouraging the development of more energy efficient lighting. This is accomplished by tapping the economic potential of available lighting technologies. The program does so by encouraging the manufacture of and motivating the adoption of high efficiency solutions. The IOUs' residential lighting incentive programs were designed to be compliant with the Huffman Bill<sup>4</sup>, and this program will be coordinated with the Codes & Standards program to ensure that the impacts of any code changes are incorporated into program design and implementation. This program will support

<sup>4</sup> The Huffman Bill (AB 1109) directs the California Energy Commission (CEC) to develop and implement a strategy for reducing California's energy consumption for general purpose indoor lighting by 50 percent by the year 2018. California Assembly Bill 1109 (the Huffman Bill) (August 31, 2007). [[http://info.sen.ca.gov/pub/07-08/bill/asm/ab\\_1101-1150/ab\\_1109\\_bill\\_20070717\\_amended\\_sen\\_v94.pdf](http://info.sen.ca.gov/pub/07-08/bill/asm/ab_1101-1150/ab_1109_bill_20070717_amended_sen_v94.pdf)]

**2009-2011 Energy Efficiency Programs**  
**Statewide Residential Energy Efficiency**  
**Program Implementation Plan**

educational efforts to enhance the public's understanding of AB32<sup>5</sup> by relating carbon reduction effects of participation in energy efficiency programs to program participants. Efforts to educate the public on the contributions of energy efficiency in reducing green house gases take place via brochures, direct mailings, direct marketing campaigns and/or other appropriate means.

The prominent economic opportunity for residential energy efficiency is available in lighting. More potential for energy savings exists with energy efficient lighting than with any other technology at present. Much of that potential can be fulfilled through the market for bare spiral CFLs up to 30 Watts.

The Energy Action Plan II stated, "The Energy efficiency is the least cost, most reliable, and most environmentally sensitive resource, and minimizes our contribution to climate change." Bare spiral CFLs are among the least cost, most reliable, and most environmentally sensitive energy efficiency measures with the largest technical market potential.

In recognition of the great economic potential remaining for lighting in California's homes, and in alignment with the Commission's Big Bold initiatives and long-term Strategic Plan, this program continues to drive the transformation of the lighting market in Southern California. The path towards zero-net energy homes requires a broad and comprehensive approach on many fronts including technology, training, codes and standards and innovative practices, plus the continual promotion of more efficient products in the marketplace. This program continues many years of successful activities to advance the market transformation of lighting in California by providing cost-competitive lighting choices to consumers via discounted CFL's to retailers.

In accordance with the Strategic Plan, the Residential Lighting Incentive Program for Basic CFLs contributes to the expanded penetration of more efficient products by supporting state and federal legislation that requires a transition from general service incandescent lighting to more efficient solutions. A new generation of incandescent lamps will take their place. The IOUs' lighting programs will be essential in transitioning the public to this new paradigm, thereby greatly mitigating the inherent difficulties of supporting the legislation at the point of public behavior

This program can greatly contribute to the aggressive scale-up of the enabling policy framework supporting energy efficiency investment that is central to the Strategic Plan. Key components are adequate financial incentives and funding with robust administration. When applied to this program the IOUs can actualize the vision of the framework.

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<sup>5</sup> California Assembly Bill 32 (California Global Warming Solutions Act of 2006) (August 31, 2006). [<http://www.arb.ca.gov/cc/factsheets/ab32factsheet.pdf>]

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

According to recent findings, CFL market penetration in California appears to have grown nearly 100% (from roughly 10% to slightly over 20%) in 2007 compared to previous years. This is due primarily to the commensurate expansion of funding for bare spiral CFL incentives in that year. The correlation between increased funding and market penetration is borne out year after year. In 2009-11 market penetration will be increased or reduced on the basis of that criterion. Current funding parameters necessitate a reduction in market penetration for 2009-11 compared to previous years because IOUs are decreasing the total ratio of basic CFLs to overall lighting products in the portfolio. For that reason, increased market penetration milestones are not specifically applicable to this program. Increased market penetration milestones are applicable to the Advanced Consumer Lighting program in light of its relationship to this program. The value of the program to support State efforts, like AB1109, is equally correlative to funding parameters. Primarily, the more CFLs incentivized, the more the program will bolster the effects of new equipment codes. Secondly, promotion to support the regulation includes customer education and awareness about future standards. This can be administered through the promotional activities of the program. The effect of these efforts on a successful transition to future code acceptance can be quantified only after applicable EM&V protocols are established. This would include the selection of milestone metrics.

The program will help to achieve the following near-term strategic goals identified in Section 2 of the Strategic Plan:

4-1: Drive continual advances in lighting technology through research programs and competitions - The Lighting Programs contributes to the expanded penetration of more efficient products by supporting state and federal legislation that requires a transition from general service incandescent lighting to more efficient solutions. A new generation of incandescent lamps will take their place. The IOUs' lighting programs will be essential in transitioning the public to this new paradigm, thereby greatly mitigating the inherent difficulties of supporting the legislation at the point of public behavior.

4-2: Create demand for improved lighting products through demonstration projects, marketing efforts, and utility programs - The Residential Lighting programs will support educational efforts to enhance the public's understanding of AB32<sup>6</sup> by relating carbon reduction effects of energy efficiency programs to program participants.

4-3: Continuously strengthen standards - The IOUs' residential lighting incentive programs were designed to be compliant with the Huffman Bill<sup>7</sup>, and this program

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<sup>6</sup> California Assembly Bill 32 (California Global Warming Solutions Act of 2006) (August 31, 2006). [<http://www.arb.ca.gov/cc/factsheets/ab32factsheet.pdf>]

<sup>7</sup> The Huffman Bill (AB 1109) directs the California Energy Commission (CEC) to develop and implement a strategy for reducing California's energy consumption for general purpose indoor lighting by 50 percent by the year 2018. California Assembly Bill 1109 (the Huffman Bill) (August 31, 2007). [[http://info.sen.ca.gov/pub/07-08/bill/asm/ab\\_1101-1150/ab\\_1109\\_bill\\_20070717\\_amended\\_sen\\_v94.pdf](http://info.sen.ca.gov/pub/07-08/bill/asm/ab_1101-1150/ab_1109_bill_20070717_amended_sen_v94.pdf)]

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

will be coordinated with the Codes & Standards program to ensure that the impacts of any code changes are incorporated into program design and implementation.

4-4: Coordinated phase out of Utility promotions for purchase of CFLs - The Residential Lighting Incentive Program for Basic CFLs contributes to the expanded penetration of more efficient products by supporting state and federal legislation that requires a transition from general service incandescent lighting to more efficient solutions. A new generation of incandescent lamps will take their place. The IOUs' lighting programs will be essential in transitioning the public to this new paradigm, thereby greatly mitigating the inherent difficulties of supporting the legislation at the point of public behavior. The Strategic Plan describes goal results as the state of beginning a phase-out of traditional mass market CFL bulb promotions and giveaways. Since the goals are met by beginning, not ending the phase-out of promotional activities for basic CFLs, then it cannot be interpreted that full phase out, especially of incentives, is suggested during this period. Transition to the environment envisioned by the Huffman Bill, AB1109 will require that incentives and support for basic CFLs not be phased out between 2009-2011. However, the IOUs will transition from traditional mass market CFL bulb promotions and giveaways to untraditional activities by a shift of focus that aggressively features in promotional outreaches advanced consumer lighting rather than basic CFLs.

4-5: Ensure environmental safety of CFLs and other emerging lighting solutions -In alignment with AB 1109, the program will support a statewide approach for continued customer education and public awareness for proper CFL disposal.

Coordination with monthly – unique territories – mom and pop distribution channels

**6. Program Implementation**

**a. Statewide IOU Coordination:**

**i. Program name** - Residential Lighting Incentive Program for Basic CFLs

**ii. Program delivery mechanisms**

The program primarily uses a manufacturer wholesale buy-down mechanism, but retains flexibility for retailer-direct midstream incentives where beneficial.

**iii. Incentive levels**

Published incentive levels will remain the same as in the 2006-2008 program as illustrated below. Incentive levels will also continue to be downward negotiable by manufacturer and retailer.

Basic CFL Lumens	Incentive
0 to 799	\$1
800 to 1,099	\$1.25
1,100 to 1,599	\$1.75
1,600 or greater	\$2

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

### **iv. Marketing and outreach plans**

The most successful marketing involves in-store signage and displays. Such outreaches will see quality upgrades and signage will be graphically consistent among utilities. One or two bill inserts promoting and educating customers on high efficiency residential lighting will be sent per year. Multi-program brochures, web pages, and retailer outreach will also be used. The most effective form of advertising is through in-store displays. Manufacturers are responsible to erect eye-catching displays that include multiple forms of signage with stickers on individual products explaining that the discount is made possible by the utility. Such advertising demonstrates its effectiveness year after year through expansive sales. Many manufacturers work with retailers to coordinate additional outreach such as circulars, newspaper advertisements, and occasionally radio spots.

Additionally, public awareness of the program will be enhanced through activities such as referrals from the 'Flex-Your-Power' campaigns, community outreach , and through cross promotion from other EE and low income EE programs.

### **v. IOU program interactions with government agencies and programs**

The IOUs use the CEC as a resource for complementary programs and data, feeds into CEC initiatives through input such as the AB1109 scoping activities, and sits on joint committees with CEC personnel. SDG&E's Lighting Exchange sub-program element is designed to work closely with our local government partnerships.

Indirectly the program is involved with ARB on occasion through corporate initiatives based on environmental requirements such as in AB32. In the last few years, the Residential Lighting Incentive Program has contributed more toward carbon reduction than any other energy efficiency program in our portfolio. Due to the additionality language of AB 32, this helps to fulfill air quality mandates and objectives. Where applicable, the IOUs have integrated CFLs with water and gas, through energy efficiency kits that promote conservation of water, gas, and electricity and will continue to work closely with water agencies to support the concept of conservation and energy efficiency.

### **vi. Similar IOU and POU programs**

Programs like this are in place within many utilities and Energy Efficiency Program Suppliers nationwide. We interact with their program managers during ENERGY STAR® Conferences, CEE meetings, steering committees, the PEARL board, and team workshops.

## **b. Program delivery and coordination:**

### **i. Emerging Technologies program**

Each utility lighting program has meetings with its emerging technology program group and considers new technologies presented by them. Program managers contribute jointly with Emerging Technology Engineers on steering committees,

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

boards, and workshops. Emerging Technology program data are considered in program planning. Program managers feed into selection of emerging technologies to review.

**ii. Codes and Standards program**

The program staff works with Codes and Standards Engineers to monitor codes and standards being designed and adopted. Where the opportunity exists, Program Managers express preferences and input to Codes and Standards Engineers who are contributors to steering committees and workshops.

**iii. WE&T efforts**

Due to the characteristics of this program as upstream and staff driven, there is no provision for Workforce Education and Training. However, the technologies of energy efficient lighting have great potential for inclusion in other Workforce Education and Training programs. They would be particularly suited for those aimed at energy education. The program staff will support such efforts with information about the technologies and products.

**iv. Program-specific marketing and outreach efforts**

The most effective marketing and outreach entails in-store displays, signage, and stickers. Also bill inserts, fact sheets, web site, multi-program brochures, retailer letters, manufacturer announcement emails, and promotional events such as the “Change-A-Light” campaign.

**v. Non-energy activities of program**

Activities that do not contribute directly to energy impacts include marketing, outreach, education, industry involvement, and involvement in non-IOU programs.

In alignment with AB 1109, the program will support a statewide approach for continued customer education and public awareness for proper CFL disposal. The IOUs and several other utilities across the state are working with the California Environmental Protection Agency’s Department of Toxic Substances Control to develop synergies that leverage this program’s activities in order to expand the CFL disposal infrastructure in California and educate consumers about responsible CFL disposal. The desired team objective would be the placement and maintenance of disposal services, involving collection bins, promotional signs, and literature racks in nearly all retail outlets participating in this program. It would involve forming teams with retailers, manufacturers, disposal services, local government partnerships, sanitation districts, third party implementers, and recyclers.

**vi. Non-IOU Programs**

The IOUs work with ENERGY STAR, the Consortium for Energy Efficiency, the Program for Evaluation and Analysis of Residential Lighting (PEARL), the California Lighting Technology Center (CLTC), and the CEC to further their



**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

visions, goals, and priorities in the application of energy efficient lighting. The IOUs serve on the steering committees, review panels, and working groups of such organizations. For PEARL, the IOUs are on their board, they nominate products for off-the-shelf testing, purchases products for that purpose, and send them in for testing. The IOUs also serve on the DOE Solid State Lighting L-Prize committee. Program staff is involved with activities of this organization by providing sample products, attending meetings, using its expertise, and working as a team in industry relations.

**vii. CEC work on PIER:**

Although the IOUs have a strong association with PIER through their Design & Engineering Services Organizations the residential lighting programs historically have not maintained direct involvement. Efforts will be made to find practical avenues for such involvement in a way that conforms to the program parameters.

**viii. CEC work on codes and standards:**

The program staff will continue to attend CEC workshops pertaining to equipment and building codes related to residential lighting. The IOUs' Codes and Standards organization will continue to sustain primary involvement in these activities. The Upstream Lighting Programs will increase knowledge sharing and market insight with this group.

**ix. Non-utility market initiatives:**

The program takes part in retailer-originated market initiatives, such as Earth Day and Fall Lighting Season campaigns, parking lot sales, and Energy Star "Take The Energy Pledge" drives. As opportunities arise for expansion, the program will pursue them.

**c. Best Practices:**

The program approach constitutes "best practice" as evidenced by its national leadership in forward thinking, new approaches, and cost-effectiveness. It uses leveraging mechanisms like encouraging both manufacturers and retailers to include additional discounts of their own while allowing manufacturers to compete based on per-unit utility incentive amounts. It sets incentive levels so the wholesale price can be reduced to zero or near-zero levels. It employs extensive controls to avoid program abuse, overstocking, leakage, and slippage. The payment of the incentive to the manufacturer at the highest point upstream in the distribution channel creates a synergistic reduction when retailers retain the same mark-up percentages as usual.

**d. Innovation:**

The program manages market penetration and transformation from within by shifting allocations away from recently penetrated sectors and locales, and into the areas of lowest penetration and saturation. The program is innovative in its use of independent retailers, deep discount stores, and small chains. These stores are where the highest combined product volume is found and they have the lowest historical rates of free-ridership. They often coincide with low income areas where the people

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

need the economic benefits of energy efficiency the most. We cultivate their participation by encouraging manufacturers to approach more of them.

**e. Integrated/coordinated Demand Side Management:**

Of the demand side management emphases: peak shaving, load shifting, valley filling, and load curtailment the program contributes to three of them. Due to its high volume, the program substantially reduces peak demand in amounts exceeding many air conditioning programs, such as the Comprehensive HVAC program, the Retro-commissioning program, and the air conditioning components of the both the residential Energy Efficiency Incentive Program and the Standard Performance Contract Program, using Ex-ante assumptions. Thereby, this program has significantly contributing to system peak shaving. The program contributes on a lesser scale to energy efficient valley filling where new lighting load is added through exterior lighting and night lights. We look forward to technological advancements that might someday allow the program to contribute toward demand response through remote dimming, possibly leveraging advanced metering initiatives among the IOUs.

**f. Integration across resource types:**

The IOUs will coordinate program efforts with the local utility integration teams and the Statewide Integration Task Force to identify successful integration approaches and offerings, potential pilot programs and metrics.

**g. Pilots:**

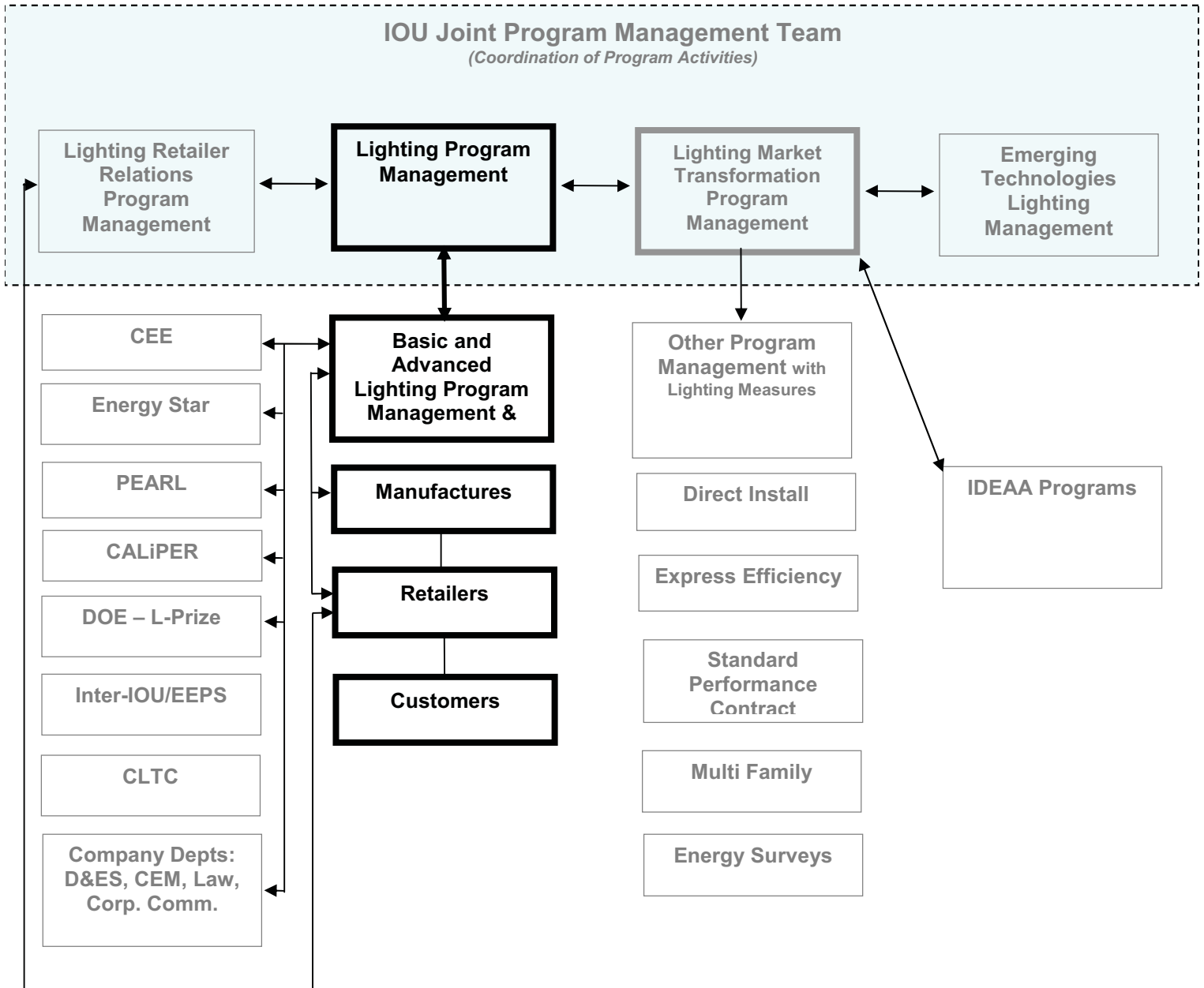
No pilot programs are planned to fall within the Residential Lighting Incentive Program for Basic CFLs. All planned pilots will be part of the Advanced Consumer Lighting plan.

**h. EM&V:**

The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2009-2011 after the program implementation plans are filed. This will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.

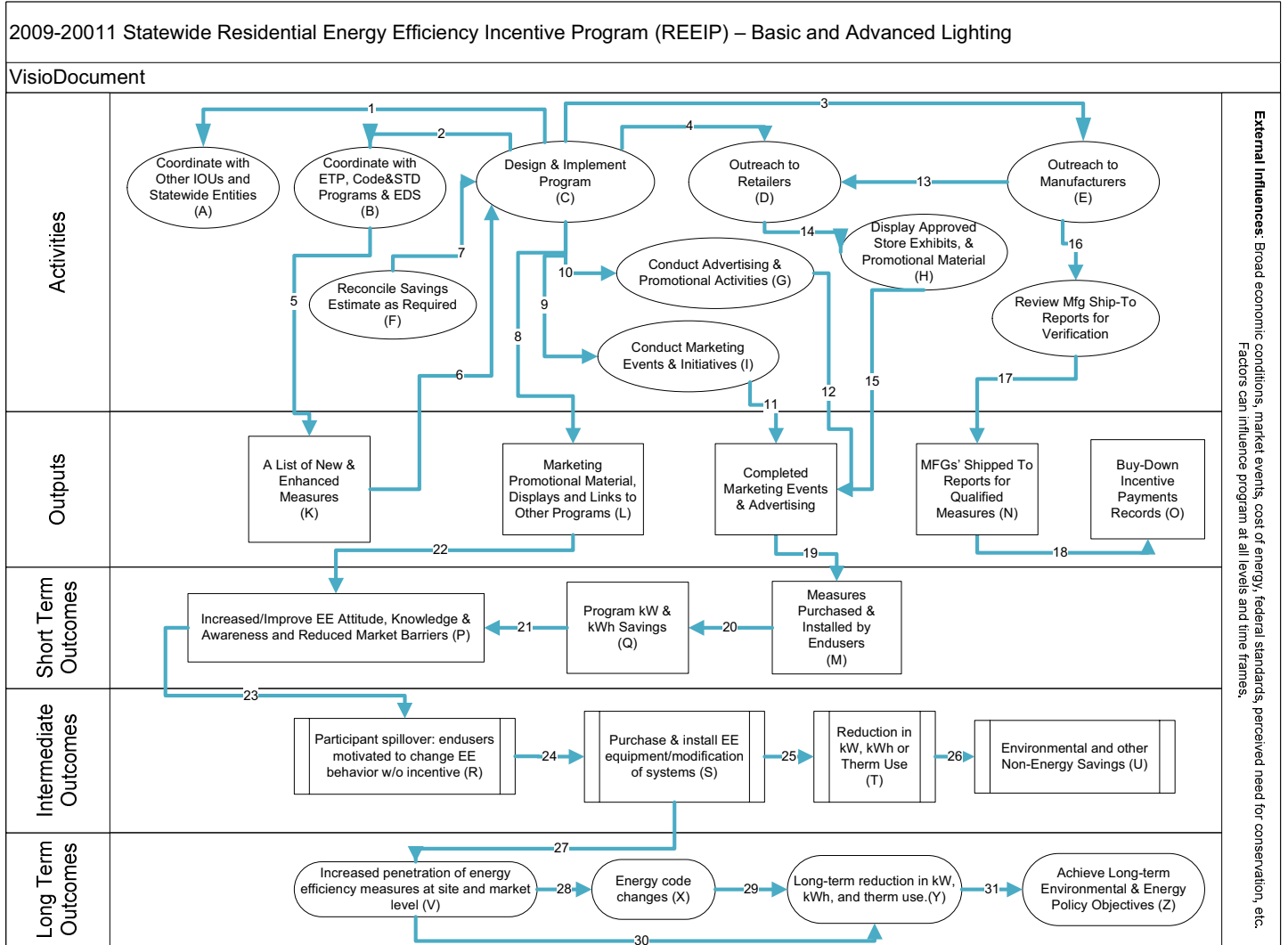
# 2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan

## 7. Diagram of Program:



# 2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan

## 8. Program Logic Model:



## 2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan

1. **Program Name:** Advanced Consumer Lighting Program  
**Program ID:** TBD  
**Program Type:** Statewide Core Program

### 2. Projected Program Budget Table

Table 1<sup>1</sup>

Program #	Main Program Name / Sub-Programs	Total Administrative Cost (Actual)	Total Marketing & Outreach (Actual)	TOTAL Direct Implementation	Integration Budget Allocated to Other Programs (if Applicable)	Total Budget By Program (Actual)
<b>Market Sector Programs</b>						
	Core Program #1					
	Sub-Program #1					
	Sub-Program #2					
	Etc.					
	<b>TOTAL:</b>					

These budget numbers are presented in Appendix F: Energy Division Tables, Graphs Pie Charts: Table 7.1 - 2009 - 2011 IOU Strategic Planning Program Budget

### 3. Projected Program Gross Impacts Table

Table 2

Program #	Program Name / Sub-Programs	2009 - 2011	2009 - 2011	2009 - 2011
		Three-Year EE Program Gross kWh Savings	Three-Year EE Program Gross kW Savings	Three-Year EE Program Gross Therm Savings
<b>Market Sector Programs</b>				
	Core Program #1			
	Sub-Program #1			
	Sub-Program #2			
	<b>TOTAL:</b>			

<sup>1</sup> Definition of Table 1 Column Headings: Total Budget is the sum of all other columns presented here  
Total Administrative Cost includes all Managerial and Clerical Labor, Human Resource Support and Development, Travel and Conference Fees, and General and Administrative Overhead (labor and materials).  
Total Direct Implementation – includes all financial incentives used to promote participation in a program and the cost of all direct labor, installation and service labor, hardware and materials, and rebate processing and inspection used to promote participation in a program.  
Total Marketing & Outreach includes all media buy costs and labor associated with marketing production.  
Integrated Budget Allocated to Other Programs includes budget utilized to coordinate with other EE, DR, or DG programs.  
Total Budget is the sum of all other columns presented here  
Definition of Sub-Program: A “sub-program” of a program has a specific title; targets; budget; uses a unique delivery or marketing approach not used across the entire program; and for resource programs, has specific estimated savings and demand impacts.

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

These savings values are presented in Appendix F: Energy Division Tables,  
Graphs & Pie Charts: Table 7.2 - IOU 2009 - 2011 Program Savings Estimates

#### **4. Program Description**

##### **a) Describe Program**

SDG&E's Residential Upstream Lighting Incentive Programs represent a continuance of the existing Residential Lighting Incentive Programs within SDG&E's residential energy efficiency portfolio. For 2009-2011, the programs have been split into two separate programs; the Residential Lighting Incentive Program for Basic CFLs and the Advanced Consumer Lighting program. Lighting incentive programs have been an important part of utility EE portfolios for many years and have been successful in making inroads towards the market development of efficient lighting products within California's homes and businesses. Lighting remains the significant opportunity in terms of economic potential for California's electricity consumers<sup>2</sup>. To develop strategies to continue to tap economic potential, the Advanced Consumer Lighting program will be implemented in close alignment with the new Lighting Market Transformation strategic lighting initiative offered for the 2009-2011 program cycle.

Within California's energy efficiency policy, and outlined in the Strategic Plan, the energy intensity within residences will be addressed. Any activity to do so must include the adoption of efficient lighting technologies, and SDG&E's residential lighting incentive programs are positioned to deliver sustainable EE benefits for many years to come.

This program, The Advanced Consumer Lighting program provides customers with incentives in the form of discounts that greatly reduce the cost of energy efficient lighting products to customers. This program introduces energy efficient lighting products to the market and strives to influence future purchasing behaviors of customers. A broad array of product types, models, and technologies are available for incentives in the program. Typical technologies include specialty CFLs, LEDs, cold cathode, and high efficiency incandescent lighting.

Hundreds of retailers at over 5,600 store locations throughout the three IOU territories are expected to participate.

Other subprograms are planned under the Advanced Consumer Lighting Program. The Advanced LED Ambient Lighting sub-program will apply upstream incentives to drive market emergence and sales of high power LED products. For any recessed can fixtures or products requiring more than simple installation, the proposed end-use delivery mechanism is lighting contractors, using midstream incentives to mark down the prices. LED products that illuminate rooms and large residential areas will qualify for the higher incentives.

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<sup>2</sup> California Residential Efficiency Market Share Tracking: Lamps 2005. Prepared by Itron, Inc., May 15, 2006.

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

Quality assurance of LED ambient lighting in this sub-program would follow the guidance of the DOE and EPA, particularly the CALiPER testing program, and the ENERGY STAR Solid State Lighting specifications. Promotion of the program would be unique in that there would be a different set of manufacturers targeted than the main upstream programs. Materials will be customized to fit the LED market.

The IOUs were early proponents of solid state lighting, and have been actively pursuing ways to promote their adoption in the market. The IOUs are very involved in the development of LED products under the auspices of DOE and EPA programs, and in conjunction with our Emerging Technologies Program. This sub-program will provide an outlet to those efforts.

The “California Super CFL” program is aimed at mitigating longstanding market barriers for CFLs among high and upper medium income customers. The IOUs will offer higher incentives to manufacturers for bringing a new generation of dimmable lighting into the program.

The IOUs will also offer lighting event strategies, which will include the Plug-in Lamp Exchange Program (Exchange Program). For that program, SDG&E will conduct local events at which customers exchange their incandescent table, desk, and floor lamps, including torchieres, for energy-efficient lamps. An Energy Expo theme will be incorporated into the events to educate participating customers. This helps leverage the program to educate and promote other energy efficiency and low income programs. Seasonally, holiday light exchanges will also be included in which LED light strings are offered. PG&E and SCE will offer events similar to the Exchange program.

Web, catalog, phone sales activities are also being considered. These will allow customers within the utility areas to purchase advanced lighting products online through qualifying web sites.

A lighting showroom store outreach subprogram will offer higher incentives for high-end products.

A major thrust of the Advanced Consumer Lighting Program is to attempt an aggressive campaign to shift the buying public’s behavior from purchasing incandescent specialty products to high efficacy products of the same type. At the same time it attempts to increase the ratio of specialty products to total lighting products. The marketing plans include bill inserts, in-store displays, promotional events, and advertising.

Much of the participant activity of this program is a result of targeting low income households through demographic-based allocations to stores in disadvantaged communities. This has an integrating effect when these households are given CFLs

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

through low income programs, which generate customer acceptance and additional sales.

Although the name of the program is Advanced Consumer Lighting, this program covers all lighting products that are not non-dimmable bare tube CFLs up to 30 Watts, which are being termed “Basic CFLs”. Not all the measures in this program are particularly advanced in their technologies. However, one of the program’s objectives is to influence advancements in all these lighting technologies, and particularly in the products that consumers can see obvious areas of inferiority to incandescent lighting of the same style.

Although this program is designated as residential, it does have characteristics that result in nonresidential installations. By virtue of the fact that retail outlets cannot control whether products are purchased for residential or nonresidential, some installations will inevitably take place in business environments. This is beneficial for the program because of the greater energy savings and demand reduction in those environments. Where possible, the program attempts to drive increased penetration into nonresidential sectors by partnering with retailers that cater to businesses, such as large office supply stores, and club stores with business member discounts.

### **b) List of Measures:**

All forms of ENERGY STAR® labeled screw-in compact fluorescent lamps will be offered in the program other than non-dimmable screw-in bare tube CFLs  $\leq$  30 Watts (Basic CFLs). Also offered are ENERGY STAR labeled hardwired and plug-in fixtures. All other energy efficient lighting products such as screw-in, hardwired, or plug-in LED lamps and fixtures will be offered contingent on SDG&E approval based on quality, efficacy, suitability for mass retail sales and, when applicable, ENERGY STAR listing. Additionally, early production of general illumination screw-in halogen lamps that meet the 2012 state and federal equipment standards will be eligible for incentives. This program will run concurrently with the Residential Lighting Incentive Program for Basic CFLs. All upstream measures will be combined into one unified program offering to participants. Reporting for the two programs will be separate.

The program offers incentives on the following measures:

- Bare Spiral CFLs > 30 Watts
- Specialty and high performance CFLs
- CFLs of advanced quality (Super CFLs)
- Exterior and interior fluorescent fixtures
- Fluorescent table lamps, desk lamps, floor lamps and torchieres
- Night lights (including LED)
- Interior screw-in LEDs for task, accent, and area lighting
- Interior hardwired LED fixtures
- Exterior LEDs
- LED holiday lights



**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

- Other variations of fluorescent lighting such as cold cathode and induction
- Screw-in halogen lights (early compliance with codes for 2011 and beyond)

The Exchange component of the program will include the following products:

- Table lamps, desk lamps, floor lamps and torchieres
- LED night lights
- LED holiday lights

For a full list of program measures see Appendix.

**c) Non-incentive customer services:**

These services include advertising and promotion, as well as activities that leverage other parts of each IOU organization, such as energy efficiency customer phone line access, web access to lighting pages, access to web contact page to send messages to the program staff, education, information, and training. The program will also leverage other energy efficiency programs by mentioning them in the IOU’s outreach materials, including links to energy survey pages. Expanded advertising and promotion for products such screw-in specialty CFLs and LED products will be undertaken. This activity will also reference other pathways to efficiency. Any distribution of advanced lighting products for free will be conducted selectively based on high perceived strategic value to influence mass market adoption. Such costs will be considered promotional expenses.

**5. Program Rationale and Expected Outcome**

**a) Quantitative Baseline and Market Transformation Information**

**Table 3**

	Baseline Metric		
	Metric A	Metric B	Metric C
Overall Program			
Sub Program #1			
Sub Program #2			
Sub Program #3			

Refer to the overarching PIP section.

**b) Market Transformation Information**

**Table 4**

Market Sector and Segment	Internal Market Transformation Planning Estimates		
	2009	2010	2011
Metric A			
Metric B			
Metric C			

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

	<b>Internal Market Transformation Planning Estimates</b>		
Metric D			

Refer to the overarching PIP section.

**c) Program Design to Overcome Barriers:**

More potential for energy savings exists with energy efficient lighting than with any other technology at present. Steep market barriers to tapping that potential exist, indicated by the fact that according to recent saturation studies 80 percent of lamps sold in California are still non-CFL (incandescent, halogen and special)<sup>3</sup>. Based on most recent California Lighting and Appliances Saturation Study data, by RLW, in 2005, only 7.6% of SDG&E household sockets are occupied by CFLs (11.7% for PG&E and 11.4% for SCE). In light of these barriers, specialty screw-in compact fluorescent lamps are the most natural solutions for sockets where bare spiral CFLs are not preferred. Hardwired fluorescent fixtures also provide a very efficient way for residential and small nonresidential customers to save significant amounts of energy. Fluorescent portable lamps, and LED products have seen negligible penetration in the market. The IOUs will be instrumental in the emergence of the “Super CFL”, a newer technology of potentially great significance and applicability during the 2009 - 11 program cycle.

The sectors where market barriers may be most common include high and upper medium income households, which tend to coincide with ZIP codes of relatively low saturation in previous years. The California Super CFL sub program will target these sectors using higher per-unit incentives for advanced CFLs meeting stringent standards and specifications for dimmability, color, mercury content, dimensions, longevity, efficacy, and an extremely low defect rate. Prior to this program, no qualified CFLs of this advanced configuration existed in the market place. This subprogram will start as a pilot marketing test to confirm the hypothesis that the advanced CFL will overcome market barriers. Upon confirmation, it will be expanded into a targeted campaign.

The initial price market barrier still exists for advanced consumer lighting such as specialty bulbs, high-end fixtures, and LED area lighting. This program is designed to mitigate high initial cost with its upstream incentive structure, which is synergistic because it results in price reductions in excess of the incentives. The program encourages low retail pricing and educates retailers that high volume sales at low prices generally produces their greatest profitability overall.

Specialty CFLs are not adaptable to all sockets due to issues like size and taper constraints. This creates a barrier. The program influences manufacturers to offer products of smaller size, with a smaller more tapered base to fit into more sockets.

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<sup>3</sup> California Residential Efficiency Market Share Tracking: Lamps 2007 (draft report), prepared by Itron, Inc., April 2007.

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

These challenges are compounded by the fact that most high-efficacy specialty products do not perform as well as incandescent products of the same type, other than in the areas of energy cost and long life. For example, fluorescent A-line lamps (standard light bulb shaped) are not yet dimmable, they don't have thin stems that can fit into many sockets, and they are of relatively low light output. The program is designed to produce profound effects in the areas of market penetration of specialty product types, and in increasing the ratio of specialty products to total products.

A large knowledge gap still exists among many customers who have never used CFLs. The program uses bill inserts, special events, and promotional materials to expose more people to the benefits of CFLs. Special emphasis will be placed on specialty CFLs, LED products, and fixtures.

**d) Quantitative Program Targets:**

**Table 5**

Advanced Consumer Lighting Program	Program Target by 2009	Program Target by 2010	Program Target by 2011
Increase Participating Retail Locations that offer advanced lighting products.	10% over 2008	10% over 2009	10% over 2010
Increase Retailers Visited and Trained	10% over 2008	10% over 2009	10% over 2010
Increase Retailer Mailings Featuring Program Requirements and Selling Tips	20% over 2008	20% over 2009	20% over 2010

**e) Advancing Strategic Plan Goals and Objectives:**

This program aggressively advances the goals, strategies and objectives of the Strategic Plan by encouraging the development of more energy efficient lighting. This is accomplished by tapping the economic potential of available lighting technologies. The program does so by encouraging the production of high efficiency solutions, and promoting adoption of these. SDG&E's residential lighting incentive programs were designed to be compliant with the Huffman Bill<sup>4</sup>, and this program will be coordinated with the Codes & Standards program to ensure that the impacts of any code changes are incorporated into program design and implementation. This program will support educational efforts to enhance the public's understanding of

<sup>4</sup> The Huffman Bill (AB 1109) directs the California Energy Commission (CEC) to develop and implement a strategy for reducing California's energy consumption for general purpose indoor lighting by 50 percent by the year 2018. California Assembly Bill 1109 (the Huffman Bill) (August 31, 2007). [[http://info.sen.ca.gov/pub/07-08/bill/asm/ab\\_1101-1150/ab\\_1109\\_bill\\_20070717\\_amended\\_sen\\_v94.pdf](http://info.sen.ca.gov/pub/07-08/bill/asm/ab_1101-1150/ab_1109_bill_20070717_amended_sen_v94.pdf)]

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

AB32<sup>5</sup> by relating carbon reduction effects of energy efficiency programs to program participants. Efforts to educate the public on the contributions of energy efficiency in reducing green house gases take place via brochures, direct mailings, direct marketing campaigns and/or other appropriate means.

The following figures represent the accepted annual economic potential of residential electricity consumption.

As evident in the California Energy Efficiency Potential Study, the greatest potential for energy savings exists with energy efficient lighting than with any other technology at present.

The Energy Action Plan II stated “The Energy efficiency is the least cost, most reliable, and most environmentally sensitive resource, and minimizes our contribution to climate change.” Advanced consumer lighting products are among the least cost, most reliable, and most environmentally sensitive energy efficiency products with the largest technical market potential, as is also true of basic CFLs.

In recognition of the great economic potential remaining for lighting in California’s homes, and in alignment with the Commission’s Big Bold initiatives and Strategic Plan, this program continues to drive the transformation of the residential lighting market in California. The path towards zero-net energy homes requires a broad and comprehensive approach on many fronts including technology, training, codes and standards, and innovative practices. Zero-net energy requires energy efficient lighting as an essential element of implementation.

This program continues many years of successful activities to advance and promote the market transformation of lighting in California by providing cost-competitive lighting choices to consumers via discounted CFL’s to retailers. In accordance with the Strategic Plan, the Advanced Consumer Lighting program expands the penetration of more efficient products by supporting state and federal legislation that requires a transition from general service incandescent lighting to more efficient solutions. A new generation of lighting will take their place. SDG&E’s lighting programs will be essential in transitioning the public to this new paradigm, thereby enhancing the public’s adoption of energy efficient light sources. SDG&E works with ENERGY STAR, the Consortium for Energy Efficiency, the Program for Evaluation and Analysis of Residential Lighting (PEARL), the California Lighting Technology Center, and the CEC to further their visions, goals, and priorities in the application of energy efficient lighting.

In alignment with AB 1109, the program will support a statewide approach for continued customer education and public awareness for proper CFL disposal. The IOUs and several other utilities across the state are working with the California

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<sup>5</sup> California Assembly Bill 32 (California Global Warming Solutions Act of 2006) (August 31, 2006). [<http://www.arb.ca.gov/cc/factsheets/ab32factsheet.pdf>]

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

Environmental Protection Agency's Department of Toxic Substances Control to develop synergies that leverage this program's activities in order to expand the CFL disposal infrastructure in California and educate consumers about responsible CFL disposal. The desired team objective would be the placement and maintenance of disposal services, involving collection bins, promotional signs, and literature racks in nearly all retail outlets participating in this program. It would involve forming teams with retailers, manufacturers, disposal services, local government partnerships, sanitation districts, third party implementers, and recyclers.

This program can greatly contribute to the aggressive scale-up of the enabling policy framework supporting energy efficiency investment that is central to the Strategic Plan. Key components are adequate financial incentives and funding with robust administration. When applied to this program The IOUs can actualize the vision of the framework.

According to recent findings, market penetration in California appears to have grown approximately 100% (from roughly 10% to slightly over 20%) in 2007 compared to previous years. This is due primarily to the commensurate expansion of funding for bare spiral CFL incentives in that year. The correlation between increased funding and market penetration is borne out year after year. In 2009-11 market penetration will be increased or reduced on the basis of a commensurate change in funding.

The value of the program to support State efforts, like AB1109, is equally correlative to funding parameters. Primarily, the more CFLs incentivized, the more the program will bolster the effects of new equipment codes. Secondly, IOU promotion to support the regulation includes customer education and awareness about future standards. This can be administered through the promotional activities of the program. The effect of these efforts on a successful transition to future code acceptance can be quantified only after applicable EM&V protocols are established. This would include the selection of milestone metrics.

The program will help to achieve the following near-term strategic goals identified in Chapters 2 and 3 of the Strategic Plan:

4-1: Drive continual advances in lighting technology through research programs and competitions. The Lighting Programs contributes to the expanded penetration of more efficient products by supporting state and federal legislation that requires a transition from general service incandescent lighting to more efficient solutions. A new generation of incandescent lamps will take their place. The IOUs' lighting programs will be essential in transitioning the public to this new paradigm, thereby greatly mitigating the inherent difficulties of supporting the legislation at the point of public behavior.

4-2: Create demand for improved lighting products through demonstration projects, marketing efforts, and utility programs. The ACL program has been designed with

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

Strategic Plan strategy 4-2 in mind, through inclusion of demonstration projects and targeted marketing and outreach activities.

*4-3: Continuously strengthen standards.* The IOUs' residential lighting incentive programs were designed to be compliant with the Huffman Bill<sup>6</sup>, and this program will be coordinated with the Codes & Standards program to ensure that the impacts of any code changes are incorporated into program design and implementation.

*4-4: Coordinated phase out of Utility promotions for purchase of CFLs.* The Residential Lighting Incentive Program for Basic CFLs contributes to the expanded penetration of more efficient products by supporting state and federal legislation that requires a transition from general service incandescent lighting to more efficient solutions. A new generation of incandescent lamps will take their place. The IOUs' lighting programs will be essential in transitioning the public to this new paradigm, thereby greatly mitigating the inherent difficulties of supporting the legislation at the point of public behavior. The Strategic Plan describes goal results as the state of beginning a phase-out of traditional mass market CFL bulb promotions and giveaways. Since the goals are met by beginning, not ending the phase-out of promotional activities for basic CFLs, then it cannot be interpreted that full phase out, especially of incentives, is suggested during this period. Transition to the environment envisioned by the Huffman Bill, AB1109 will require that incentives and support for basic CFLs not be phased out between 2009-2011. However, the IOUs will transition from traditional mass market CFL bulb promotions and giveaways to untraditional activities by a shift of focus that aggressively features in promotional outreaches advanced consumer lighting rather than basic CFLs.

*4-5: Ensure environmental safety of CFLs and other emerging lighting solutions.* In alignment with AB 1109, the program will support a statewide approach for continued customer education and public awareness for proper CFL disposal.

### **6. Program Implementation**

#### **a. Statewide IOU Coordination:**

**i. Program name -** Advanced Consumer Lighting

**ii. Program delivery mechanisms**

The program primarily uses a manufacturer wholesale buy-down mechanism, but retains flexibility for retailer-direct midstream incentives where beneficial.

**iii. Incentive levels**

Incentive levels will remain the same as in the 2006-2008 program for upstream measures, except the incentive for decorative LED light strings will increase from

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<sup>6</sup> The Huffman Bill (AB 1109) directs the California Energy Commission (CEC) to develop and implement a strategy for reducing California's energy consumption for general purpose indoor lighting by 50 percent by the year 2018. California Assembly Bill 1109 (the Huffman Bill) (August 31, 2007). [[http://info.sen.ca.gov/pub/07-08/bill/asm/ab\\_1101-1150/ab\\_1109\\_bill\\_20070717\\_amended\\_sen\\_v94.pdf](http://info.sen.ca.gov/pub/07-08/bill/asm/ab_1101-1150/ab_1109_bill_20070717_amended_sen_v94.pdf)]

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

2 cents to 5 cents per LED and LED night lights incentives will be reduced to \$0.50. Electroluminescent, Fluorescent, or Neon Night Light: \$0.30. Additionally, screw-in LED products from 800 to 1,099 Lumens will be increased to \$5, and those 1,100 lumens or greater will be increased to \$10. All products must meet Energy Star requirements if applicable. Incentive levels will also continue to be downward negotiable by manufacturer and retailer. These are the published incentive levels:

<b>Eligible Product:</b>	<b>Incentive Per Unit<sup>1</sup></b>
Specialty CFL Screw-in – 1 to 799 Lumens Pre-Incentive-Adder	\$1
Specialty CFL Screw-in – 800 to 1,099 Lumens Pre-Incentive-Adder	\$1.25
Specialty CFL Screw-in – 1,100 to 1,599 Lumens Pre-Incentive-Adder	\$1.75
Specialty CFL Screw-in – 1,600 Lumens or greater Pre-Incentive-Adder	\$2.00
Specialty CFL with Incentive-Adder – Incentive Above plus:	\$1.50
Interior Hardwired Fluorescent or LED Fixture - < 1,100 Lumens	\$5
Interior Hardwired Fluorescent or LED Fixture-1,100 Lumens or greater	\$10
Exterior Hardwired CFL or LED Fixture - < 1,100 Lumens	\$5
Exterior Hardwired CFL or LED Fixture – 1,100 Lumens or greater	\$10
LED Screw-in 800 to 1,099 Lumens	\$5
LED Screw-in 1,100 Lumens or greater	\$10
Fluorescent Torchiere Floor Lamp	\$10
Fluorescent or LED Table, Desk, or Floor Lamp	\$5
LED Night Light	\$0.50
Electroluminescent, Fluorescent, or Neon Night Light	\$0.30
LED Holiday Lights Per LED	5¢
LED Task or Accent Light	\$1

Conceptually the proposed incentives for the showroom program currently are as follows. The IOUs are still in discussion of how to structure the incentives.

<b>Lamp Lumen Range</b>	<b>Winner</b>	<b>Just In Book</b>	<b>Per-fixture incentive adder for selling whole fixture family as bundle.</b>
<1,100 Lumens	\$5	\$5	\$1
1,100 to 1,599 Lumens	\$15	\$12	\$1
1,600 to 1,999 Lumens	\$20	\$16	\$1
2,000 to 2,599 Lumens	\$25	\$21	\$1
2,600 to 3,599 Lumens	\$28	\$23	\$1
3,600 to 4,599 Lumens	\$30	\$26	\$2
≥4,600 Lumens	\$35	\$33	\$5

Proposed incentives for the Super CFL program are: \$10 per Screw-in Dimmable CFL that meets the specification.

Proposed incentives for the L-Prize winning products will be covered under the Advanced LED Ambient Lighting sub-program, describe below. If that program

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

is not accept, L-Prize winning product incentives will range from \$5 to \$10 per unit:

Proposed buy-down incentives for the Advanced LED Ambient Lighting sub-program are negotiable with manufacturers, and will be set so as to cover approximately all manufacturing costs. The IOUs would collectively set the same incentive level for each model proposed.

**iv. Marketing and outreach plans**

The most successful marketing involves in-store signage and displays. Such outreaches will see quality upgrades and signage will be graphically consistent among utilities. One to two bill inserts promoting and educating customers on high efficiency residential lighting will be sent per year. Multi-program brochures, web pages, and retailer outreach will also be used. The most effective form of advertising is through in-store displays. Manufacturers are responsible to erect eye-catching displays that include multiple forms of signage with stickers on individual products explaining that the discount is made possible by The IOUs. Such advertising demonstrates its effectiveness year after year through expansive sales. Many manufacturers work with retailers to coordinate additional outreach such as circulars, newspaper advertisements, and occasionally radio spots.

Additionally, public awareness of the program will be enhanced through activities such as referrals from the 'Flex-Your-Power' campaigns, community outreach, and through cross promotion from other EE and low income EE programs.

To explore lost opportunities further the IOUs will investigate incorporating the lighting program products into the home performance program. This will create a stronger link between this program and the Strategic Plan.

**v. IOU program interactions with government agencies and programs**

The IOUs use the CEC as a resource for complementary programs and data, feeds into CEC initiatives through input such as the AB1109 scoping activities, and sits on joint committees with CEC personnel. Indirectly the program is involved with ARB on occasion through corporate initiatives based on environmental requirements such as in AB32. SDG&E's Lighting Exchange sub-program element is designed to work closely with our local government partnerships.

**vi. Similar IOU and POU programs**

Programs like this are in place within many utilities and Energy Efficiency Program Suppliers nationwide. We interact with their program managers during Energy Star Conferences, CEE meetings, steering committees, the PEARL board, and team workshops. To our knowledge no other program implementers outside California have spun off advanced consumer lighting into its own program.

**b. Program delivery and coordination**

**i. Emerging Technologies program**



**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

Each utility lighting program has meetings with its emerging technology program group and considers new technologies presented by them. Program managers contribute jointly with Emerging Technology Engineers on steering committees, boards, and workshops. Emerging Technology program data are considered in program planning. Program managers feed into selection of emerging technologies to review.

**ii. Codes and Standards program**

The program staff works with Codes and Standards Engineers to monitor codes and standards being designed and adopted. Where the opportunity exists, Program Managers express preferences and input to Codes and Standards Engineers who are contributors to steering committees and workshops.

**iii. WE&T efforts**

Due to the characteristics of this program as upstream and staff driven, there is no provision for Workforce Education and Training. However, the technologies of energy efficient lighting have great potential for inclusion in other Workforce Education and Training programs. They would be particularly suited for those aimed at energy education. The lighting program staff can support such efforts with information about the technologies and products.

This program has a direct link to the Lighting Market Transformation initiative, which has a component for WE&T activities. The ACL Program also has an indirect link to the Workforce Education Training needs. Although this program primarily target CFL manufacturers, retailers and end users, but topics such as lighting design for buildings, lighting standards or efficiency LED lighting are important topics for the workforce of the future. As part of the Workforce Education and Training Synergy Program (WET&S) effort, sub-programs such as Energy Centers (CTAC/AGTAC) and Building Operator Certification programs currently offer these classes and are committed to design new classes to fill gaps.

**iv. Program-specific marketing and outreach efforts**

The most effective marketing and outreach entails in-store displays, signage, and stickers. Also bill inserts, fact sheets, web site, multi-program brochures, retailer letters, manufacturer announcement emails, and Change-A-Light promotional events.

**v. Non-energy activities of program**

Activities that do not contribute directly to energy impacts include marketing, outreach, education, industry involvement, and involvement in non-IOU programs.

**vi. Non-IOU Programs**

The IOUs work with ENERGY STAR, the Consortium for Energy Efficiency, the Program for Evaluation and Analysis of Residential Lighting (PEARL), the California Lighting Technology Center (CLTC), and the CEC to further their

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

visions, goals, and priorities in the application of energy efficient lighting. The IOUs serve on the steering committees, review panels, and working groups of such organizations. For PEARL, the IOUs are on their board, nominate products for off-the-shelf testing, purchase products for that purpose, and send them in for testing. SDG&E serves on the DOE's CALiPER Committee for quality standards and testing of solid state lighting. The IOUs also serve on the DOE Solid State Lighting L-Prize committee. SCE has in a sense annexed the CLTC by forming a cooperative branch called the Southern California Lighting Technology Center (SCLTC) in SCE's Lighting Lab facility. Program staff is involved with activities of this organization by providing sample products, attending meetings, using its expertise, and working as a team in industry relations. The other utilities have similar relationships with CLTC.

**vii. CEC work on PIER:**

Although the IOUs have a strong association with PIER through its Design & Engineering Services Organization the residential lighting programs historically have not maintained direct involvement. Efforts will be made to find practical avenues for such involvement in a way that conforms to the program parameters.

**viii. CEC work on codes and standards:**

The Program staff will continue to attend CEC workshops pertaining to equipment and building codes related to residential lighting. The IOUs' Codes and Standards organizations will continue to sustain primary involvement in these activities. The Upstream Lighting Programs will increase knowledge sharing and market insight with this group.

**ix. Non-utility market initiatives:**

The program takes part in retailer-originated market initiatives, such as Earth Day and Fall Lighting Season campaigns, parking lot sales, and Energy Star "Take The Energy Pledge" drives. As opportunities arise for expansion, the program will pursue them.

**c. Best Practices:**

The program approach constitutes "best practice" as evidenced by its national leadership in forward thinking, new approaches, and cost-effectiveness. It incorporates the best practices of previous years' efforts in basic and advanced lighting solutions. For example, it uses leveraging mechanisms like encouraging both manufacturers and retailers to include additional discounts of their own while allowing manufacturers to compete based on per-unit utility incentive amounts. It sets incentive levels so the wholesale price can be reduced to zero or near-zero levels. It employs extensive controls to avoid program abuse, overstocking, leakage, and slippage. The payment of the incentive to the manufacturer at the highest point upstream in the distribution channel creates a synergistic reduction when retailers retain the same mark-up percentages as usual. Market intelligence such as light color preference among customers, and product dimension concerns will be used in selection of program measures.

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

**d. Innovation:**

The program manages market penetration and transformation from within by shifting allocations away from recently penetrated sectors and locales, and into the areas of lowest penetration and saturation. The program is innovative in its use of independent retailers, deep discount stores, and small chains. These stores are where the highest combined product volume is found and they have the lowest historical rates of free-ridership. They often coincide with low income areas where the people need the economic benefits of energy efficiency the most. We cultivate their participation by encouraging manufacturers to approach more of them.

**e. Integrated/coordinated Demand Side Management:**

The IOUs will coordinate program efforts with the local utility integration teams and the Statewide Integration Task Force to identify successful integration approaches and offerings, potential pilot programs and metrics.

**f. Integration across resource types:**

Indirectly the program is involved with ARB on occasion through corporate initiatives based on environmental requirements such as in AB32. In the last few years, the Residential Lighting Incentive Program has contributed more toward carbon reduction than any other energy efficiency program in our portfolio. Due to the additionality language of AB 32, this helps to fulfill air quality mandates and objectives. Where applicable, the IOUs have integrated CFLs with water and gas, through energy efficiency kits that promote conservation of water, gas, and electricity and will continue to work closely with water agencies to support the concept of conservation and energy efficiency.

**g. Pilots:**

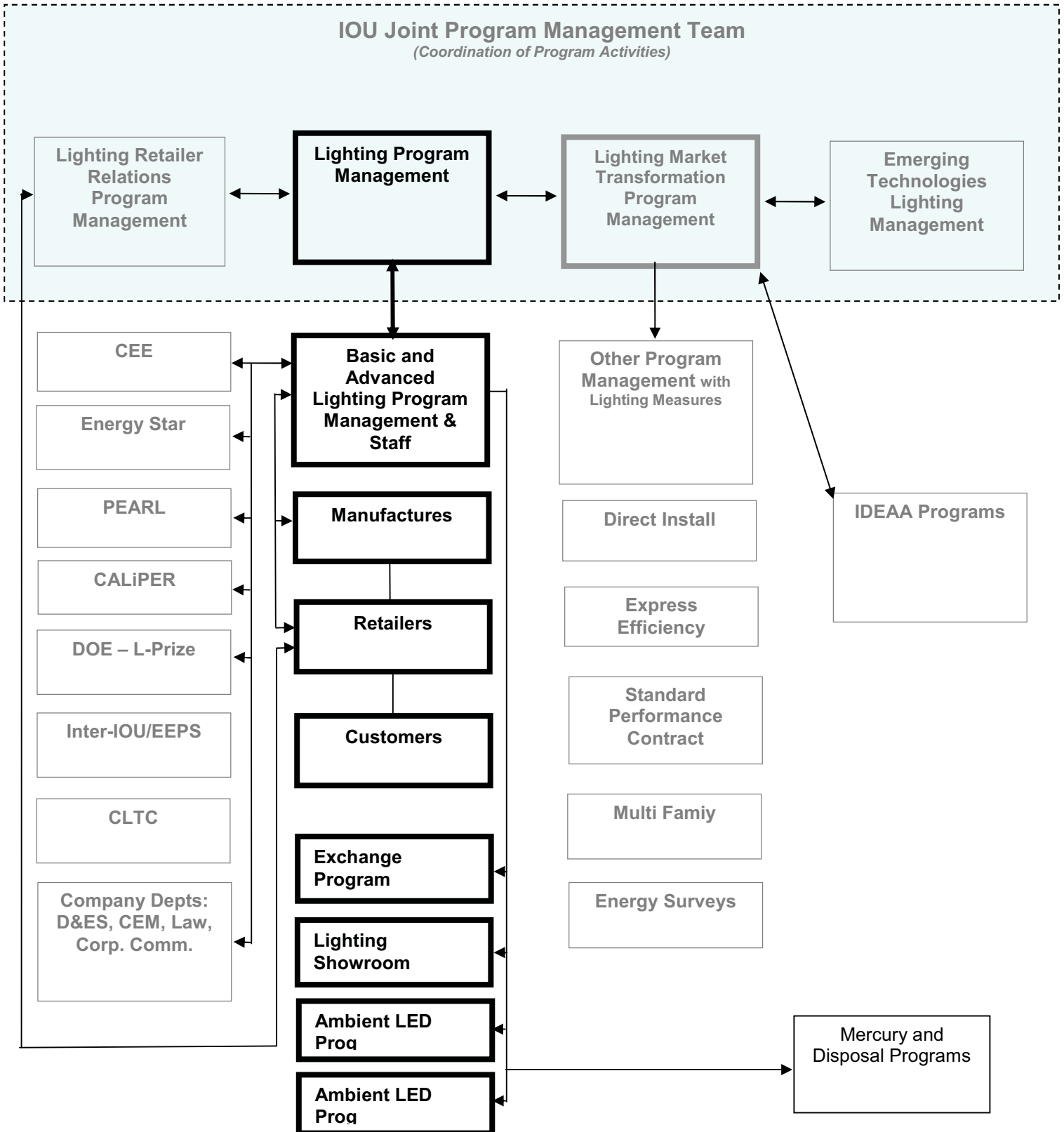
The plan for most new sub-programs is to start at a pilot level to iron out practical details in a real-world environment before implementing system wide. For example, the Super CFL component will begin as a pilot program targeting high income areas with tests designed to eliminate subjective bias. The hypotheses behind the super CFL concept that are verified at significant levels will be pursued in a larger roll-out. Pilot programs are not always planned in advance of the funding cycle. When new ideas and opportunities arise, they are considered at that time.

**h. EM&V:**

The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2009-2011 after the program implementation plans are filed. This will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.

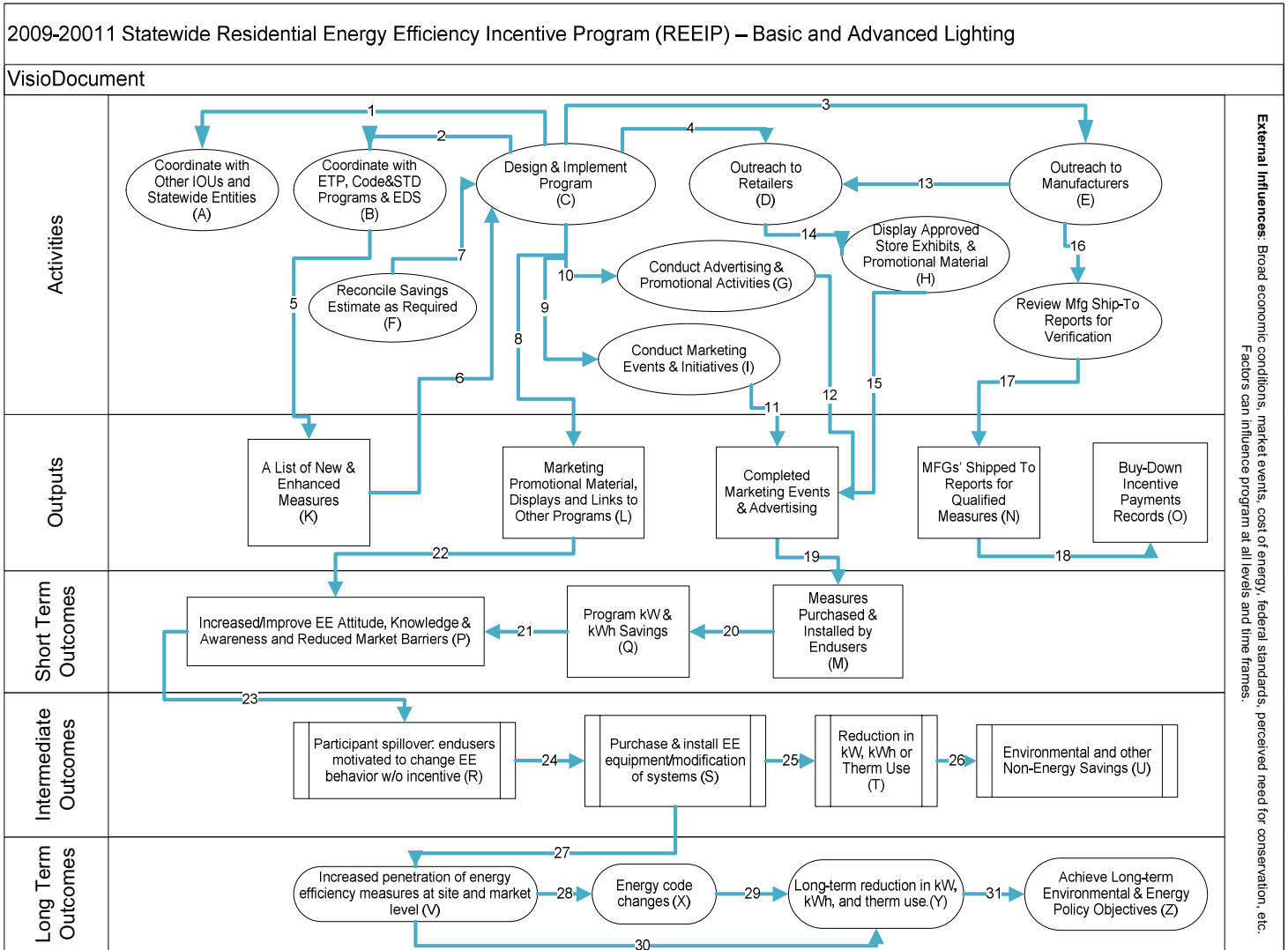
# 2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan

## 7. Program Interaction Diagram



# 2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan

## 8. Program Logic Model:



## 2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan

- 1. Program Name:** Home Energy Efficiency Rebate Program (HEER)  
**Program ID:** TBD  
**Program Type:** Statewide residential core program

### 2. Projected Program Budget Table

Table 1<sup>38</sup>

Program #	Main Program Name / Sub-Programs	Total Administrative Cost (Actual)	Total Marketing & Outreach (Actual)	TOTAL Direct Implementation	Integration Budget Allocated to Other Programs (if Applicable)	Total Budget By Program (Actual)
<b>Market Sector Programs</b>						
	Core Program #1					
	Sub-Program #1					
	Sub-Program #2					
	Etc.					
	<b>TOTAL:</b>					

These budget numbers are presented in Appendix F: Energy Division Tables, Graphs Pie Charts: Table 7.1 - 2009 - 2011 IOU Strategic Planning Program Budget

### 3. Projected Program Gross Impacts Table

Table 2

Program #	Program Name / Sub-Programs	2009 - 2011	2009 - 2011	2009 - 2011
		Three-Year EE Program Gross kWh Savings	Three-Year EE Program Gross kW Savings	Three-Year EE Program Gross Therm Savings
<b>Market Sector Programs</b>				
	Core Program #1			
	Sub-Program #1			

<sup>38</sup> Definition of Table 1 Column Headings: Total Budget is the sum of all other columns presented here  
Total Administrative Cost includes all Managerial and Clerical Labor, Human Resource Support and Development, Travel and Conference Fees, and General and Administrative Overhead (labor and materials).  
Total Direct Implementation – includes all financial incentives used to promote participation in a program and the cost of all direct labor, installation and service labor, hardware and materials, and rebate processing and inspection used to promote participation in a program.  
Total Marketing & Outreach includes all media buy costs and labor associated with marketing production.  
Integrated Budget Allocated to Other Programs includes budget utilized to coordinate with other EE, DR, or DG programs.  
Total Budget is the sum of all other columns presented here  
Definition of Sub-Program: A “sub-program” of a program has a specific title; targets; budget; uses a unique delivery or marketing approach not used across the entire program; and for resource programs, has specific estimated savings and demand impacts.

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

Program #	Program Name / Sub-Programs	2009 - 2011	2009 - 2011	2009 - 2011
		Three-Year EE Program Gross kWh Savings	Three-Year EE Program Gross kW Savings	Three-Year EE Program Gross Therm Savings
	Sub-Program #2			
	Etc.			
	TOTAL:			

These savings values are presented in Appendix F: Energy Division Tables,  
Graphs & Pie Charts: Table 7.2 - IOU 2009 - 2011 Program Savings Estimates

**4. Program Description**

**a) Describe program**

The Home Energy Efficiency Rebate (HEER) program is a continuation of the existing statewide program within the residential energy efficiency portfolios. Although SCE, PG&E and SDG&E share similar program theory, design and goals, each IOU may implement its program logistics differently.

By offering customers educational materials on energy efficiency options and rebate/incentive offerings, HEER encourages customers to make energy efficient choices when purchasing and installing household appliances and equipment measures. In addition to influencing efficient purchases, the program educates customers on how to use products correctly. For many measures, the program offers immediate rebates at the point-of-sale (POS) in addition to an on-line/mail-in rebate application process.

The program is designed for flexibility, efficiency and cost effectiveness. It offers agreed upon statewide measures with coordinated implementation, and is designed to be able to segregate offerings, and add new measures tailored to specific market opportunities that may emerge. The measures that will be offered through the program will carry over from the 2006-2008 program cycle, with additional measures offered in the 2009-2011 cycle that will further support savings in natural gas, water, and electricity use.

The high brand recognition afforded to ENERGY STAR® provides leverage in motivating additional retailers at all levels to actively participate and support energy efficiency through HEER. This also allows customers easy access to purchase qualified appliances and equipment, and to receive timely information to assist in the selection process.

**b) List measures**

The following incentives will be available through the program:

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

**Table 4**

	<b>SCE</b>	<b>SDG&amp;E</b>	<b>SoCalGas</b>	<b>PG&amp;E</b>
<b>Water Heater</b>				
Gas	n/a	\$ 30	\$ 30	\$ 30
Electric	\$ 30	\$ 30	n/a	\$ 30
Solar	n/a	n/a	n/a	n/a
tankless ef>=0.82	n/a	n/a	\$ 150	n/a
tankless ef>=0.90	n/a	n/a	\$ 200	n/a
Mail-In	Yes	Yes	Yes	Yes
On-Line	Yes	Yes	Yes	Yes
Point of Sale	Yes	Yes	Yes	No
<b>Insulation</b>				
Attic	\$0.15/sq ft	\$0.30/sq ft	\$0.30/sq ft	\$0.15/sq ft
Wall	\$0.15/sq ft	\$0.50/sq ft	\$0.50/sq ft	\$0.15/sq ft
insulated sliding	n/a	n/a	n/a	n/a
Mail-In	Yes	Yes	Yes	Yes
On-Line	Yes	Yes	Yes	Yes
Point of Sale	n/a	n/a	n/a	n/a
<b>Refrigerator</b>				
ENERGY STAR®	\$ 50	\$ 50	\$50a	\$ 50
CEE tier 1	n/a	n/a	n/a	n/a
CEE tiers 2 & 3	n/a	n/a	n/a	n/a
Mail-In	Yes	Yes	n/a	Yes
On-Line	Yes	Yes	n/a	n/a
Point of Sale	Yes	Yes	Yes	No
<b>Dishwasher</b>				
ENERGY STAR® (.65 EF)	n/a	\$ 30	\$ 30	No
tier II	n/a	\$ 30	\$ 30	\$ 30
tier III	n/a	\$ 30	\$ 30	\$ 50
Compact	n/a	n/a	n/a	n/a
Mail-In	n/a	Yes	Yes	Yes
On-Line	n/a	Yes	Yes	Yes
Point of Sale	n/a	Yes	Yes	No
<b>Clothes Washer</b>				
ENERGY STAR® (1.72 MEF / 8.0 WF)	n/a	n/a	\$ 35	No
tier II	n/a	n/a	\$ 35	\$ 35
tier III	n/a	n/a	\$ 35	\$ 75
Mail-In	n/a	n/a	Yes	Yes
On-Line	n/a	n/a	Yes	Yes
Point of Sale	n/a	n/a	Yes	No
<b>Furnace</b>				



**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

	<b>SCE</b>	<b>SDG&amp;E</b>	<b>SoCalGas</b>	<b>PG&amp;E</b>
90 AFUE	n/a	n/a	n/a	n/a
92 AFUE	n/a	\$ 200	\$ 200	\$ 200
94 AFUE	n/a	\$ 200	\$ 200	\$ 300
Mail-In	n/a	Yes	Yes	Yes
On-Line	n/a	Yes	Yes	Yes
Point of Sale	n/a	n/a	n/a	n/a
<b>Room Air Conditioners</b>	\$ 50	\$ 50	n/a	\$ 50
Mail-In	Yes	Yes	n/a	Yes
On-Line	Yes	Yes	n/a	Yes
Point of Sale	Yes	Yes	Yes	No
<b>Pool Pump and Motor</b>				
two speed	\$ 200	\$ 200	n/a	\$ 100
variable speed	\$ 200	\$ 200	n/a	\$ 100
contractor rebate	\$ 100	\$ 100	n/a	\$ 200
Mail-In	Yes	Yes	n/a	Yes
On-Line	Yes	Yes	n/a	Yes
Point of Sale	Yes	Yes	n/a	No
<b>Whole House Fan</b>	\$ 50	\$ 50	n/a	\$ 100
Mail-In	Yes	Yes	n/a	yes
On-Line	Yes	Yes	n/a	yes
Point of Sale	Yes	Yes	n/a	No
<b>Ducted Evaporative Coolers</b>	\$300-\$600	n/a	n/a	n/a
Mail-In	Yes	n/a	n/a	n/a
On-Line	Yes	n/a	n/a	n/a
Point of Sale	n/a	n/a	n/a	n/a
<b>Cool Roof</b>	n/a	n/a	n/a	\$0.10-\$0.20/sq.ft.
Mail-In	n/a	n/a	n/a	Yes
On-Line	n/a	n/a	n/a	Yes
Point of Sale	n/a	n/a	n/a	n/a
<b>Shower Heads</b>				
Thermostatic Low Flow Restrictive Valve	n/a	\$ 15	\$ 15	\$ 15
Low Flow - Self Install EE Kit	n/a	\$ -	\$ -	\$ -
Mail-In	n/a	n/a	n/a	n/a
On-Line	n/a	n/a	n/a	n/a
Point of Sale	n/a	Yes	Yes	Yes
<b>Faucet Aerators</b>				
Faucet Aerators Self Install EE Kit	n/a	\$ -	\$ -	\$ -
Mail-In	n/a	n/a	n/a	n/a
On-Line	n/a	n/a	n/a	n/a
Point of Sale	n/a	Yes	Yes	Yes

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

**c) List non-incentive customer services**

HEER will include a retail management component to support retailers in training staff about energy efficiency and in providing collaterals/educational materials to promote rebates for qualified products. Customers and trade professionals are encouraged to take advantage of free classes offered by training centers located in each utility's service area. In addition, through a variety of marketing and promotional materials, energy surveys, and online resources, customers will be educated. Specifically, there will be significant education, outreach, and web tool initiatives.

For energy efficiency to achieve full effectiveness throughout the state there must be a coordination of the many messages and resources available to participants. When energy efficiency messages are properly timed and coordinated, their effectiveness is multiplied. Therefore, for the 2009-2011 HEER, messages will be dovetailed with product seasonality already established by retailers and manufacturers.

HEER will provide information directly to utility customers using a variety of methods including the IOU websites, call centers, bill inserts, direct mail, and email campaigns. Utility websites will provide supplemental information, including updates on available funding levels and printable forms. Forms that can be completed online are being considered for development. Customers requiring in-depth information can also call their utility's program manager or designated call center to receive assistance and detailed program information.

The program will also coordinate with manufacturers, retailers, distributors, contractors, community based organizations (CBOs), and other interested parties to increase awareness of the utility rebate program, other related opportunities, and encouraging customers to purchase qualifying products.

**5. Program Rationale and Expected Outcome<sup>39</sup>**

**a) Quantitative Baseline and Market Transformation Information:**

**Table 5**

	Baseline Metric		
	Metric A	Metric B	Metric C
Overall Program			
Sub Program #1			
Sub Program #2			
Sub Program #3			

Refer to the overarching PIP section.

<sup>39</sup> To be provided for each program and sub-program in PIP.

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

**b) Market Transformation Information**

**Table 6**

<b>Internal Market Transformation Planning Estimates</b>			
Market Sector and Segment	2009	2010	2011
Metric A			
Metric B			
Metric C			
Metric D			

Refer to the overarching PIP section.

**d) Program Design to Overcome Barriers:**

The residential energy efficiency portfolio of California IOUs has been developed to deliver a wide array of programs and services to increase awareness of energy efficiency, to provide relevant energy-efficient solutions, and to advance the policy ideals of the Big Bold Energy Efficiency Strategies (BBEES), the California Long Term Energy Efficiency Strategic Plan (Strategic Plan), and the California Energy Action Plan (EAP) for the benefit of all customers.

HEER is designed to overcome these barriers, including current inefficiencies in home appliances, the appliance replacement cycle, the additional barriers to early retirement. The characteristics of the residential market segment and POS retailers provide additional challenges and opportunities.

Among residential customers, whether home owner or renter, almost every household's energy consumption is driven by standard appliances (e.g. refrigerator, stove top, microwave oven), and equipment (e.g. water heater, HVAC system, laundry, plug load), as well as other appliances, such as televisions, personal computers, and central air conditioners (based on the 2003 California RASS report).

The standardization of household equipment within the residential segment offers a unique opportunity for change-outs at specified intervals within the product lifecycle in order to optimize energy savings. Customers typically consider replacement only when a piece of equipment fails. However, major home products such as water heaters, furnaces, and pool pumps have long life cycles and can easily become more costly to operate over the long term than would be the case if replaced early with higher efficiency products. The HEER program addresses early retirement issues by attracting participation through its marketing campaigns coupled with attractive incentives and outreach activities.

Most residential customers tend to want minimal interference with their daily activities as a result of participating in energy efficiency activities. Program offerings

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

that are transparent, user-friendly, and easy to implement will be most attractive to the residential customer. The HEER program strategies attempt to reduce the need for time-consuming research and to offer customers immediate cash savings via the POS instant rebate program.

Working with POS retailers offers vast gains in IOUs' ability to reach a high volume cost effectively, but at a cost of some utility control (i.e., limited access to the end-users). The program participation challenges and opportunities for manufacturers, retailers, and consumers include:

The IOUs will continue to build on their existing external relationships (with retailers, customers and manufacturers) and resources in order to more effectively promote products and services in ways that are relevant to consumers, showcase their energy expertise, brand successes, and maintain a high level of customer satisfaction.

**e) Quantitative Program Targets:**

**Table 5**

SDG&E	Program Target by 2009	Program Target by 2010	Program Target by 2011
ENERGY STAR® qualified refrigerators	46,000	48,300	50,715
ENERGY STAR® qualified room air conditioners	53,430	56,101	58,922
Whole house fans	4,755	4,995	5,224
Electric storage water heaters	50	55	60
Attic and Wall Insulation	7,000	7,350	8,600
Variable-Speed Pool Pumps	800	840	900
Ducted Evaporative Coolers	1201	1201	1201
Number of POS retailers participating	TBD	TBD	TBD

PG&E	Program Target by 2009	Program Target by 2010	Program Target by 2011
ENERGY STAR® qualified refrigerators	TBD	TBD	TBD
ENERGY STAR® qualified room air	TBD	TBD	TBD

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

PG&E	Program Target by 2009	Program Target by 2010	Program Target by 2011
conditioners			
Whole house fans	TBD	TBD	TBD
Electric storage water heaters	TBD	TBD	TBD
Attic and Wall Insulation	TBD	TBD	TBD
Variable-Speed Pool Pumps	TBD	TBD	TBD

SDG&E	Program Target by 2009	Program Target by 2010	Program Target by 2011
ENERGY STAR® qualified refrigerators	TBD	TBD	TBD
ENERGY STAR® qualified room air conditioners	TBD	TBD	TBD
Whole house fans	TBD	TBD	TBD
Electric storage water heaters	TBD	TBD	TBD
Attic and Wall Insulation	TBD	TBD	TBD
Variable-Speed Pool Pumps	TBD	TBD	TBD

SoCalGas	Program Target by 2009	Program Target by 2010	Program Target by 2011
ENERGY STAR® qualified refrigerators	TBD	TBD	TBD
ENERGY STAR® qualified room air conditioners	TBD	TBD	TBD
Whole house fans	TBD	TBD	TBD
Electric storage water heaters	TBD	TBD	TBD
Attic and Wall Insulation	TBD	TBD	TBD
Variable-Speed Pool Pumps	TBD	TBD	TBD

**f) Advancing Strategic Plan goals and objectives:**

HEER specifically addresses the Strategic Plan strategy of helping consumers understand both the importance of and the opportunities for using energy efficiently

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

through a variety of means including incentives and targeted information. Through a variety of incentives and offerings, the HEER Program supports the Commission's initiatives to provide attractive choices for customers to reduce their energy demand and consumption, improve their safety and comfort, and contribute to overall sustainability and a reduction in greenhouse gas emissions.

The HEER program is designed to be part of the Strategic Plan solution. In accordance with the Strategic Plan, this program advances comprehensive energy efficiency measures, including; whole house solutions, plug load efficiency, performance standards, local government, and DSM integration opportunities.

In accordance with the Strategic Plan, this program advances comprehensive energy efficiency measures, including: whole house solutions, plug load efficiency, visual monitoring and displays, performance standards, local government opportunities, and DSM integration. This program supports the Strategic Plan by encouraging the adoption and market availability of more efficient products in California.

The program will help to achieve the following near-term strategic goals identified in Chapters 2 of the Strategic Plan:

- 2-2: Promote effective decision-making to create wide spread demand for energy efficiency measures. California IOUs will aggressively incorporate results from studies that determine homeowner "decision triggers" for improving home energy efficiency.
- 2-3: Manage research into new/advanced cost-effective innovations to reduce energy use in existing homes. California IOUs will work collaboratively to promote the commercialization of home energy management tools, including Advance Metering Infrastructure (AMI)-based monitoring and display tools.

Additionally, the deployment of "Smart Meters" creates an opportunity to more effectively measure and monitor whole house and major system efficiency improvements. Customer access to this hourly billing data will help support longer-term behavioral strategies to reduce consumption as well. Moreover, the Smart Meter technology when combined with passive or automated enabling measures (e.g. In-Home Displays, programmable controllable thermostats, load control devices, etc.) will provide customers with energy management tools that capture increased savings as energy efficient measures are installed within the home while positioning for unique opportunities to increased participation in demand response and AMI-enabled technologies. Placing these informational technologies within the home provides immediate feedback, enables a more accurate assessment of program impacts, and facilitates the development of future targeted efficiency strategies to a particular customer base.

### **6. Program Implementation**

#### **a. Statewide IOU Coordination:**

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

**i. Program name - Home Energy Efficiency Rebate (HEER)**

**ii. Program delivery mechanisms:**

The incentive is offered at either mid-stream POS locations or downstream (on-line or mail-in applications). The program will be delivered through two major program strategies to achieve maximum energy savings:

- Midstream strategy aimed at retail stores and home improvement centers to increase stocking and sales of energy efficient appliances and equipment
- Downstream strategy based on customer education to create demand for higher efficiency appliances and products

A major implementation strategy for the program is to expand the POS rebate delivery method (sales made at the store location and online), streamline the rebate application payment process and integrate appliance incentives with appliance recycling opportunities. A market-based delivery method approach will be expanded to more retailers in each IOUs service area, and “instant rebates” at the cash register for refrigerators (if applicable within that IOU), room air conditioners, whole house fans, and pool pumps will be available. Retailers are key market actors in moving the energy-efficient appliance and equipment market, and they will be engaged in ways to maximize their participation.

Continuing to cultivate relationships with POS retailers is a powerful tool for making the program efficient. All California IOUs will continue to build upon their existing external relationships and resources in order to more effectively promote products and services, showcase our energy expertise, brand our successes, and maintain a high level of customer satisfaction. These relationships include the use of contractors for pool, pumps, home insulation, and water heaters, as well as HVAC contractors from other residential programs.

The continued use of Point of Sale retailers, as customer entry points of distribution provides an excellent conduit for developing a “one-stop approach” for customers, as noted in the long term strategic plan. Participation by an increasing number of big box and mom and pop retailers in the program will provide the following benefits in support of this concept:

- an expanded network of customer convenience
- enhanced retail management support for energy efficiency
- the ability to co-marketing and brand with retailers
- expanded cooperation between utility, retailer and manufacturer to promote and stock high efficiency products
- information source for efficiency products

As noted previously, the national trend by big box retailers towards promoting “green” products within their stores creates an additional opportunity to reach the end users through a preferred method of communication— directly from the retailer. Beyond leveraging the ENERGY STAR® brand, HEER will use its retail

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

management support to develop bundled promotions, hosting events, staff training, and promotional campaigns with retailers as a means to directly influence consumer buying patterns for energy efficiency products.

Key external resource partners include:

- ENERGY STAR® (including co-branding opportunities)
- Flex Your Power
- Cities and counties
- Water agencies
- Large employers with employee “green” campaigns
- Retailers
- HOAs, property management companies, and community associations
- Green-focused organizations and businesses
- Trade associations and contractors
- Statewide IOUs
- Various media channels
- Contractors

ENERGY STAR® provides an important resource for the program. The current national trend toward promoting “green products” among big box, medium, and small retailers will allow IOUs to continue leveraging the ENERGY STAR® brand at the retail level for qualified appliances and products. ENERGY STAR® is a nationally recognized icon, with a high awareness value. Messages relating to energy savings with the correlation of the green initiative will be uniquely tailored to specific audiences. Collaborative relationships with consumer channels will help to facilitate and enhance consumer acceptance of energy efficiency products and services.

California IOUs require a customer’s installation address and often face challenges in this delivery channel due to privacy concerns for store customers. IOUs offer additional incentives to customers to provide their addresses, and then inspect approximately 10% of the installations. Additional quality control activities include an extensive review of program records and a process evaluation.

For quality control, the HEER program has three levels of verifications:

- For selected installations (10%), the program verified actual installation prior to issuing rebate checks (SDG&E will conduct a 5% inspection rate on submitted and processed applications and 100% inspection for self installed measures (i.e. wall and attic insulation),
- As part of the M&E process evaluation, the program participant’s satisfaction and AKA (awareness, knowledge and attitude) are separately assessed, and
- SDG&E will conduct process evaluations and will consider use of AKA surveys.



**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

**iii. Incentive levels**

See section 4b for the incentive levels.

**iv. Marketing and outreach plans, e.g. research, target audience, collateral, delivery mechanisms.**

All IOUs will develop an integrated marketing plan for all Californians by conducting statewide segmentation research, including Low Income Energy Efficiency (LIEE) and other hard- to-reach groups, on interests, awareness, and attitudes/perceptions related to energy efficiency and climate change messaging. IOUs will develop targeted and highly relevant energy efficiency and DSM marketing messages to incite behavioral change/action. Create partnerships with private industry and businesses to help motivate consumer and business sector action.

Each IOU also seeks to integrate its LIEE program into HEER by providing customers with information and marketing material on LIEE, California Alternate Rates for Energy (CARE) and Family Electric Rate Assistance (FERA) rate discount programs. The integration strategy with LIEE and HEER is designed to ensure potentially eligible low-income residential customers are aware of the availability of low-cost energy efficient services and appliances through LIEE. The goal is to inform residential customers of income qualified programs before they expend their limited incomes on appliances that are available through LIEE at no cost. In turn, IOUs seek to make low-income customers aware of rebates available for appliances not offered through LIEE.

Retail relationships will be facilitated by website enhancements to increase the ease of point of entry access for customers, enabling them to readily find information about efficient products and services, identify participating retailers in their neighborhood, and complete on-line sign-ups to receive notification about special efficiency offerings, rebates or incentives.

The utilities will explore options for providing alternative strategies to marketing the programs in constrained areas. One such approach may be a neighborhood-based marketing campaign targeting older master-planned communities to promote energy efficiency. Through this effort, local contractors will independently market and install cost-effective measures such as duct testing and sealing and other measures to help reduce energy loss in the home and increase overall efficiency. By dealing in volume, this effort would offer low-cost measures that are proven energy savers to a large number of program participants. In addition to delivering energy savings, this approach would support the advancement of local community and city goals related to energy efficiency, as well as benefiting many neighborhood and socio-economic groups.

Often, customers are not aware of the true savings potential nor are they familiar with energy savings products not associated with appliances. To introduce customers to energy savings, a "starter kit" will be distributed to customers

**2009-2011 Energy Efficiency Programs**  
**Statewide Residential Energy Efficiency**  
**Program Implementation Plan**

providing information on comprehensive simple methods of savings water, gas, and electricity. By providing the tools necessary to begin saving gas and water, the goal of the HEER program is to enhance participation in the program and include other customer segments that may have been excluded due to the high costs of products. This will allow HEER to grow as a comprehensive, inclusive residential program and maximize potential savings. HEER participants will also be educated about additional opportunities for energy efficiency beyond the measures they are adopting, as applicable.

Web tool applications can also assist customers with their energy management, capture actual savings as energy efficient measures are installed, conduct comparative analysis, and track their “carbon footprint.” These informational technologies inside the home provide immediate feedback, enable a more accurate assessment of program impacts, and allow the customer the ability to quickly and easily make energy efficiency decisions.

The deployment of advanced metering infrastructure will provide additional opportunities of educating customers regarding their energy usage. The IOUs will explore these opportunities as the technology developed and deployed to residential customers to maximize energy efficiency and demand side management opportunities.

Each IOU will develop a detailed marketing implementation plan with tasks and milestones will be developed once the program is approved.

The program targets owners and renters of single family residences as well as apartments, townhomes, condominiums, and mobile homes and operates in parallel to the operation of the Multifamily Energy Efficiency Rebate (MFEER). This downstream implementation strategy will also include coordinated statewide elements as well as elements specially targeted to the customers in each utility's service area. The program will also leverage relationships with trade allies, manufacturers, retailers, and distributors to deliver information, measures, and incentives.

Program campaign elements include:

- Statewide rebate promotions,
- Online/mail-in application processing,
- In-store point-of-sale instant rebate option,
- A whole house approach offering products that address all types of energy use,
- Home energy surveys,
- Energy efficiency customer education and outreach,
- And other residential EE programs such as upstream lighting or mid-stream Business and Consumer Electronic Program (BCEP).

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

The Statewide program involves the traditional application process for customers who purchase product from retailers not participating in point-of-sales (POS), or customers not targeted through a tailored campaign. Residents will be offered downstream deemed rebates for the installation of energy efficient products that meet or exceed predetermined specifications.

**v. IOU program interactions with CEC, CARB, Air Quality Management Districts, local government programs, other government programs as applicable**

IOUs will collaborate with other agencies and market players to ensure that program offerings are consistent with proposed changes to codes and standards. In anticipation of changing minimum standards on product specification, incentive levels are adjusted to entice early retirement of products before the new codes take effect. The programs will continue to support the Department of Energy's national ENERGY STAR® program and Consortium for Energy Efficiency.

HEER program managers hope to explore the possibility of partnering with local governments to provide additional incentives for bundling measures. The IOUs may be able to continue offering incentives for individual members while encouraging the local governments to provide additional incentives that would be offered when measures are combined, pursuant to AB 811.

**vi. Similar IOU and POU programs**

All IOUs will coordinate with other IOUs and, if needed, applicable POUs (e.g., SMUD, LADWP), to maintain statewide consistency of rebate programs while attempting to simplify customer requirements and procedures internally. Rebate offerings are consistent, and program changes are discussed at the state-wide level. In addition, negotiations with retailers in regards to incentives are conducted as a team, in order to leverage participation from a state-wide level and benefit all California customers. EE working groups as well as research on new technologies are comprised of representatives from each utility. This team approach allows us to share best practices, and available data to create the most cost-effective program model. IOUs also collaborate on Multi-family rebate programs (MFEER) and Business and Consumer Electronics Program (BCEP). Please refer to separate residential PIPs for details.

In addition, program design and implementation strategies will integrate HEER with IOUs demand response programs, such as the Summer Saver Program, as well as with the California Solar Initiative. Joint marketing messages will be designed to increase participation in energy efficiency and demand response programs.

IOUs will also coordinate with other programs. For example, coordinate with HVAC to ensure that quality installation is met via duct test & seal rebate and raising awareness of the Refrigerant Charge and Airflow program, to ensure that

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

there's an integrated delivery of programs. Energy Efficiency will be the foundation for customers to making changes to existing homes.

*Program Integration:* The program will be implemented in close association with other residential energy efficiency programs. Through marketing, education and outreach, each program will encourage end-users to adopt multiple measures to gain the benefits associated with an integrated whole-house approach to energy efficiency.

The HEER Program also works with the Appliance Recycling Program (ARP) and Home Energy Efficiency Survey Program (HEES) to provide a convenient in-home energy survey as well as a method to retire old refrigerators. HEER also encourages residential customers to reduce their use of natural gas through rebates for replacing less efficient gas-fired equipment with new energy-efficient equipment and to upgrading their building envelopes.

*Support for LIEE and Non-LIEE qualifying low income families:* The HEER program collaborate with the Low Income Energy Efficiency (LIEE) Program by providing customers with information and marketing material on SDG&E's low income programs. IOUs will target moderate-income customers that do not qualify for LIEE program assistance.

### **b. Program delivery and coordination:**

The HEER program, as part of overarching residential portfolio, will offer integration with HEES, ARP, MFEER, CHPP and other relevant residential programs. In order to have maximum energy savings and cost effectiveness, the HEER program must be rooted in marketing and education that encourages end-users to adopt multiple broad-based energy efficient measures to reduce their household usage.

Rebates for energy efficient appliances will be targeted to the end-user primarily via an application (either online or mail-in) or point of sale (POS). The POS method offers instant incentive discounts directly through the retailer at the point of purchase for selected energy efficient products and services. The customer participates without having to complete and mail a rebate application. HEER will continue to collaborate with IOUs throughout the state to ensure program consistency, increase number of participating retailers, add plug load efficiency measures to its portfolio, incorporate more user-friendly website features and explore ways to offer rebates through the online purchases of qualified products within each California IOU's service territory.

Key program administration support will be provided for the following activities:

- Marketing and sales training includes training on program marketing concepts, team building, quality control, job estimation and sales prospecting
- Public education and marketing support will include information and training on working with the utility and other market key influencers.

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

- Rebate and incentives administration/accounting discusses how program administrator will track and manage incentive process.
- Quality assurance monitoring addresses and describes quality assurance protocols including random site visits.
- Data tracking, analysis, and reporting reviews and discusses program data collection requirements, for performance tracking purposes.

HEER will feature a collaborative, educational approach with retailers, distributors, contractors, manufacturers and selected customers to ensure that early retirements are presented as a cost-effective and viable alternative for home products that have an extended life cycle. This approach is intended to make the energy efficient choice attractive to the customer and beneficial to all market participants. The success of any early replacement campaign will therefore require specialized training that shows contractors and distributors how to identify early retirement opportunities, how to sell and promote energy efficiency to prospective customers, and how they can significantly improve their profitability.

The Strategic Plan calls for increasingly tighten energy efficiency standards for housing and residential appliances and to push for adoption of more environmentally friendly household appliances. Consumers may still be less inclined to move up the energy efficiency ladder to purchase products that, in spite of providing a higher level of energy savings, requiring a higher level of “out of pocket” expense. ENERGY STAR is keenly aware of these trends and is currently evaluating a “tiered rating system” to help identify ENERGY STAR rated appliances and products that exceed its baseline and meet the efficiency program guidelines for incentives. IOUs will collaborate with ENERGY STAR and others in workshops that guide the design of future rating systems.

The HEER program staff will continue to work closely with ENERGY STAR as it reviews the feasibility of using a tiered rating system and evaluates the potential impact on current utility sponsored residential rebate programs. The HEER will also utilize its on-going education of retail management to help the sales staff and customers understand the longer term benefits of selecting high efficiency appliances.

### **i. Emerging Technologies program**

The program will manage/coordinate the research for innovative methods to improve energy efficiency in existing homes. This research, in accordance with the Strategic Plan, will be conducted based upon best practices, technologies, consumer market intelligence, and EM&V studies.

### **ii. Codes and Standards program**

HEER will be coordinated with the Codes & Standards program to ensure that the impacts of any code changes are incorporated into program design and implementation and to add additional measures to the program.

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

**iii. WE&T efforts**

HEER will work with Energy Centers to design and develop training curriculums appropriate for retailers and contractors to develop skills and knowledge. In addition, HEER will work with the training staff to identify necessary training to support Workforce of the future.

**iv. Program-specific marketing and outreach efforts (provide budget)**

HEER will coordinate marketing efforts with manufacturers, distributors, retailers, contractors, and other energy efficiency and demand response market players and influencers to achieve the desired levels of customer awareness and participation within the program. All IOUs are linking their Home Energy Efficiency Surveys and their Appliance Recycling Rebate Program (please reference the separate PIPs for more information) to leverage programs across the utility and capitalize on the synergy of these offerings.

All IOUs will continue to strengthen the connection between program incentives. For example, collaborative marketing and implementation efforts will be made to link program rebates with rebates from SDG&E's third party Appliance Recycling Program when customers purchase ENERGY STAR® refrigerators and room air conditioners. PG&E is also widening its collaborative marketing and implementation effort to link Appliance Recycling Program rebates with customer purchases of ENERGY STAR® refrigerators from appliance retailers. This particular program strategy simultaneously provides a convenient means of properly and permanently retiring replaced units. A similar effort will be undertaken with SDG&E's third-party residential HVAC program for new and existing cooling systems. The integration with these and other DSM programs as well as the Energy Leader Partnerships will result in increased awareness and adoption of efficient measures throughout each IOU's service area while creating permanent and verifiable long-term energy savings.

IOUs will work together to develop an integrated marketing plan for all Californians by conducting statewide segmentation research, including LIEE and other hard to reach groups, on interests, awareness, and attitudes/perceptions related to energy efficiency and climate change messaging. IOUs will develop targeted and highly relevant energy efficiency and DSM marketing messages to incite behavior change/action; create partnerships with private industry and businesses to help motivate consumer and business sector action; and use social marketing techniques to build awareness and change consumer attitudes and perceptions.

The specific marketing and outreach budget is reflected in table 1.

**v. Non-energy activities of program**

HEER will provide training and marketing activities for participating retailers to support the program.

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

### **vi. Non-IOU Programs**

HEER will continue to work with various manufacturers, retailers, ENERGY STAR and appropriate DOE activities to support the program.

### **vii. CEC work on PIER**

HEER will work with the statewide Emerging Technology Program, CEC and PIER to take advantage of all new emerging technologies activities. HEER is committed to a timely and sensible program adoption for all cost effective measures discovered by these organizations. In some cases, additional pilots may be required to test certain parameters of these new applications.

### **viii. CEC work on codes and standards**

As part of the ENERGY STAR® movement, the HEER program works closely with the codes and standards groups. We are committed to continue this effort.

### **ix. Non-utility market initiatives**

It is possible for the participating retailers to initiate co-marketing activities with the manufacturers. At this time, the IOUs are not aware of any planned activities.

### **c. Best Practices:**

California IOUs conducted several focus groups and market research studies, as well as process evaluations, to ensure that program logic and design is consistent with market best practice, and to leverage existing relationships with program partners. In addition, program literature and energy savings benefits will target program partners in ways specific to their interaction with customers.

In a systematic approach the program will achieve energy savings through the proposed measures, while addressing market barriers specific to each end-use technology. HEER will offer other technologies as they become available in the 2009-11 program timeframe.

The Program will maximize opportunities through IDSM. The IDSM approach will create additional energy savings and integration through inter-program referral and data sharing, and bundling of DSM solutions across energy efficiency, demand response, California Solar Initiative, smart meters (AMI) and other IDSM offerings.

### **d. Innovation:**

The program's traditional framework incorporates innovative approaches to address opportunities in the midstream and downstream markets. The Point-of-Sale (POS) program element provides maximum ease for customers participation, while offering an immediate rebate at the retailer's register. In an effort to take advantage of on-line sales of appliances and equipment, the POS program element definition will be

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

expanded to include retailer and manufacturer sales made online through their respective websites.

In alignment with the Strategic Plan, the HEER program will research new and/or advanced cost-effective innovations, and behavioral attributes to reduce energy use in existing homes, AMI-based monitoring and display tools, by coordinating with emerging technology, codes and standards, and marketing and outreach.

There are several significant enhancements to the 2009-2011 program years:

- Expanding POS rebate delivery method to include additional measures. This method offers instant rebates for selected energy efficient products. The customer participates without having to complete and mail a rebate application.
- Expanding the POS retailer relationship to include sales made at the retail store location and at the retail store website.
- Linking incentives to recycling opportunities through the purchase of new energy efficient appliances. The program seeks to accelerate the increase in market share by facilitating consumer purchase of new units and the removal of old, inefficient units. The program simultaneously provides a convenient means of properly and permanently retiring the replaced units. Increased retailer interest is expected as a result.
- Continued enhancements to the electronic rebate application to improve the rebate payment process for customers using the direct customer rebate payment method.

The program expands the proportion of installed energy-efficient equipment in homes and small businesses wider and faster than would take place otherwise.

**e. Integrated/coordinated Demand Side Management:**

The IOUs will coordinate program efforts with the local utility integration teams and the Statewide Integration Task Force to identify successful integration approaches and offerings, potential pilot programs and metrics.

**f. Integration across resource types (energy, water, air quality, etc):**

SDG&E is entering into its second program cycle for a Cooperative High-Efficiency Clothes Washer rebate program with the San Diego County water Authority.

**g. Pilots:**

SDG&E will be conducting a pilot on the effectiveness of Positive Energy's Home Energy Reporting System (Energy Reports) in a test group of 25,000 households with recently installed Smart Meters. Positive Energy has developed a technology that helps analyze certain patterns and parameters of residential utility customer energy use and provides customized energy efficiency and conservation recommendations.

For this pilot program the Energy Reports consist of printed reports combined with an online Home Energy Reporting Website for the second half of the pilot program. It



**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

will begin with the use of monthly data for all designated customers, and will migrate, as the data access becomes available, to fifteen-minute frequency data. The printed Energy Reports are delivered in the mail and tell customers where they stand in their neighborhood in level of energy usage, and use their energy profile to individually target energy efficiency offers and rebates most relevant to them. The Home Energy Reporting Website is deployed as a destination for the customers to better understand their energy use and to learn about actions they may take to reduce their consumption.

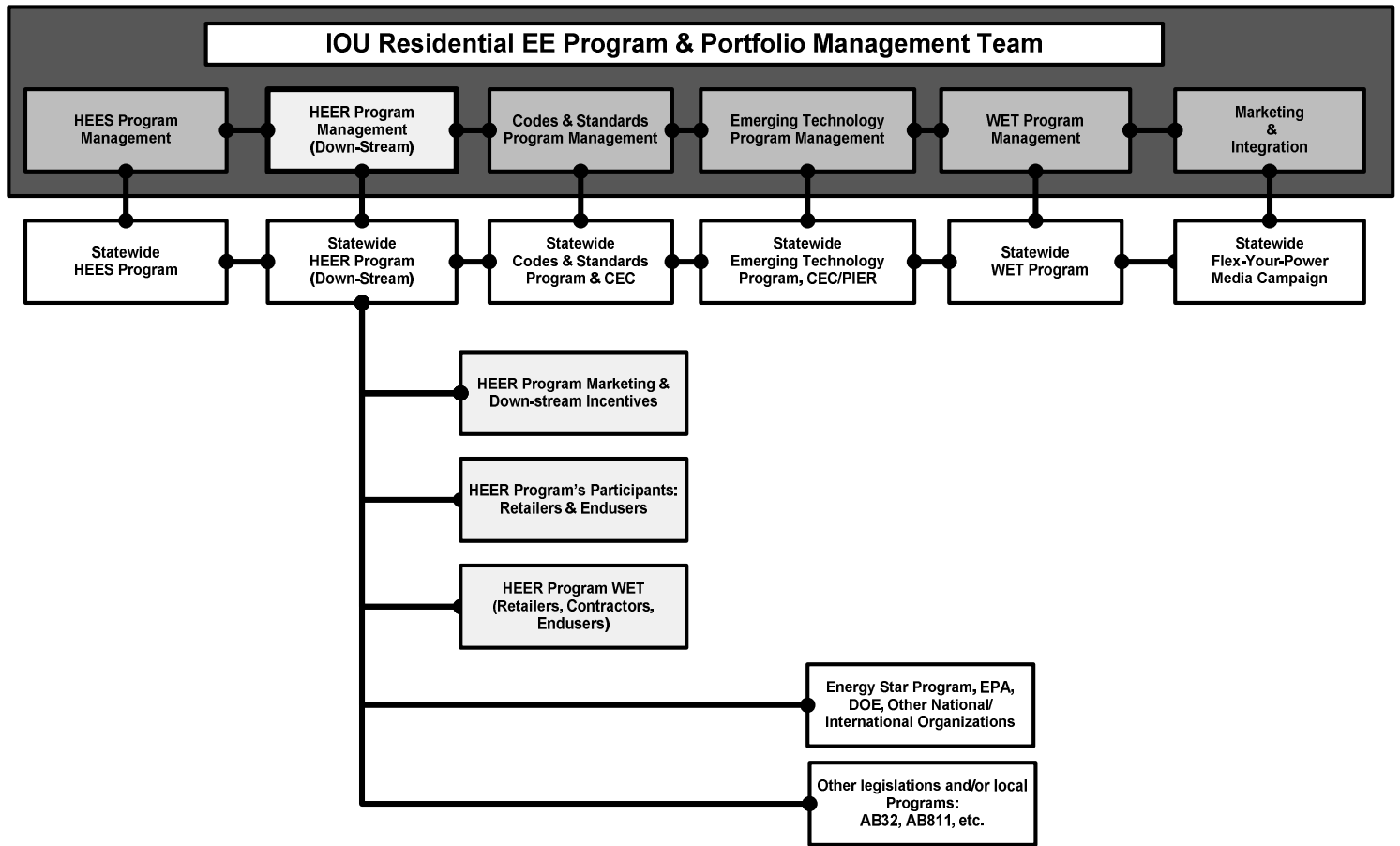
In addition, SDG&E will be piloting distribution of Home Energy-Savings Kit (EE kit) containing several energy- and water-saving measures: 1 low-flow showerhead, 2 bathroom aerators, and 1 kitchen aerator. The EE kits are available to residential customers who live within SDG&E's service territory.

**h. EM&V:**

The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2009-2011 after the program implementation plans are filed. This will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.

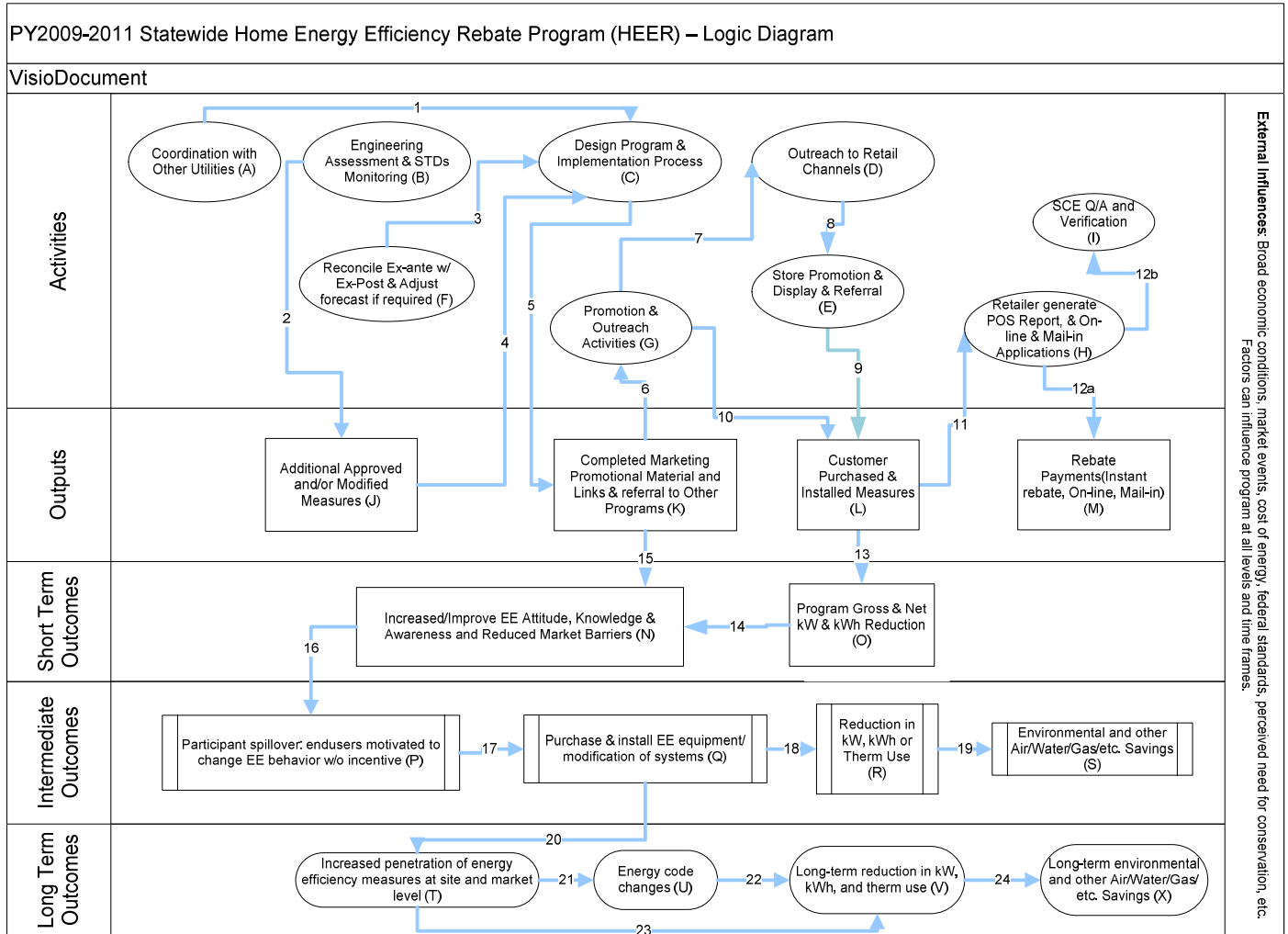
# 2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan

## 7. Diagram of Program:



# 2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan

## 8. Program Logic Model:



## 2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan

1. **Program Name:** Business & Consumer Electronics Program (BCEP)  
**Program ID:** TBD  
**Program Type:** Statewide program

### 2. Projected Program Budget Table

Table 1<sup>1</sup>

Program #	Main Program Name / Sub-Programs	Total Administrative Cost (Actual)	Total Marketing & Outreach (Actual)	TOTAL Direct Implementation	Integration Budget Allocated to Other Programs (if Applicable)	Total Budget By Program (Actual)
Market Sector Programs						
	Core Program #1					
	Sub-Program #1					
	Sub-Program #2					
	TOTAL:					

These budget numbers are presented in Appendix F: Energy Division Tables, Graphs Pie Charts: Table 7.1 - 2009 - 2011 IOU Strategic Planning Program Budget

### 3. Projected Program Gross Impacts Table

Table 2

Program #	Program Name / Sub-Programs	2009 - 2011	2009 - 2011	2009 - 2011
		Three-Year EE Program Gross kWh Savings	Three-Year EE Program Gross kW Savings	Three-Year EE Program Gross Therm Savings
Market Sector Programs				
	Core Program #1			
	Sub-Program #1			
	Sub-Program #2			
	TOTAL:			

<sup>1</sup> Definition of Table 1 Column Headings: Total Budget is the sum of all other columns presented here  
Total Administrative Cost includes all Managerial and Clerical Labor, Human Resource Support and Development, Travel and Conference Fees, and General and Administrative Overhead (labor and materials).  
Total Direct Implementation – includes all financial incentives used to promote participation in a program and the cost of all direct labor, installation and service labor, hardware and materials, and rebate processing and inspection used to promote participation in a program.  
Total Marketing & Outreach includes all media buy costs and labor associated with marketing production.  
Integrated Budget Allocated to Other Programs includes budget utilized to coordinate with other EE, DR, or DG programs.  
Total Budget is the sum of all other columns presented here  
Definition of Sub-Program: A “sub-program” of a program has a specific title; targets; budget; uses a unique delivery or marketing approach not used across the entire program; and for resource programs, has specific estimated savings and demand impacts.

## 2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan

These savings values are presented in Appendix F: Energy Division Tables,  
Graphs & Pie Charts: Table 7.2 - IOU 2009 - 2011 Program Savings Estimates

### 3. Program Description

#### a) Describe program

The Business and Consumer Electronics Program (BCEP) is a new addition to the 2009-2011 residential energy efficiency portfolio. The BCEP provides midstream incentives to retailers to increase the stocking level and promotion activities of high-efficient (i.e., ENERGY STAR®) electronic products including computers, computer monitors, cable and satellite set-top boxes, televisions and additional business and consumer electronics as they become available to the market. Smart power strips are presently under evaluation for inclusion in the program. The BCEP will also provide incentives to manufacturers selling directly to consumers or key accounts. Although SCE, PG&E and SDG&E share similar program theory, design and goals, each IOU may implement its program logistics differently.

The program plans to expand and leverage the point-of-sales (POS) rebate delivery method, provide field support services to update marketing materials in retail stores, and support education of the retailer sales force. The BCEP includes a linkage to an online information system designed to identify the most energy-efficient and environmentally friendly products available in the market for multiple categories, including televisions, appliances, and computers.

#### b. List measures:

The following incentives will be available through the program:

Measures	Incentive
>ENERGY STAR® qualified Televisions	\$20.00
LCD monitors	\$7.50
ENERGY STAR 4.0® qualified Computers	\$8.35

#### c. List non-incentive customer services

The non-incentive service includes a web-link to an on-line information system mentioned above to help California residences identify the most efficient and environmental friendly consumer electronic products available in the market. The non-incentive services include outreach and educational activities for the manufacturers, retailers, and consumers. These outreach and educational activities will be further detailed in the implementation plan below.

### 4. Program Rationale and Expected Outcome

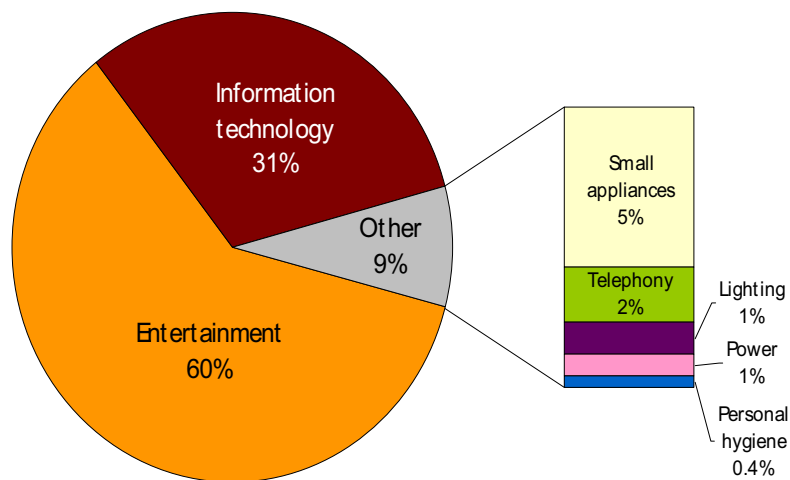
The BCEP is designed to respond to the growing plug-load energy usage in the households. Today, the California IOUs all have a portfolio of residential programs designed in two different approaches: (1) a measure-specific appliances approach (i.e., HEER program) or (2) a comprehensive household performance and building envelop approach (i.e., SCE's local Comprehensive Home Performance Program).

## 2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan

The BCEP is designed to address the full range of growth of household plug-loads. This program is a logical sub-component of the IOUs residential portfolio.

A review of residential plug loads conducted by Foster Porter et al. (2006) shows that home entertainment and information technology products dominate the electric energy use for plug loads making up 60% and 31% respectively of plug load energy use, and together represent more than 90% of total residential plug load energy use as shown in Figure 1 below.

**Figure: Share of Plug Load Energy Use by Product Category (Foster Porter et.al., 2006)**



Source: Foster Porter, S., Moorefield, L., & May-Ostendorp, P. (2006). Final Field Research Report. Retrieved November 11, 2008, from <http://www.efficientproducts.org>

The above study by Foster Porter et al was published in 2006 and included telephone surveys of 300 California homes to ascertain the number and type of plug-load devices, field visits to 75 of these homes where power consumption of an average of 17 plug load devices was measured, and extended field visits to 50 of the homes where detailed, time-series measurements of energy consumption were taken over a one-week period.

The tables below, are also from the Foster Porter study, show the estimated average annual energy use (kWh) by device type for the home entertainment and information technology categories. As you can see, a few of these measures are already selected for the initial BCEP implementation. As the list indicated below, the BCEP is starting with three basic measures but the program could evolve quickly to include additional measures including in-home energy monitoring system, to address the plug-load growth in a comprehensive manner.

## 2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan

### Home Entertainment Product Types and Energy Use

PRODUCT	AVERAGE ANNUAL ENERGY USE (KWH)
Plasma TV (<40")	441
Personal Video Recorder (PVR)	363
Digital Cable Set-Top Box (STB)	239
Digital Cable STB with PVR	376
Satellite Cable STB with PVR	236
Receiver	143
Satellite Cable STB	124
CRT TV (<40")	123
LCD TV (<40")	77
Speaker	66
Sub-woofer	60
Audio Mini-System	58
DVR	52
VCR	34
Portable Stereo	18
Radio	18
Video Game Console	16
DVD	13
Amplifier	13
CD Player	12

Source: Foster Porter, see citation above

### Information Technology Types and Energy Use

PRODUCT	AVERAGE ANNUAL ENERGY USE (KWH)
Desktop Computer	255
Laptop Computer	83
CRT Monitor	82
LCD Monitor	70
Multi-Function Printer/Scanner/Copier	55
Modem	50
Wireless Router	48
Fax	26
Computer Speakers	20
USB Hub	18
Printer	15

Source: Foster Porter, see citation above.

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

**a) Quantitative Baseline and Market Transformation Information:**

**Table 3**

	<b>Internal Market Transformation Planning Estimates</b>		
Market Sector and Segment	2009	2010	2011
Metric A			
Metric B			
Metric C			
Metric D			

Refer to the overarching PIP section.

**b) Market Transformation Information**

**Table 4**

	<b>Internal Market Transformation Planning Estimates</b>		
Market Sector and Segment	2009	2010	2011
Metric A			
Metric B			
Metric C			
Metric D			

Refer to the overarching PIP section.

**c) Program Design to Overcome Barriers:**

BCEP’s innovative program design, although exciting, has several build-in program barriers. The program is designed to provide incentives to the mid-stream retailers. The total distribution channel for the consumer electronic devices is complex and worldwide. Below, we have outlined a few possible program barriers:

- Given the amount of incentive provided (\$7.50 to \$20.00 per measure), the retailers may not give the IOUs their full endorsement by committing time and resource to promote the BCEP.
- Despite the program’s outreach to the manufacturers, given the complexity of these electronic products, the development cycle to include products that exceed ENERGY STAR® specifications may take years to achieve. In some cases, the manufacturers may be more motivated to develop features more important to meet more immediate needs to gain market share (i.e., reduce total product cost versus adding ENERGY STAR+ features) rather than devoting the resources to develop the necessary ENERGY STAR® features.
- By looking at the success of the CFL lighting program which took the approach to reduce overall product cost at the consumer level through manufacturing buy-downs, the BCEP’s approach to the consumer is more indirect. It is possible, despite the program promotional efforts and the appeal for consumers to take



**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

environmentally responsible actions, an enduser level rebate would still be required to motivate actual purchase.

Based on our discussions with the retailers and manufacturers, we believe the BCEP’s program design is sound. The initial discussions with the retailers indicated that they are very exciting with the program design and the level of program incentive is significant given their business model. As part of the ongoing process evaluation, the IOUs will continue to monitor the other potential barriers.

**d) Quantitative Program Targets:**

**Table 5 Program Activity Targets**

SCE	Program Target by 2009	Program Target by 2010	Program Target by 2011
Target #1 Sign up # manufacturers to participate in the program	Grow the list of participating manufacturers to a minimum of 5 for 2009-2011 program cycle	Same as 2009	Same as 2009
Target #2 Sign up # of retailers and retailer stores to participate in the program	Grow the list of participating retailers to a minimum of 5 for 2009-2011 program cycle	Same as 2009	Same as 2009
Target #3 Collect % of POS data so the consumers can be identified	Collect a minimum of 1% POS consumer contact information for 2009-2011 program cycle	Same as 2009	Same as 2009
Target #4 Complete # of marketing, educational and outreach events	Part-1: Visit or contact each participating manufacturers and	Same as 2009	Same as 2009

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

SCE	Program Target by 2009	Program Target by 2010	Program Target by 2011
	retailers once per year to deliver program information and education  Part-2: Develop on-line interactive training to allow remote access by program participants, to be completed by 2010		
Target #5 Meet 100% of program kW and kWh goals.	Meet 100% kW or kWh goals for 2009-2011 program cycle	Same as 2009	Same as 2009

<b>Metrics and Market Transformation Projections PG&amp;E Participation Metrics</b>				
		2009	2010	2011
Metric A	Mass Market Channel Partner Participation Total (# of firms at year end)	13	18	24
Metric B	Retailer Participation (# of firms at year end)	6	8	10
Metric C	Buying Group Participation (# of firms at year end)	2	3	4
Metric D	Internet Retailer Participation (# of firms at year end)	5	7	10
Metric E	Business Channel Partner Participation Total (# of firms at year end)	4	9	14
Metric F	Computer OEM Participation (# of firms at year end)	2	4	6
Metric G	TV OEM Participation (# of firms at year end)	2	5	8

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

<b>Metrics and Market Transformation Projections</b>				
<b>PG&amp;E Awareness Metrics</b>				
		2009	2010	2011
Metric A	Retailer Employee Training Sessions per Year	212	42.4	139.1
Metric B	Point of Purchase Materials Placed per Year (1,000 Pieces)	42.4	63.6	84.8

SDG&E	Program Target by 2009	Program Target by 2010	Program Target by 2011
Target #1	TBD	TBD	TBD
Target #2	TBD	TBD	TBD
Target #3	TBD	TBD	TBD
Target #4	TBD	TBD	TBD
Target #5	TBD	TBD	TBD

**e) Advancing Strategic Plan goals and objectives:**

The BCEP supports the California Long-Term Energy Efficiency Strategic Plan (Strategic Plan) by motivating retailers to stock more efficient products which, in turn, can drive manufacturers toward the development and introduction of more efficient products into the market. Since the midstream incentives are offered on measures that have been identified as “plug load” products, BCEP addresses the “plug load” efficiency strategy identified in the Strategic Plan.

Residential plug load has been identified as an area of increasing significance within the Strategic Plan due to increases in the number and volume of consumer electronics devices in the market<sup>1</sup>. BCEP will help stem the dramatic load growth, attributed to the rapid proliferation of increasingly energy-intensive consumer electronics, in both business and residential customer categories. The program provides a consistent and recognizable program presence throughout the state and offers similar measures, incentives and processes.

3-1: Drive continual advances in residential energy usage, including plug loads, home energy management systems, and appliances - This program is part of the solution to reduce energy consumption in California households. The current design does not specifically address ED’s request to transform the market to meet the Strategic Plan’s goal of 30% or 70% deep energy consumption by 2020.

3-3: Create demand for such products through market transformation activities - Plug loads will be managed by developing consumer electronics and appliances that use

<sup>1</sup> The California Energy Efficiency Strategic Plan, Strategy 3; page 2 - 11

**2009-2011 Energy Efficiency Programs**  
**Statewide Residential Energy Efficiency**  
**Program Implementation Plan**

less energy and provide tools to enable customers to understand and manage their energy demand.

3-4: Continuously strengthen standards, including the expansion of both Title 24 and Title 20 to codify advances in plug load management - BCEP will continue to interact with the California Energy Commission (CEC). The program supports CEC efforts to draft modifications to California's Title 20 Appliance Code for new or updated efficiency standards. The BCEP Program will base advanced specifications, beyond ENERGY STAR®, on Consortium for Energy Efficiency (CEE) standards.

**5. Program Implementation**

**a) Statewide IOU Coordination:**

**i. Program name** - Business and Consumer Electronics Program

**ii. Program delivery mechanisms:**

The program will be delivered through a midstream strategy aimed at manufacturers and retailers to increase the stocking, promotion, and sales of energy efficient electronic equipment. Retailer relationships established through the Home Energy Efficiency Rebate Program will be leveraged to establish a more robust relationship.

Midstream rebates will be paid to retailers on a per unit basis. Sales from each approved retailer location will be summarized by store location and product type, and submitted by the retailer on a monthly invoice to the program. An outside vendor will provide field support services to place marketing materials in retail stores, ensure qualified product identification on retail store floors, remove outdated materials and provide support education to the retailer sales force on delivering the most impacting energy efficient customer purchasing decision message.

The rationale for a statewide program is twofold: gain leverage with the retailers and outreach, education and marketing entities to increase their participation in this program and gain economic leverage for each utility. Combined, these factors will contribute to reduce the cost to California electricity consumers to capture the savings available from electronics.

As a statewide program, the program will enjoy measure development efficiencies, coming from not duplicating the research and development cost for work papers, etc. This is significant in that there are multiple product categories that need to be managed on an ongoing basis. Additionally, the program provides a model for utilities across the nation to follow, thereby increasing the overall leverage that utilities can have to increase the share of highly efficient electronics in the US market.

The program is designed to work with Original Equipment Manufacturers (OEMs) and retailers. The consumer electronic market is driven by a two-tier

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

distribution channel. These OEMs can sell products directly to key accounts and on-line stores, primarily a B2B model. These OEMs will also use the two-tier distribution channel to reach end-users through mid-channel players such as retailers and Value-added resellers (VARs), this is typically referred to as a B2C model. For the OEMs selling directly to end-users and key accounts, they will be incented to market high efficiency electronics to the consumer market. For retailers, they will be incented to market high efficiency electronics to the consumers and business customers.

This midstream program design is based on several factors: the small size of the potential incentives, their limited impact on consumer behavior, the large number of rapidly changing product lines (i.e., often with 12 months or less product life), and the huge volume on electronics devices sold. In order to keep the program cost effective, the average incentive offered is less than \$20 per unit.

Combined sales of the consumer electronic products exceed \$7 million annually. This, combined with the fact that there are almost 7,400 retail electronics outlets in California, necessitates a program that is top-down and driven by corporate decision makers instead of store-level decision makers. This ensures an economically efficient and effective program. If this were a downstream program, it would require processing 1.4 million rebates to meet the proposed market share goal of 20%. Given the associated costs for a downstream approach, it would make the BCEP cost prohibitive to implement.

Below is a list of targeted retail participants, on-line channels, and OEMs for the BCEP:

<b>Retailers</b>	<b>Dotcoms</b>	<b>OEMs</b>
Best Buy Co Inc	Newegg.com	<b>Computer</b>
Wal-Mart Stores Inc	Amazon.com, Inc.	HP
Circuit City Stores Inc	TigerDirect	Dell
Target	PC Mail	Lenovo
Costco	Buy.com	Apple
Sears/Kmart	Overstock.com	Gateway
Sam's Club	Alienware	Sony
Apple Retail Stores	CDW	<b>TV</b>
Office Depot, Inc.		LG
Fry's Electronics Inc		Phillips
Staples, Inc.		Sony
Office Max		Samsung
Buying Groups-Nationwide		Toshiba
		Sharp
		Panasonic

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

**iii. Incentive levels**

See section 4b for the incentive levels.

**iv. Marketing and outreach plans**

The program will target the consumer electronics market, primarily with midstream incentives, to increase the market share for ENERGY STAR® qualified and/or higher efficiency electronics measures.

The TOPTEN USA project is a coordinated effort of several utilities across the nation and provides an internet-based information system, modeled after a product currently available in Europe, to assist customers with identifying the "top ten" most energy-efficient and environmentally friendly products available. The TOPTEN USA website will be a collaborative effort among the World Wildlife Fund, Northeast Energy Efficiency Partnerships (NEEP), the CEE, the California utilities, and others. Eventually, TOPTEN USA may expand to include other states, regions or the entire United States. The implementation of the TOPTEN USA, as part of BCEP marketing implementation, will be outlined in detail once the program is approved.

The educational marketing outreach will be comprehensive and integrated to reach both B2B and B2C markets. Integration will also take place in cooperation between all IOUs and other utilities within California. Four levels of marketing outreach are planned:

- Outreach directly to corporate level decision makers in retailers and OEM
- Outreach to store/field level personnel and operations through professional detailing groups. These actions ultimately reach the residential customer
- Outreach to associations and industry groups to garner program support and participation
- Outreach to raise internal awareness for employees, and to service and sales teams

Marketing outreach to channels and OEMs will be implemented by a single entity at the program participants' headquarters level. The program coordination has to take place with program decision makers to agree on products and promotional support activities. Coordination also has to take place with program developers to implement the details of each marketing campaign across multiple store geographies and multiple utilities. Finally, coordination has to take place with data managers and data reporting functions.

Marketing outreach at the retailers' field level will be conducted through detailing firms who will provide in store/field level support for each channel program in several ways:

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

- Place point of purchase materials in stores and on selected products
- Train store personnel about the program
- Track promotional and placement activity
- Provide electronic reporting of activities

Some customization of marketing promotional policy (i.e., possible restriction for quantity limitations) may differ at the field level by region. However, POP signage requirements will have to be standardized based on retailer requirements for a standard look and feel across their stores.

Additional media recommendations for consideration including: TV, cable, radio, prints: newspaper, journals and publications, advertorials, and a possible micro-site. The program will assess the promotional needs for in-home, outdoor, and other end-user outreach venues, based on cost-effectiveness.

Outreach will be implemented with trade associations and trade groups to promote the program and to increase the speed and efficiency of market penetration. Some of the tactics under considerations include:

- Consumer Electronic Show (CES) – national/international format to bring together manufacturers and resellers of all consumer electronics product lines
- Retail Vision – national venue to bring together web retailers who control the internet electronics retails space

To fully understand the requirements for the different levels of marketing and implementation effectiveness, various market research and measurement and evaluation studies will be required. Below you will find a short list of possible studies:

- General consumer purchase behavior study, market trend monitoring, competitive dynamic analysis within the BCEP market
- Pre-program launch data requirements (baseline data)
- Program cycle data collection and Q/C process (satisfaction and AKA data)
- Marketing program effective evaluation
- Program participant satisfaction

To address these market research and M&E requirements, please refer to the M&E section of the implementation plan.

**v. IOU program interactions with other entities**

Extensive coordination will occur in 2009 between BCEP and the EPA ENERGY STAR® Program. All program product specifications will be based on ENERGY STAR® standards and reporting, and the ENERGY STAR® brand and marketing efforts will be leveraged wherever possible.

BCEP will continue to interact with the CEC. The program works closely with the CEC to draft modifications to California's Title 20 Appliance Code for new or updated efficiency standards.

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

The BCEP Program will base advanced specifications, beyond ENERGY STAR, on CEE standards.

More comprehensively, the BCEP will look to setup a national forum in collaboration with DOE, EPA, CEE manufacturers, California IOUs, and other state and local energy efficiency program. This forum will specifically address the top level Strategic Plan strategy of raising plug-load efficiency and behavioral solutions. The purpose of this forum is to increase awareness and to encourage efficient use of BCEP qualifying products.

### **vi. Similar IOU and POU programs**

The closest electronics program is the 80+ program, which provided incentives to manufacturers to adopt a high-efficiency power supply as an OEM component to computers. This program focused on creating market awareness of the 80+ brand and worked with power supply manufacturers and computer OEMs to gain adoption. Despite the good program concept, the 80+ program was terminated early due to little market toehold.

Consistent with the Strategic Plan strategy, the BCEP advances comprehensive energy efficiency measures to specifically address the growth of plug-loads, and plug load efficiency. Over time, the BCEP could evolve to include smart-house energy monitoring systems. The BCEP team will coordinate activities with the IDSM programs to ensure consistent implementation.

*Program Integration:* The BCEP is part of the overall residential program portfolio to address and curb the various energy growths within the California households. It will leverage and integrate marketing activities with programs such as HEER, MFEER, ARP and others.

This approach will create additional energy savings and integration through inter-program referral and data sharing, and bundling of Demand Side Management (DSM) solutions across energy efficiency, demand response, solar initiative, smart meters and other Integrated Demand Side Management (IDSM) efforts.

*Support for LIEE and Non-LIEE qualifying low income families:* The BCEP will coordinate activities with LIEE to make sure all qualifying LIEE participants are aware of the BCEP. As a midstream program, BCEP will work with local/municipalities to support AB811, so the Non-LIEE qualifying low income families' needs can be best served, while adhering to BCEP's program guidelines.

### **b) Program delivery and coordination:**

#### **i. Emerging Technologies program**

The BCEP has the potential to grow and add many other relevant measures identified above. The BCEP has to aggressively monitor each of these product categories to gauge the readiness of the measures. Some of these products have



## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

very long product development cycles and others have short development cycles. This means the BCEP must stay flexible to keep up with this dynamic market.

This emphasizes the importance of close coordination with Emerging Technologies and Technology Transfer. A long-term strategic roadmap is needed to guide the program in setting appropriate levels for product specifications within the program. Below is an outline of a few key elements of this roadmap:

- Understand and integrate electronics industry manufacturing and retail product development and business cycles into BCEP planning.
- Integrate coordination with ENERGY STAR® standards development timeline and availability.
- Keep the BCEP measures with their life cycle requirements (i.e., some of these products may have a very short commercial product life cycle and newer more advanced model may emerge quickly)
- Conduct technology assessments such as baseline energy use and energy saving potential for new technologies to support new work papers.
- Coordinate technology transfer activities with the statewide BCEP team.

### **ii. Codes and Standards program**

The BCEP will work with the Codes & Standards (C&S) program to ensure that the impacts of any code changes are incorporated into program design and implementation, especially any ENERGY STAR® standards.

The BCEP program team plans to work closely with the C&S teams to focus on a long-term market transformation, using a combination of appliance standards, customer incentives, and education. For PG&E, this extensive coordination has already occurred for televisions in 2008. An overarching goal for this coordination is to develop incentive and standard levels so that the incentive program will support and encourage energy-efficient product innovation while paving the way for Title 20 performance standards.

### **iii. WE&T efforts**

Workforce Education and Training needs to take place at multiple levels: (1) for the retail store and (2) for the retailers corporate/headquarter decision makers, and (3) for OEM manufacturers.

For the retail stores:

- The BCEP will provide training to store-level personnel at participating retailers. These training activities will be supported by regular surveys to determine the effectiveness of the training.

For retailers' headquarter decision makers:

- The IOU account managers will work with buyers and merchandisers at the participating retailers' headquarter accounts to educate them about the availability, desirability and benefits of BCEP qualifying electronics.

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

For the OEM manufacturers:

- The IOUs will work OEM manufacturers to educate their product managers and marketing groups about the importance of designing ENERGY STAR® qualified and beyond features into their products.

Finally, the IOUs will work with all of the above to develop marketing programs to educate consumers as to benefits of BCEP qualifying products to increase awareness.

#### **iv. Program-specific marketing and outreach efforts (provide budget)**

The BCEP is currently considering a full range of marketing tactics. Below, you will find a short list of these activities:

- Specific outreach and training efforts to encourage manufacturers, retailers and VARs to participate in the program. (i.e., individual meetings, trade shows, and trade organizations)
- Media advertising as part of Flex-Your-Power ads (TV, cable, radio, newspapers, internet, etc.,)
- Displays and signage such as billboards, out-of-home locations,
- Displays at participating retailer locations,
- Other more innovative venue such as mobile communication, cell phone text, and others,
- IOU specific micro site,
- Co-ops and co-branding with various manufacturers, retailers and VARs.

#### **v. Non-energy activities of program**

The program does not have any non-energy activities planned. All program activities are directed to engage program participants at the multiple levels to promote and purchase ENERGY STAR qualified BCEP measures.

#### **vi. Non-IOU Programs**

The Los Angeles Department of Water & Power is in active discussions to start a similar program. There is also an active pilot program designed by Sacramento Municipality District (SMUD) and PG&E. PG&E and SMUD have actively been participating since mid 2008.

Here are some of the details:

1. SMUD is part of the governing council and has input into program design decisions
2. SMUD uses PG&E generated work papers and research
3. Funding arrangements:
  - SMUD pays all expenses directly to QDI Strategies, Inc. (for Account Management and program development support). QDI contracts with the detailing firm and charges SMUD for the detailing services used.

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

- SMUD pays all data management and reporting costs directly to Energy Solutions.
- PG&E negotiates a program budget for all services from QDI and Energy Solutions to include all costs for PG&E and SMUD. This model has been designed to make it easy for more utilities to join the program, thereby increasing the program's impact and reducing its cost to all utilities.

**vii. CEC work on PIER**

Similar to the discussion on the importance of working with the statewide Emerging Technology Program, the BCEP will work closely with CEC and PIER to maximize all outputs.

**viii. CEC work on codes and standards**

Similar to the discussion on the statewide Codes and Standards Program, the BCEP program understands the importance of all standards related work and will implement all appropriate requirements.

**ix. Non-utility market initiatives**

The BCEP will work closely with the participating manufacturers, retailers and VARs to design specific marketing initiatives. It is possible for the manufacturers and retailers to conduct special promotion on their own. However, the timing of such activities is not known to the BCEP at this time.

**c. Best Practices:**

BCEP builds on the program designed for the 2008 Flat Panel Monitor and 80+ Rebate third-party programs that focused on promoting high-efficiency computers and computer monitors, which offered upstream and midstream rebates to major consumer electronic retailers and manufacturers.

We have learned two key challenges to the energy efficiency intervention: (1) the small per unit savings can spread across millions of units; and (2) rapidly changing baseline efficiencies due to quickly evolving products and markets. Past experience with the HEER, upstream HVAC and Motors Program and others show that these challenges are best addressed at the midstream level.

Past experience has also shown that major retailers wield enough market power that they determine what product features the manufacturers bring to market. Increased demand for high efficiency consumer electronics from a retailer with strong purchasing power can transform the supply chain. A midstream incentive to retailers will create willingness for the retailer to report on the large number of individual sales transactions and actively identify and display the new ENERGY STAR® qualifying products that come to market.

The BCEP incorporated many "best practices" in its program design. Below you will find examples of such program design lessons learned:

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

- Program timing – Each product category in the market has its own cycle (for example, the television market life cycle, manufacturers work on an 18 month design cycle – in terms of its impact on retail televisions. Thus, they need to know 18 months in advance the televisions to promote in their sales cycle each fall. This means that they need to know the program efficiency targets in March of 2009 the televisions they will sell in September 2011. Likewise, the retailers will be making buying decisions in the late fall of 2010 through early 2011 for the products they will sell throughout 2011 and into 2012 when the new 2012 model shows up. Design and marketing cycles such as this must be managed and coordinated on an ongoing basis with all the stakeholders for each product category. The BCEP roadmap planning and coordination activities will help facilitate this level of planning.
- Dedicated/Experienced Account Relationship Management – This program is based on changing the behavior of manufacturers and retailers. It requires access and relationships with these people. It does little good to run this program through environmental affairs groups unless those groups can and will influence the buyers/decision makers. It is much more effective to develop relationships with these personnel. Key lessons to keep in mind when trying to influence the buyers/decision makers:
  - The target personnel are extremely busy, particularly at key seasons during the year.
  - They focus their energy attending to only core activity relevant to their business. It is critical that BCEP activities become more closely aligned to their core activities.
  - Assigning the right program people to fully dedicate to developing and maintaining these multi-level relationships is critical to program success.
  - Developing relationships with all the channel players is critical to reaching the shared goals with these key players.

The BCEP's planned outreach and marketing activities are designed with the above items in mind.

- Quality & availability of data – Quality data is required in order to develop accurate work papers and engage OEMs and retailers in the program. There are several lessons learned from the PG&E television pilot:
  1. Data and product availability can be a serious problem. For example, there isn't a readily available list for qualifying televisions.
  2. Retailer's purchasing decisions can seriously impact work papers and expected sales volume.
  3. Any delays in ENERGY STAR® standards development can impact channel participation.

By working closely with retailers, PG&E was able overcome the issues identified above and to gain access to retailer's sales data, hence deriving the market penetration estimate for ENERGY STAR® qualified televisions.

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

### **d. Innovation:**

Innovative program implementation strategy is an excellent example of managing complexity. The program has multiple moving parts and requires many levels of participation:

- OEM manufactures,
- Retailers at store front and executive offices,
- Many national and statewide stakeholders and trade associations,
- Consumer groups,
- Standards groups.

The BCEP consists of many design elements that can be a model for other statewide implementation. To be effective reaching these audiences and orchestrating this complex program, a sophisticated implementation team is required.

### **e. Integrated/coordinated Demand Side Management:**

The IOUs will coordinate program efforts with the local utility integration teams and the Statewide Integration Task Force to identify successful integration approaches and offerings, potential pilot programs and metrics.

### **f. Integration across resource types: (energy, water, air quality, etc):**

Initially, the BCEPs will focus on electrical plug-load applications. Over time as the program evolves, water and air-quality monitoring in a smart house scenario is entirely within the program scope and range.

### **g. Pilots:**

In 2006-2008, The 80+ program is a SCE/PG&E pilot where we tested efficiency of ES computers. We have also tested the ES LCD monitors as part of the Monitor Program. As indicated earlier the 2009-2011 BCEP program is building up lessons learned from both of these pilots. Collectively, we learned the importance of having a statewide program and the need for cohesiveness support of ES standards.

PG&E and SMUD entered a pilot program in 2008 to develop the experience necessary to ramp up a program in 2009 and to capture sales of televisions during the transition to digital television. The PG&E pilot program team meets weekly to identify status of program elements, identify future issues and develop actions to meet future requirements. This team structure and operational procedures is part of a program framework that can be expanded to a larger number of utility participants. PG&E agrees to share all key pilot findings with other California IOUs and ED so to speed up the statewide BCEP implementation for 2009-2011 program years. The other IOUs BCEP will leverage lessons learned by PG&E/SMUD pilot programs. Additional pilots may be explored as we add more measures and components to this program.

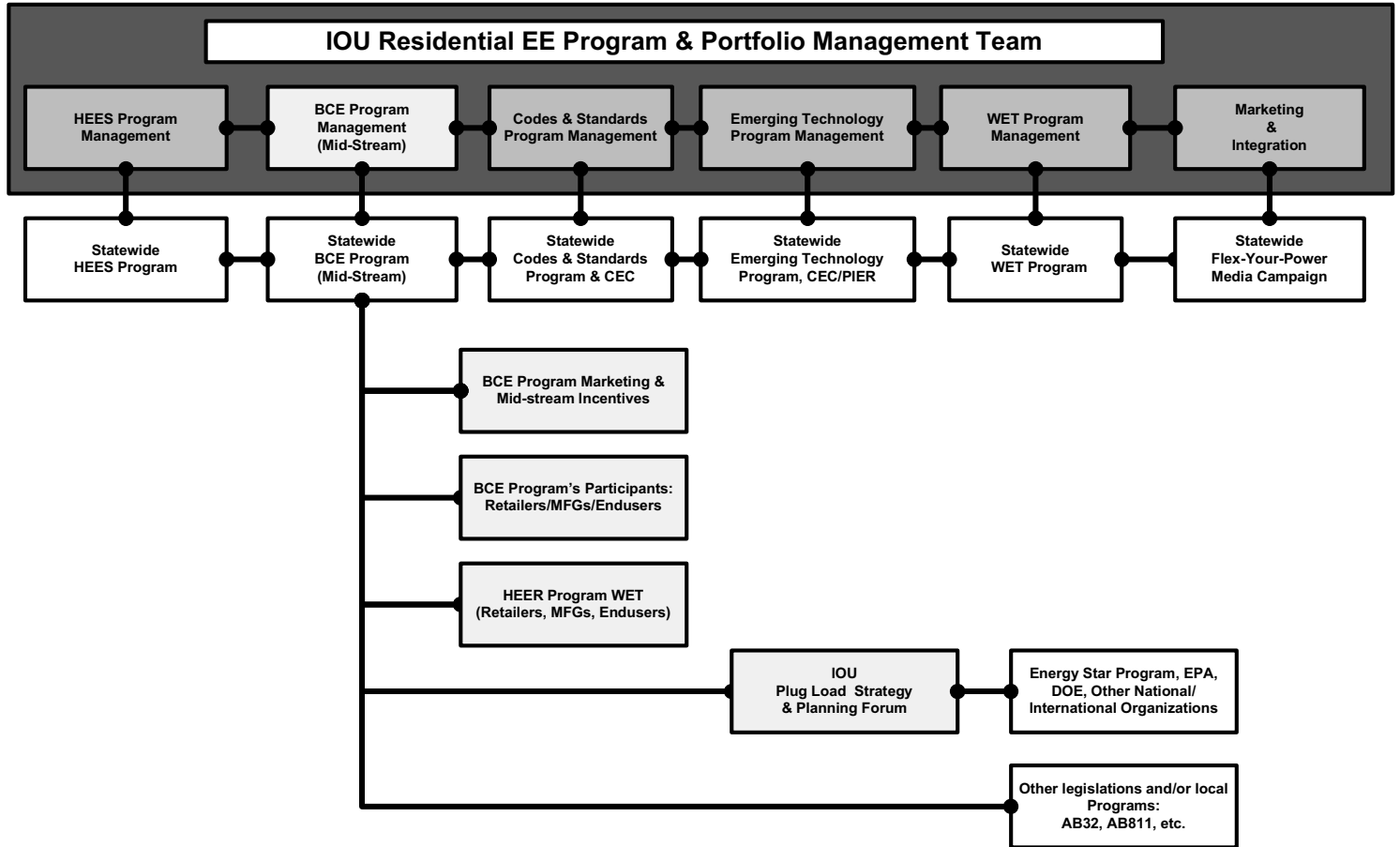
**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

**h. EM&V:**

The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2009-2011 after the program implementation plans are filed. This will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.

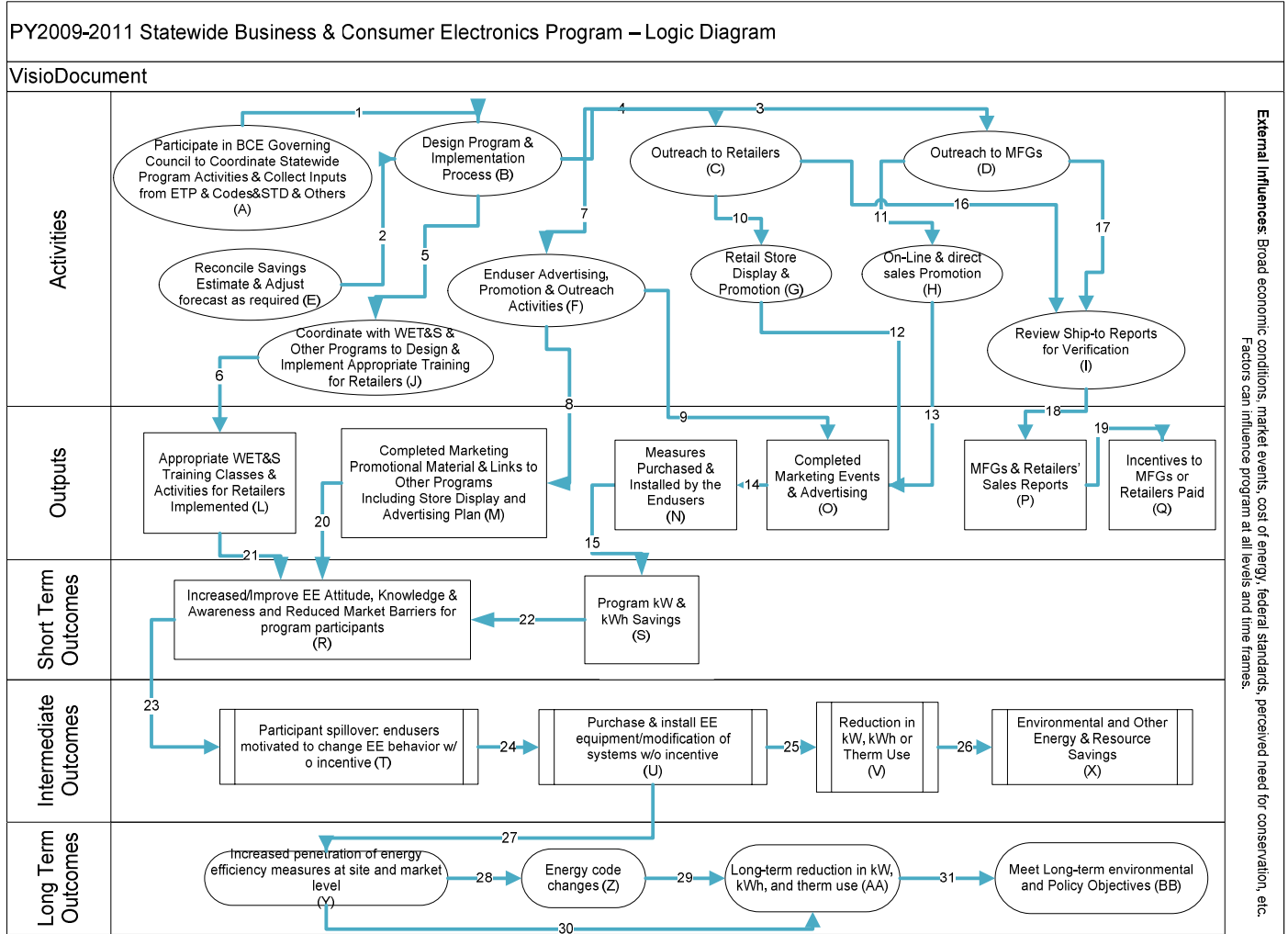
# 2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan

## 6. Program Interaction Diagram:



# 2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan

## 7. Program Logic Model:





## 2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan

1. **Program Name:** Home Energy Efficiency Survey Program (HEES)  
**Program ID:** TBD  
**Program Type:** Statewide Core Program

### 2. Projected Program Budget Table

Table 1<sup>1</sup>

Program #	Main Program Name / Sub-Programs	Total Administrative Cost (Actual)	Total Marketing & Outreach (Actual)	TOTAL Direct Implementation	Integration Budget Allocated to Other Programs (if Applicable)	Total Budget By Program (Actual)
<b>Market Sector Programs</b>						
	Core Program #1					
	Sub-Program #1					
	Sub-Program #2					
	Etc.					
	<b>TOTAL:</b>					

These budget numbers are presented in Appendix F: Energy Division Tables, Graphs Pie Charts: Table 7.1 - 2009 - 2011 IOU Strategic Planning Program Budget

### 3. Projected Program Gross Impacts Table

Table 2

Program #	Program Name / Sub-Programs	2009 - 2011	2009 - 2011	2009 - 2011
		Three-Year EE Program Gross kWh Savings	Three-Year EE Program Gross kW Savings	Three-Year EE Program Gross Therm Savings
<b>Market Sector Programs</b>				
	Core Program #1			
	Sub-Program #1			
	Sub-Program #2			

<sup>1</sup> Definition of Table 1 Column Headings: Total Budget is the sum of all other columns presented here  
Total Administrative Cost includes all Managerial and Clerical Labor, Human Resource Support and Development, Travel and Conference Fees, and General and Administrative Overhead (labor and materials).  
Total Direct Implementation – includes all financial incentives used to promote participation in a program and the cost of all direct labor, installation and service labor, hardware and materials, and rebate processing and inspection used to promote participation in a program.  
Total Marketing & Outreach includes all media buy costs and labor associated with marketing production.  
Integrated Budget Allocated to Other Programs includes budget utilized to coordinate with other EE, DR, or DG programs.  
Total Budget is the sum of all other columns presented here  
Definition of Sub-Program: A “sub-program” of a program has a specific title; targets; budget; uses a unique delivery or marketing approach not used across the entire program; and for resource programs, has specific estimated savings and demand impacts.

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

Program #	Program Name / Sub-Programs	2009 - 2011	2009 - 2011	2009 - 2011
		Three-Year EE Program Gross kWh Savings	Three-Year EE Program Gross kW Savings	Three-Year EE Program Gross Therm Savings
	Etc.			
	<b>TOTAL:</b>			

These savings values are presented in Appendix F: Energy Division Tables,  
Graphs & Pie Charts: Table 7.2 - IOU 2009 - 2011 Program Savings Estimates.

**4. Program Description**

**a. Describe program:**

This program is a continuation of the existing statewide Home Energy Efficiency Survey (HEES) program within the residential energy efficiency portfolio. Although SCE, PG&E and SDG&E share similar program theory, design and goals, each IOU may implement its program logistics differently.

The program provides customers with information to help them become familiar with ways to control and reduce energy and water usage in their homes by offering customers up to four options (mail-in survey, on-line survey, phone survey, and in-home survey) in multiple languages (English, Spanish, Vietnamese, Chinese, and Korean) including an action plan for implementation. The program also provides survey results to enable participants to understand how their energy use varies throughout the year and how their household compares with similar households. This multi-language approach enhances the program's ability to reach southern California's diverse culture and provides efficiency recommendations based on a whole-house system approach.

**b) List measures**

Measures or offerings vary by IOU as outlined below:

Measures	SCE	SoCalGas	PG&E	SDG&E
On-line Survey	X	X	X	X
Mail-in Survey	X	X	X	X
In-home Survey	X	X	X	n/a
Telephone Survey	X	n/a	X	n/a
Multi-family Survey	X	X	n/a	X
CFLs	X	n/a	X	X

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

Measures	SCE	SoCalGas	PG&E	SDG&E
Faucet Aerators	X	X	tbd	tbd
Showerheads	X	X	tbd	tbd
LED night lights	X	n/a	tbd	tbd
Air-Filter Alarms	X	X	tbd	tbd

**c) List non-incentive customer services**

The HEES Program offers customers detailed reports on their actual energy usage, including:

- Rate and usage analysis, and
- Household usage data and comparison.

In addition, the program provides information and literature on:

- Water conservation
- Energy efficiency and IDSM Programs
  - Residential Energy Efficiency
  - Summer Discount Plan (SDP)
  - California Solar Initiative (CSI)
  - Peak Demand Initiatives (DR)
  - Low Income Energy Efficiency (LIEE)

The information provided in the comprehensive HEES report sent to customers will be developed on a statewide level. The report options will include historical usage data to customers. The report options may also provide a platform to measure sustainable reductions in energy usage for the customer and the IOU's. In addition, data collected from the survey questionnaire will be utilized to provide targeted marketing and strategic planning opportunities for all Residential energy efficiency and demand response programs. The report will be the primary mechanism to drive customers to save energy by educating the customer on their household impacts to the environment while comparing household usage with similar households. Statewide coordination efforts may also afford the report to provide information promoting the whole house approach with information leading customers to whole-house products and services, including financing options, energy efficiency product and service providers, rebate program applications and customer service touch points.

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

**5. Program Rationale and Expected Outcome<sup>2</sup>**

**a) Quantitative Baseline and Market Transformation Information:**

**Table 3**

	<b>Internal Market Transformation Planning Estimates</b>		
Market Sector and Segment	2009	2010	2011
Metric A			
Metric B			
Metric C			
Metric D			

Refer to the overarching PIP section.

**b) Projected Program Gross Impacts Table**

**Table 4**

	<b>Internal Market Transformation Planning Estimates</b>		
Market Sector and Segment	2009	2010	2011
Metric A			
Metric B			
Metric C			
Metric D			

Refer to the overarching PIP section.

**c) Program Design to Overcome Barriers:**

Promoting energy and water efficiency to the residential customer provides opportunities to foster market transformation. The main barriers include:

- Lack of energy efficiency information
- Lack of awareness of specific measures and practices, and
- Inability to read or understand information when it is provided only in English.

To overcome these barriers, the HEES Program will provide accurate and comprehensive information about energy and water saving strategies, customized recommendations and suggestions for energy and water conservation and installation of energy-saving measures, and detailed analysis of energy billing, energy usage, and energy costs, based on actual household consumption. This information encourages permanent changes in customers' attitudes and actions toward energy conservation by helping them understand their usage, as well as providing information on a wide variety of possible measures, practices, and actions. The program will also continue

<sup>22</sup> To be provided for each program and sub-program in PIP.

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

to provide information in multiple languages to overcome language barriers for non-English-speaking customers.

Marketing is a key component in the success of the HEES Program, first to generate awareness of the program, and second - and more important - to encourage completion of a survey. A statewide marketing campaign will be used to reduce overall implementation costs and to ensure uniformity throughout the state of California. In a further effort to reduce costs, the HEES Program will also partner with local municipalities and water agencies. Partnering with other entities will lower costs with cost sharing initiatives and will increase program awareness and effectiveness.

Statewide delivery mechanisms continue to include the Online and Mail-In Surveys. The individual utilities may also provide In-Home and Telephone surveys, if they feel these types of survey are warranted. Online and Mail-in surveys will be coordinated with a statewide emphasis. Each survey will be provided in multiple languages to bridge language barriers among California’s diverse population. For all types of surveys, whether offered statewide or not, substantially the same questions and recommendations will be provided to ensure consistency statewide.

It is necessary to persuade Californians to commit to energy conservation. For many this will be a gradual process facilitated by readily available, well placed educational materials that encourages the customer to make the greater commitment to participate in HEES. Without the commitment to change, either behaviorally or with material changes, there is no viable incentive to complete the survey. While the HEES report and action plan should result in changes in customer utilization, it can not be considered a conclusion of the process. Rather, once customers have been engaged by HEES, companies will motivate them to achieve even greater conservation savings through additional education on-line, by e-mail, by mail, by telephone, through community based organizations, and through any other appropriate mechanism.

**d) Quantitative Program Targets:**

**Table 5a**

<b>SCE</b>	<b>Program Target by 2009</b>	<b>Program Target by 2010</b>	<b>Program Target by 2011</b>
On Line Survey	18,750	21,875	21,875
Mail In Survey	11,250	13,125	13,125
In Home Survey	6,750	7,875	7,875
Telephone Survey	750	875	875

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

**Table 5b**

<b>SoCalGas</b>	Program Target by 2009	Program Target by 2010	Program Target by 2011
On Line Survey	5,000	5,000	5,000
Mail In Survey	5,000	5,000	5,000
In Home Survey	5,500	5,500	5,500
Telephone Survey	n/a	n/a	n/a

**Table 5c**

<b>PG&amp;E</b>	Program Target by 2009	Program Target by 2010	Program Target by 2011
On Line Survey	40,000	40,000	40,000
Mail In Survey	4,000	9,000	8,000
In Home Survey	500	3000	4000
Telephone Survey	200	350	350

**Table 5d**

<b>SDG&amp;E</b>	Program Target by 2009	Program Target by 2010	Program Target by 2011
On Line Survey	1,500	2,000	2,500
Mail In Survey	700	750	800
In Home Survey	n/a	n/a	n/a
Telephone Survey	n/a	n/a	n/a

**e) Advancing Strategic Plan goals and objectives:**

The HEES program will advance the strategic plan goals and objectives of the California Long Term Energy Efficiency Strategic Plan (Strategic Plan) as outlined:

- Goal 2.2: Residential Sector including Low Income - Tracking Transform home improvement markets to apply whole-house energy solutions to existing homes - The HEES Program will plan to deliver a new HEES Report which will strive to implement decision triggers and call to action to support advancement of whole-house energy solutions. The reports will also pursue initiatives to reverse the growth of plug load energy consumption through behavioral solutions.
- Goal 8.3: DSM Coordination and Integration - Deliver integrated DSM options that include efficiency, demand response, energy management and self generation measures, through coordinated marketing and regulatory integration - The HEES Program will seek partnerships with local water agencies, municipals and other key stakeholders to develop and implement a comprehensive plan to promote water conservation. Further integration

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

strategies will also include DSM (CSI, SDP, Peak Demand, etc), LIEE and energy efficiency programs.

- Goal 9.2 - Workforce, Education and Training - Ensure that minority, low income and disadvantaged communities fully participate in training and education programs at all levels of the DSM and energy efficiency industry - For IOUs offering In-home surveys, the HEES In-home survey team will be comprised of contracted (and in some cases utility staff) workforce and will be trained in areas of energy conservation and technologies towards increased knowledge based of demand-side management and energy efficiency. A comprehensive training curriculum will be implemented to formalize the knowledge base of the survey workforce. This strategy falls in line with a goal of the Workforce Education and Training Strategic Plan intended to ensure that minority, low income and disadvantaged individuals fully participate in training and education programs at all levels of the demand-side management and the energy efficiency.

**6. Program Implementation**

**a. Statewide IOU Coordination:**

**i. Program name - Home Energy Efficiency Survey Program (HEES)**

**ii. Program delivery mechanisms**

The HEES Program is delivered to customers in four ways. Customers can complete the survey On-Line, by mail, by telephone (offered by PG&E and SCE only), or by having a surveyor visit their home (offered by SCE, SoCalGas, and PG&E only). SDG&E will be offering its audits on-line.

**iii. Incentive levels**

This program does not offer monetary incentives.

**iv. Marketing and outreach plans, e.g. research, target audience, collateral, delivery mechanisms.**

Marketing efforts will be coordinated statewide to develop a portfolio of communication methods. The utilities can use these methods, including but not necessarily limited to, blast e-mails, flyers, On-Line marketing, and direct mail, as suits the target audience, the message, and the resources.

**v. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable**

The HEES program does not interact, as such, with other programs or organizations. However, the program will maintain the flexibility to coordinate program services to support initiatives generated by agencies.

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

### **vi. Similar IOU and POU programs**

The HEES program provides a consistent and recognizable presence throughout the state and offers a menu of similar services and processes implemented statewide by PG&E, SDG&E, SCE and SoCalGas. The program will work with other municipalities, e.g. LADWP, to offer this service.

The program also will be implemented in close association with other residential energy efficiency programs. HEES will be the starting point for residential customers to tap into the IOU's residential energy efficiency services. Through marketing, education and outreach, each program will encourage end-users to adopt multiple measures to gain the benefits associated with an integrated whole-house approach to energy efficiency.

HEES will leverage its survey information to provide information and referrals to other energy efficiency programs such as Home Energy Efficiency Rebate (HEER), Appliances Recycling (ARP) and others. In the 2009-2011 program cycle, HEES will be working on a pilot program to test a multi-family energy survey service. In addition, HEES will work with water conservation efforts, demand response programs, and low-income programs, as applicable.

The HEES program collaborate with the Low Income Energy Efficiency (LIEE) Program by making the service available to them and by providing customers with residential program information.

### **b. Program delivery and coordination:**

#### **i. Emerging Technologies program**

HEES will collaborate statewide with Emerging Technologies initiatives and incorporate other measures into the customer energy report, as warranted, to support the Strategic Plan.

#### **ii. Codes and Standards program**

Continuous improvements and enhancements will be coordinated statewide to ensure the HEES Program maintains consistency with updates to Codes and Standards. Additionally, whenever analysis of HEES related data suggests an area that may be of interest to Codes and Standards, the Program will proactively provide appropriate direction.

#### **iii. WE&T efforts**

As mentioned, for IOUs offering In-home surveys, the HEES In-home survey team will be comprised of contracted (and in some cases utility staff) workforce and will be trained in areas of energy conservation and technologies towards increased knowledge based of demand-side management and energy efficiency. A comprehensive training curriculum will be implemented to formalize the knowledge base of the survey workforce. This strategy falls in line with a goal of the Workforce Education and Training Strategic Plan intended to ensure that



**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

minority, low income and disadvantaged individuals fully participate in training and education programs at all levels of the demand-side management and the energy efficiency.

**iv. Program-specific marketing and outreach efforts (provide budget)**

In addition to the statewide marketing efforts outlined above in Section 6.a.iv, the program may be utilized as an outreach mechanism in conjunction with community based organizations, faith based organization, local community events, fairs, etc.

**Program-specific marketing and outreach efforts (provide budget)**

Marketing and Outreach	SCE	SoCalGas	PG&E	SDG&E
On-survey marketing	TBD	TBD	TBD	TBD
Mail-in survey marketing	TBD	TBD	TBD	TBD
In-home/phone survey marketing	TBD	TBD	TBD	TBD
Pilot programs (IOU Specific)	TBD	TBD	TBD	TBD
Total	TBD	TBD	TBD	TBD

**v. Non-energy activities of program**

The HEES program is a successful effort to reach consumers through self and in some cases direct contact, in ways that consumers prefer. The HEES Program will outreach to customers, in multiple languages and through different delivery channels, to perform a variety of energy surveys. The delivery outreach and marketing efforts may include: direct mail, e-mail, online banner ads, and news media. Utilities will improve HEES prominence through creative initiatives such as: analyzing websites to insure high visibility of HEES; utilizing Telephone Representatives to explain and suggest HEES to callers; describing HEES in conservation literature; promoting HEES in conjunction with Community outreach efforts, and so on.

**vi. Non-IOU Programs**

The program will promote non-utility programs (e.g. financing options, tax credits, and recycling) to further encourage customers to adopt energy efficiency measures.

**vii. CEC work on PIER**

HEES will work with the statewide Emerging Technology Program, CEC and PIER to take advantage of all new emerging technologies activities. The information may be shared in the customer energy report.

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

### **viii. CEC work on codes and standards**

HEES will work with the statewide codes and standards to take advantage of all new emerging technologies activities. The information may be shared in the customer energy report.

### **ix. Non-utility market initiatives**

HEES will coordinate with DOE's ENERGY STAR® to provide customers with information on energy efficient lighting, appliances, and equipment.

### **c. Best Practices:**

While all California utilities have offered residential energy survey programs for some years, 2006-2008 was the first time surveys were offered statewide as a coordinated program with the same kinds of survey services everywhere. In addition, there was an initial emphasis on hard-to-reach customers which will be continue throughout the 2009-2011 program cycle by targeting and outreaching to in-language communities. Statewide best practices are outlined below:

- **HEES Report and Customer Usage History:** Because the HEES Report includes comprehensive usage and billing information the HEES Program will continue to promote the survey program as a way to educate customers on their potential energy savings opportunities.
- **Ethnic communications:** The program will continue to be offered to customers in several languages based upon IOU demographics to minimize the opportunities lost due to language barriers.
- **Targeted marketing:** On a statewide level the HEES program will continue to focus HEES Marketing campaigns towards customers with higher usage. As mentioned, the program may also be utilized as an outreach mechanism in conjunction with community based organizations, faith based organization, local community events, green initiatives, etc. This approach reduces overall marketing costs by maximizing the response rates generated from marketing efforts.

### **d. Innovation:**

Improvements will be made to the customized HEES Report recommendations and will include demographic data (income, household size, education, etc). This will enhance the reports, ensure consistency, and reflect EE Strategic Planning. Further, HEES will improve the customer experience by incorporating practical and credible information and relevant recommendations validated by Energy Engineering sources, such as providing the percentage of consumption reduction realized by implementing recommendations, providing a Carbon Foot Print Calculator, or providing similarly pertinent information.

### **SCE:**

- The SCE HEES program will integrate the On-Line aspects of the program with the upcoming On-Line Buyers Guide Program. As overall concepts are

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

developed, integration specifics will be determined as to ensure seamless integration to the customer.

### SCE/SoCalGas:

- The HEES program will integrate the On-Line HEES with "My Account" on-line customers to streamline the customer experience, making it more efficient and convenient.
- The HEES Program will initiate new enhancements to the program for 2009-2011 is to provide a quarterly follow up report to enable participants to understand how their energy use varies throughout the year and how their household compares with similar households in multiple languages. This multi-language approach will enhance the program's ability to reach California's culturally diverse consumers and provide on-going efficiency recommendations based on a whole-house system approach.
- Software updates will take into account updates to Climate Zones, Weather Regions, Demographics, and improved Household Comparison Analysis. This information will also allow for the integration of gas- and water-related measures and information. Updates to all energy savings assumptions will be reviewed and adjusted as to reflect changes in usage patterns and energy savings values. Values used will be validated by the DEER Database, SCE Work Papers, or SCE's Engineering and Design Resources Team.

### SDG&E

- The SDG&E HEES program will partner with K-12 stakeholders to ensure that energy education is provided from kindergarten through high school.
- SDG&E will integrate the On-Line HEES with customer historic data to streamline the customer experience, making it more efficient and convenient.
- SDG&E will manage all collateral and related outreach through the Residential Customer Education Information Program.

### PG&E

- PG&E's Universal Energy Audit Tool (UEAT, currently in development) will centralize both residential and non-residential energy survey recommendations and calculations and customer survey information in a central database. This will provide uniformity of information and presentation, allow integration of energy conservation, energy efficiency, DR and SG, establishment of benchmarks, and use models, and improve data management and reporting.
- PG&E's on-site Home Energy Efficiency Survey will incorporate a logic protocol that will assist the utility representative in determining whether the customer is a viable candidate for a technical performance analysis.  
Program design, implementation details and components elements of the logic protocol to be developed.

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

### **e. Integrated/coordinated Demand Side Management:**

The analysis portions of the residential audit programs will be expanded to include demand response and distributed generation. This would be accomplished by adding on to the current audit formats. Current audits gather the information needed to calculate energy and demand savings and provide recommendations of the cost effectiveness of installing energy efficiency measures. Simplified algorithms will be designed to gather the necessary information to perform similar analyses for demand response and distributed generation applications. Customers will be provided immediate recommendations on the cost effectiveness of demand response and distributed generation applications for their residence. Customers will also receive applications for these programs when appropriate. Residential tracking systems will be modified to record and track the additional data. Reports will be developed and forwarded demand response and distributed generation programs for additional action as needed.

The IOUs will coordinate program efforts with the local utility integration teams and the Statewide Integration Task Force to identify successful integration approaches and offerings, potential pilot programs and metrics.

### **f. Integration across resource types (energy, water, air quality, etc):**

The HEES Program will continue to pursue alliances with local municipalities and water agencies, as feasible.

### **g. Pilots:**

Statewide Pilot – Low Income Energy Efficiency (LIEE) Initiative: Statewide, the HEES Program will begin to encourage eligible customers to participate in the Low Income programs and other programs that will help them lower their energy consumption.

SCE/SoCalGas/SDG&E Pilot - Multi-Family Program: SCE, SoCalGas, and SDG&E intend to offer the HEES Program to the multi-family sector as a Pilot Program in 2009-2011. This will involve combined common-area and individual renter-occupied unit surveys. The resulting report for the tenant will focus closely and specifically on lifestyle modifications and other tenant issues, including gathering information on tenant-controlled systems and appliances, such as HVAC units, dishwashers, refrigerators, etc. This information will then be exported for analysis with the information gathered in the common area survey and included with the results of the subsequent owner report.

SCE/SoCalGas Pilot: SCE and SoCalGas will provide quarterly post-survey feedback mechanism (opt-in) to customers. The pilot initiative will provide customers with a comprehensive energy usage report and will contain historical usage data to reinforce positive trends towards sustainable energy conservation. The mechanism should also increase customer actions in response to the survey, so that

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

HEES continues to monitor its effectiveness in creating energy savings by behavioral change, as well as rebate program participation.

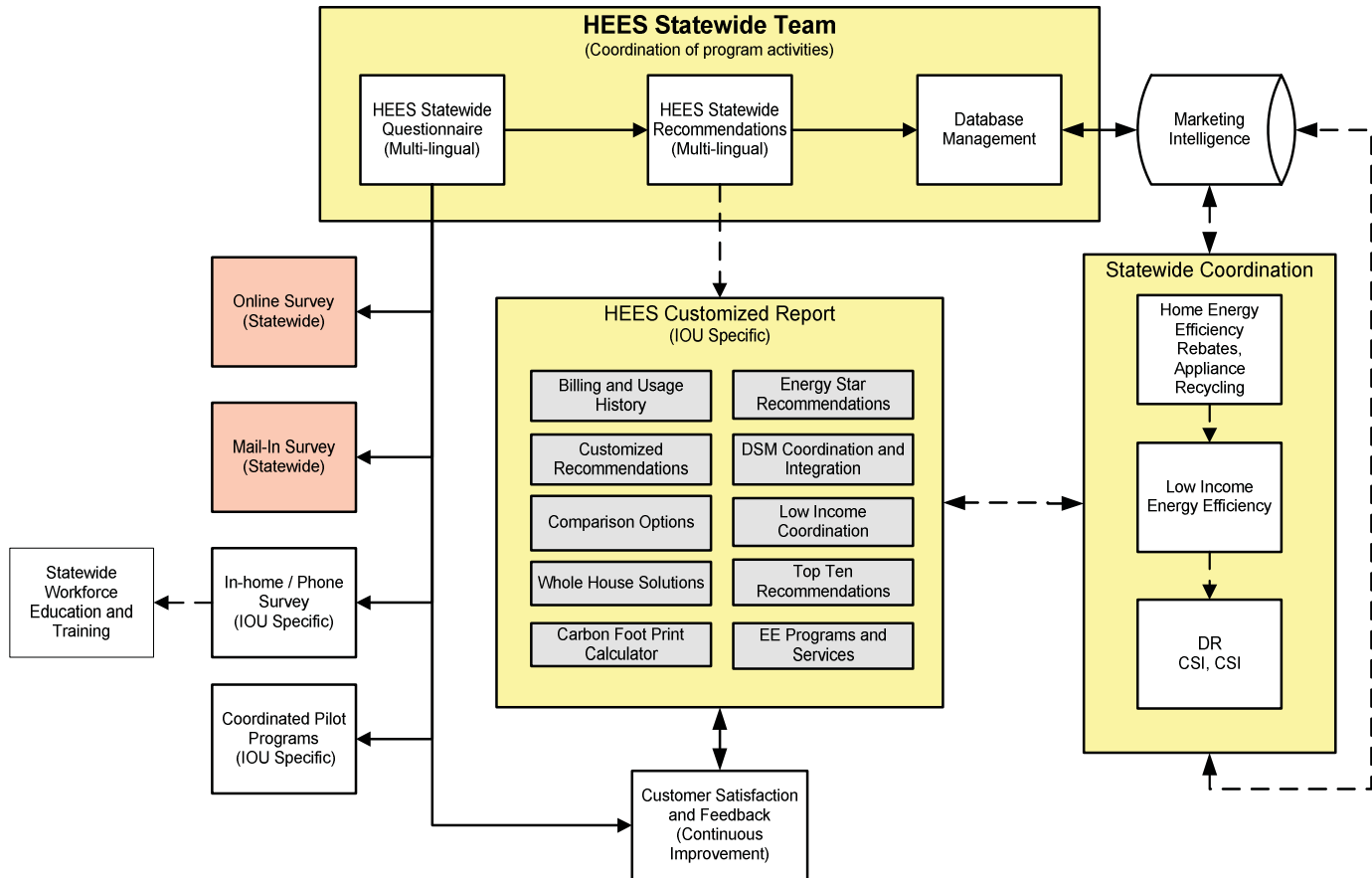
**h. EM&V:**

The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2009-2011 after the program implementation plans are filed. This will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.

# 2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan

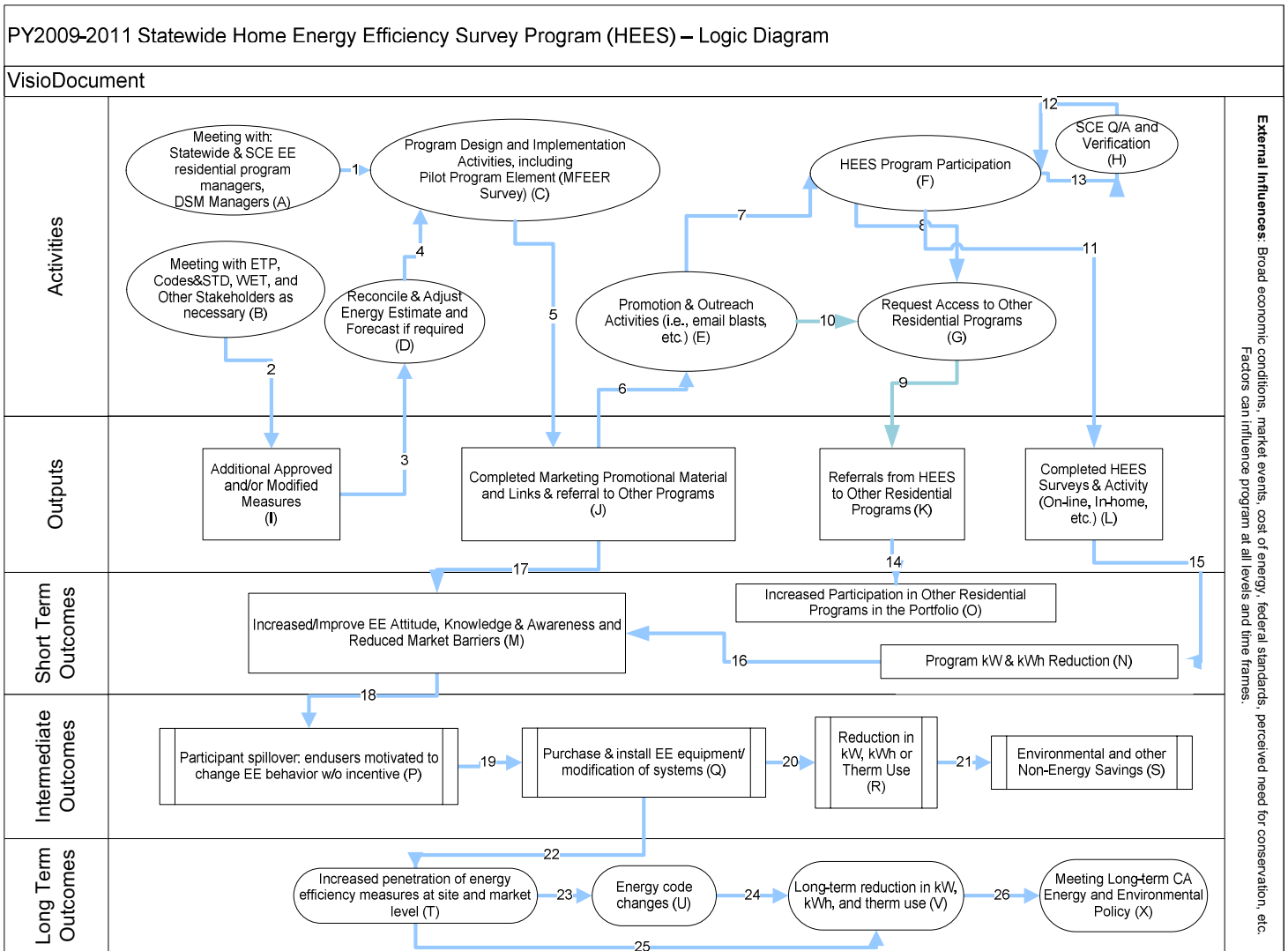
## 7. Diagram of Program:

The Diagram of the HEES Program represents the conceptual view of the future statewide program. The HEES Statewide Team will collaborate to develop statewide consistency but may be limited by feasibility, budget, and time to fully develop the concepts depicted.



# 2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan

## 8. Program Logic Model:



## 2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan

- 1. Program Name:** Multifamily Energy Efficiency Rebate Program (MFEER)  
**Program ID:**  
**Program Type:** This is a statewide residential core program.

### 2. Projected Program Budget Table

Table 1<sup>44</sup>

Program #	Main Program Name / Sub-Programs	Total Administrative Cost (Actual)	Total Marketing & Outreach (Actual)	TOTAL Direct Implementation	Integration Budget Allocated to Other Programs (if Applicable)	Total Budget By Program (Actual)
<b>Market Sector Programs</b>						
	Core Program #1					
	Sub-Program #1					
	Sub-Program #2					
	<b>TOTAL:</b>					

These budget numbers are presented in Appendix F: Energy Division Tables, Graphs Pie Charts: Table 7.1 - 2009 - 2011 IOU Strategic Planning Program Budget

### 3. Projected Program Gross Impacts Table

Table 2

Program #	Program Name / Sub-Programs	2009 - 2011	2009 - 2011	2009 - 2011
		Three-Year EE Program Gross kWh Savings	Three-Year EE Program Gross kW Savings	Three-Year EE Program Gross Therm Savings
<b>Market Sector Programs</b>				
	Core Program #1			
	Sub-Program #1			
	Sub-Program #2			
	<b>TOTAL:</b>			

<sup>44</sup> Definition of Table 1 Column Headings: Total Budget is the sum of all other columns presented here  
Total Administrative Cost includes all Managerial and Clerical Labor, Human Resource Support and Development, Travel and Conference Fees, and General and Administrative Overhead (labor and materials).  
Total Direct Implementation – includes all financial incentives used to promote participation in a program and the cost of all direct labor, installation and service labor, hardware and materials, and rebate processing and inspection used to promote participation in a program.  
Total Marketing & Outreach includes all media buy costs and labor associated with marketing production.  
Integrated Budget Allocated to Other Programs includes budget utilized to coordinate with other EE, DR, or DG programs.  
Total Budget is the sum of all other columns presented here  
Definition of Sub-Program: A “sub-program” of a program has a specific title; targets; budget; uses a unique delivery or marketing approach not used across the entire program; and for resource programs, has specific estimated savings and demand impacts.



## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

These savings values are presented in Appendix F: Energy Division Tables, Graphs & Pie Charts: Table 7.2 - IOU 2009 - 2011 Program Savings Estimates.

### **4. Program Description**

#### **a) Describe program**

The Multifamily Energy Efficiency Rebate (MFEER) Program is a continuance of the existing program within the IOU's residential portfolio. In accordance with the California Long Term Energy Efficiency Strategic Plan (Strategic Plan), this program advances comprehensive energy efficiency measures, including: whole house solutions, plug load efficiency, visual monitoring and displays, performance standards, local government opportunities, and DSM integration.

Multifamily property owners and managers are a historically less responsive market to energy efficiency efforts. As one of California's largest industries, this unique customer segment warrants additional attention and effort to motivate property owners and managers to actively participate in energy efficiency programs. MFEER Program proposes a series of comprehensive measures to address systems within multifamily housing establishments.

The MFEER Program offers prescribed rebates for energy efficient products to motivate the multifamily property owners/managers to install energy efficient products in both common and dwelling areas of multifamily complexes and common areas of mobile home parks and condominiums. An additional objective is to heighten property owners/managers and tenants energy efficiency awareness and knowledge.

The MFEER has to address the ongoing concern with "split incentives" where the residents are not the owners of the property, thus lacking incentive to improve. Likewise, the property owners do not live on site and pay higher utilities expenses due to less than efficient appliances, thus lack any incentive to upgrade. The MFEER was designed to drive this customer segment toward participation by offering property owners a variety of energy efficiency measures and services.

**Program Integration:** The MFEER Program marketing plans include print material, direct mail campaigns, print advertisement, trade show exhibitions, presentations, and statewide advertising; the program also links program rebates for ENERGY STAR® refrigerators with incentives from the Appliance Recycling Program (ARP) and coordinates with the Home Energy Efficiency Survey (HEES) Program.

**Support for LIEE and Non-LIEE qualifying low income families:** MFEER Program also promotes Low Income Energy Efficiency Program within the customer application to make the property owner/manager aware of the available income-qualified services for the tenants. The MFEER will work with local/municipalities to support AB811, so the Non-LIEE qualifying low income families' needs can be best served, while still adhere to MFEER's program design.

## 2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan

### b) List measures

Measures and services to reduce energy usage may include, but not limited to, the following:

Electrical measures:

- Screw-in CFLs (ENERGY STAR Qualified)
- Screw-in CFL Reflector bulbs (ENERGY STAR Qualified)
- High Performance Dual-Pane Windows
- Ceiling Fans (ENERGY STAR Qualified)
- Interior CFL Fixtures (ENERGY STAR Qualified)
- T5 or T8 Lamps w/electronic ballasts
- Attic and/or wall insulation
- Electric storage water heaters
- Exterior CFL fixtures (ENERGY STAR Qualified)
- Occupancy sensors
- Photocells
- Exit Signs
- Package terminal air conditioners & heat pumps
- Room air conditioners (ENERGY STAR Qualified)
- Refrigerators (ENERGY STAR Qualified)

Gas measures:

- High efficiency Dishwasher
- Central system natural gas water heaters
- Natural gas water heater and/or boiler controllers
- Natural gas storage water heater
- Central natural gas furnace

### c) List non-incentive customer services

MFEER schedules training workshops to educate the contractors on the benefits from the measures offered by this program and other energy efficiency programs, including the low-income program.

## 5. Program Rationale and Expected Outcome

### a) Quantitative Baseline and Market Transformation Information:

Table 3

Market Sector and Segment	Internal Market Transformation Planning Estimates		
	2009	2010	2011
Metric A			
Metric B			

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

Internal Market Transformation Planning Estimates			
Metric C			
Metric D			

Refer to the overarching PIP section.

**b) Projected Program Gross Impacts Table**

**Table 4**

Internal Market Transformation Planning Estimates			
Market Sector and Segment	2009	2010	2011
Metric A			
Metric B			
Metric C			
Metric D			

Refer to the overarching PIP section.

**c) Program Design to Overcome Barriers:**

Previous MFEER participants often state their intent to continue upgrading their complexes with energy efficient products. Lowered energy bills and reduced maintenance efforts (changing out short-lived incandescent lamps) are economical. Below, you will find a list of program barriers:

**Ongoing concern with split incentive:** While some market barriers are the same as for other residential programs such as the HEER (described below), others are unique to the MFEER. For this program, which must deal with both owners/managers of multi-family buildings, and with tenants, the split-incentive barrier is high. Any measure or appliance that is installed in the tenant dwelling area will provide benefits to the tenant, while costs may go to the owner/manager. These facts imply an uphill effort to get owner/manager participation.

In alignment with California’s BBEES and EAP policy initiatives, and advanced by the Strategic Plan, the MFEER is in the unique position to overcome the split incentive barrier by serving two distinct beneficiaries of energy savings; the multifamily property owner and the tenant.

MFEER design has been overcoming the split incentive barrier since its inception in 2002 as has its predecessor (i.e. Residential Contractor Program) since 1999. Program design has been effective to such an extent that the majority of MFEER rebates paid were for products installed in tenant dwelling units.

**Difficult to reach due to property owners lack cohesiveness as a group and high turn-over rate of property managers:** Further difficulties in planning are generated

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

by the fact that property owners/managers, in large part, are not a cohesive group, which leads to disparities and gaps in industry knowledge and poses a barrier to knowledge sharing. In addition, the on-site property managers tend to be somewhat transient in nature making consistent contact difficult.

The multifamily property sector is a commercial enterprise providing residential living spaces. In this quasi-commercial role, the property owner straddles the residential and commercial energy efficiency programs' definitions. The MFEER specifically addresses their needs which are often overlooked.

The desired outcome of MFEER implementation is to realize long-term energy savings through the installation of energy efficient products in both the common areas and dwelling units of multifamily complexes and the common areas of condominium complexes and mobile home parks. The inclusion of rented mobile homes when the park owner/manager is conducting common area replacements is yet another objective.

The creation of energy efficient complexes has benefits above the direct energy savings to common areas. Through the incorporation of EE measures by multifamily property owners and managers, the opinions and behaviors of tenants can be influenced. These behaviors can contribute to a self-reinforcing cycle of EE responsibility throughout a complex where more knowledgeable customers undertake measures that can reduce the overall energy footprint with no loss to safety or comfort.

**Issue of Affordability:** Out-of-pocket costs pose a significant participation barrier for the customer. With the exception of a few larger property management firms, pay-back terms, no matter how favorable, are perceived as an unacceptable risk to the average customer.

**Selected Measures Account for Majority of Program Savings:** Although the MFEER offers a comprehensive list of measures for the multifamily dwellings, however, its program results are dominated by lighting related measures. The cause of this is under investigation in the 2006-2008 process evaluation report, which is expected to be completed in 2009.

**Program Integration to Overcome Barriers:** To address the trend towards comprehensive solutions and reduce the potential for lost opportunities, MFEER will integrate opportunities with other the energy efficiency programs and services, such as the Appliance Recycling Program, Home Energy Efficiency Survey (HEES) Program and SCE's income-qualified programs. This collaboration should increase participation levels for each respective program.

- The MFEER will continue to work with the Appliance Recycling Program to promote the turn-in of inefficient (but functional) property owner-owned refrigerators. MFEER will also consider opportunities with other energy

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

efficiency programs or services to generate interest and gain higher participation levels through joint marketing efforts.

- MFEER will promote the LIEE program and the California Alternate Rates for Energy (CARE) program within the application by making the property owner/manager aware of the available income qualified services for the tenants. Additional marketing efforts may include targeting the tenants through a direct-mailer, to promote services not offered under the program, such as the CARE discount of 20% or more off the electric bill and the income-qualified refrigerator replacement.
- MFEER will coordinate with the HEES program to promote and potentially develop a survey specific to the multifamily segment that engages the property owners/managers by helping identify opportunities for saving energy and money by utilizing MFEER and other energy efficiency programs.

**d) Quantitative Program Targets:**

The statewide MFEER is striving to meet the following program activities targets. The proposed targets may be modified due to funding restrictions, especially for the 2009 bridge funding year.

**Table 5: Proposed Program Activity Targets**

SCE Program Name	Program Target by 2009	Program Target by 2010	Program Target by 2011
<p align="center">Target #1</p> <p>Direct mailing to reach 20,000 multifamily sites</p> <p>Advertising in trade journal (depended on approved marketing budget)</p> <p>Support outreach events such as trade shows</p>	<p>Complete 20,000 pieces of direct mailing,</p> <p>place monthly trade journal advertising,</p> <p>attend 3 trade shows per year</p>	Same as 2009	Same as 2009
<p align="center">Target #2</p> <p>Require 100% of program participating electrical contractors to meet licensing requirements</p>	100% for 2009-2011 program cycle	Same as 2009	Same as 2009
Target #3		Same as 2009	Same as 2009

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

SCE Program Name	Program Target by 2009	Program Target by 2010	Program Target by 2011
Deliver program specific communications to participating contractors	2 communications per year		
Target #4 Continue to solicit participation from mega property management Company	3 per year	Same as 2009	Same as 2009

PG&E Program Name	Program Target by 2009	Program Target by 2010	Program Target by 2011
Target #1			
Target #2			
Target #3			
Target #4			

SDG&E Program Name	Program Target by 2009	Program Target by 2010	Program Target by 2011
Target #1			
Target #2			
Target #3			
Target #4			

SGC Program Name	Program Target by 2009	Program Target by 2010	Program Target by 2011
Target #1			
Target #2			
Target #3			
Target #4			

Note: The proposed activities above may be limited by program funding restrictions, especially for 2009

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

### **e) Advancing Strategic Plan goals and objectives:**

In accordance with the Strategic Plan, this program advances comprehensive energy efficiency measures, including: whole house solutions, plug load efficiency, performance standards, leveraging of local government energy partnership opportunities, and DSM integration. As technology progresses, this program will adopt newer measures such as home energy monitoring and displays. Each of these measures work to reduce the energy and carbon footprint of multifamily dwellings and will create additional energy savings and integration opportunities through inter-program referral and data sharing, and bundling of DSM solutions across energy efficiency, DR, CSI, smart meter and other IDSM efforts.

The MFEER will support the following Strategic Plan:

- 2.1.3.2. Home buyers, owners, and renovators will implement a whole-house approach to energy consumption that will guide their purchase and use of existing and new homes, home equipment, household appliances, lighting and “plug load” amenities.
- 2.1.3.3. Plug loads will be managed by developing consumer electronics and appliances that use less energy and provide tools to enable customers to understand and manage their demand.
- 2.1.3.4. The residential lighting industry will undergo substantial transformation through the deployment of high-efficiency and high-performance lighting technologies, supported by state and national codes and standards.

This current program design does not specifically address ED’s concern for meeting the market transformation goal of 40% energy consumption reduction from 2008 levels by 100% of multifamily households by 2020. However, the program is part of the solution to achieve the multifamily transformation goal for the state. A portion of the 2020 goals could be achieved through codes and standards ratcheting or by other local program’s implementations. To become a market transformation program, MFEER would need to make significant changes in program design, program cost effectiveness, and many other economical feasibility issues. Furthermore, the MFEER program would need to be sensitive to the CPUC/CEC market potential studies.

## **6. Program Implementation**

### **a. Statewide IOU Coordination:**

**i. Program name - Multifamily Energy Efficiency Rebate (MFEER) Program**

### **ii. Program delivery mechanisms:**

The Multifamily Energy Efficiency Program provides cash rebates for the installation of qualified energy-efficiency products in existing apartment dwelling units and in the common areas of apartment and condominium complexes, and common areas of mobile home parks. Property owners and managers of existing residential multifamily complexes with 2 or more dwelling units may qualify.

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

**iii. Incentive levels:**

<b>MEASURE</b>	<b>PG&amp;E</b>	<b>SCE</b>	<b>SoCalGas</b>	<b>SDG&amp;E</b>
Attic Insulation	\$0.15/Square Foot	\$0.15/Square Foot	\$0.15/Square Foot	\$0.15/Square Foot
Wall Insulation	\$0.15/Square Foot	\$0.15/Square Foot	\$0.15/Square Foot	\$0.15/Square Foot
High Efficiency Clothes Washer Level 1 - dwelling unit	\$35/Unit	n/a	n/a	n/a
High Efficiency Clothes Washer Level 2 - dwelling unit	\$75/Unit	n/a	n/a	\$75/Unit
High Efficiency Clothes Washer Level 1 - coin-op	\$150/Unit	n/a	\$150/Unit	n/a
High Efficiency Clothes Washer Level 2 - coin-op	\$150/Unit	n/a	\$150/Unit	\$150/Unit
High Efficiency Dishwasher Level 1	\$30/Unit	n/a	\$30/Unit	n/a
High Efficiency Dishwasher Level 2	\$50/Unit	n/a	\$50/Unit	n/a
High Performance Dual Pane Windows	\$0.75/Square Foot	\$0.75/Square Foot	n/a	n/a
Residential Cool Roof - Low Slope	\$0.20 per sq. ft.	n/a	n/a	n/a
Residential Cool Roof - Steep Slope Tier I	\$0.10 per sq. ft.	n/a	n/a	n/a
Residential Cool Roof - Steep Slope Tier II	\$0.20 per sq. ft.	n/a	n/a	n/a
Central System Natural Gas Water Heaters	\$500.00/unit	n/a	\$500.00/unit	\$500.00/unit
Natural Gas Water Heater and/or Boiler Controllers	n/a	n/a	\$750.00/unit	\$750.00/unit
Natural Gas Water Heater and/or Boiler Controllers	n/a	n/a	\$1,500.00/unit	\$750.00/unit
Central system Natural Gas Boilers-Hot Water/Space Heating	\$1,500/system	n/a	\$1,500/system	\$1,500/system
Natural Gas Storage Water Heater	\$30.00/unit	n/a	\$30.00/unit	\$30.00/unit
Electric Storage Water Heater	\$30.00/unit	\$30.00/unit	n/a	\$30.00/unit
Commercial Steam Traps - any pressure	\$50.00/unit	n/a	n/a	n/a
Commercial Steam Traps - ≤ 15 psig	\$100.00/unit	n/a	n/a	n/a
Industrial Steam Traps - > 15 psig	\$200.00/unit	n/a	n/a	n/a
Low-Flow Showerhead	\$15.00/unit	n/a	n/a	\$5.00/unit



**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

<b>MEASURE</b>	<b>PG&amp;E</b>	<b>SCE</b>	<b>SoCalGas</b>	<b>SDG&amp;E</b>
Faucet Aerators	n/a	n/a	n/a	\$1.25/unit
Ducted Evaporative Cooler - Level 1	\$300.00/unit	n/a	n/a	n/a
Ducted Evaporative Cooler with New Pressure Relief Damper(s) - Level 1	\$400.00/unit	n/a	n/a	n/a
Ducted Evaporative Cooler - Level 2	\$500.00/unit	n/a	n/a	n/a
Ducted Evaporative Cooler with New Pressure Relief - Level 2	\$600.00/unit	n/a	n/a	n/a
Package Terminal Air Conditioners and Package Terminal Heat Pumps+	\$100.00/unit	\$100.00/unit	n/a	\$100.00/unit
Energy* Room Air Conditioners	\$50.00/unit	\$50.00/unit	n/a	\$50.00/unit
Variable Speed Motor (VSM) Air Handler System	\$50.00/unit	n/a	n/a	n/a
92 AFUE Central Natural Gas Furnace	\$200.00/unit	n/a	\$200.00/unit	\$200.00/unit
94 AFUE Central Natural Gas Furnace	\$300.00/unit	n/a	n/a	n/a
Energy* Exterior Hardwired Fluorescent Fixtures	\$30.00/fixture	\$30.00/fixture	n/a	\$30.00/fixture
Energy* Interior Hardwired Fluorescent Fixtures	\$40.00/fixture	\$40.00/fixture	n/a	\$40.00/fixture
Energy* Labeled Ceiling Fans with Energy* CFL	\$20.00/fixture	\$20.00/fixture	n/a	\$20.00/fixture
LED Exit Signs	\$35.00/fixture	\$35.00/fixture	n/a	\$35.00/fixture
Occupancy Sensors	\$10.00/sensor	\$10.00/sensor	n/a	\$10.00/sensor
Photocells	\$10.00/photocell	\$10.00/photocell	n/a	\$10.00/photocell
Screw-In Compact Fluorescent (CF) Reflector Bulbs - R30	\$8.00/unit	\$8.00/unit	n/a	\$8.00/unit
Screw-In Compact Fluorescent (CF) Reflector Bulbs - R40	\$10.00/unit	\$10.00/unit	n/a	\$10.00/unit
Time Clocks	\$36.00/time clock	n/a	n/a	n/a
T8 or T5, 2-ft. 1 lamp	\$32.00/unit	\$32.00/unit	n/a	\$32.00/unit
T8 or T5, 2-ft 2 lamps	\$34.00/unit	\$34.00/unit	n/a	\$34.00/unit
T8 or T5, 2-ft 3 lamps	\$38.00/unit	\$38.00/unit	n/a	\$38.00/unit
T8 or T5, 2-ft 4 lamps	\$45.00/unit	\$45.00/unit	n/a	\$45.00/unit
T8 or T5, 3-ft. 1 lamp	\$32.00/unit	\$32.00/unit	n/a	\$32.00/unit
T8 or T5, 3-ft 2 lamps	\$34.00/unit	\$34.00/unit	n/a	\$34.00/unit
T8 or T5, 3-ft 3 lamps	\$38.00/unit	\$38.00/unit	n/a	\$38.00/unit
T8 or T5, 3-ft 4 lamps	\$45.00/unit	\$45.00/unit	n/a	\$45.00/unit
T8 or T5, 4-ft. 1 lamp	\$32.00/unit	\$32.00/unit	n/a	\$32.00/unit

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

<b>MEASURE</b>	<b>PG&amp;E</b>	<b>SCE</b>	<b>SoCalGas</b>	<b>SDG&amp;E</b>
T8 or T5, 4-ft 2 lamps	\$34.00/unit	\$34.00/unit	n/a	\$34.00/unit
T8 or T5, 4-ft 3 lamps	\$38.00/unit	\$38.00/unit	n/a	\$38.00/unit
T8 or T5, 4-ft 4 lamps	\$45.00/unit	\$45.00/unit	n/a	\$45.00/unit
T8 or T5, 8-ft. 1 lamp	\$32.00/unit	\$32.00/unit	n/a	\$32.00/unit
T8 or T5, 8-ft 2 lamps	\$34.00/unit	\$34.00/unit	n/a	\$34.00/unit
T8 or T5, 8-ft 3 lamps	\$38.00/unit	\$38.00/unit	n/a	\$38.00/unit
T8 or T5, 8-ft 4 lamps	\$45.00/unit	\$45.00/unit	n/a	\$45.00/unit
T12 Delamping	\$6.00/each	\$6.00/each	n/a	\$6.00/each
Commercial Pool and Spa Heater	\$2.00/Mbtuh	n/a	\$200.00/each	n/a
Efficient Two-Speed Pool Pump and Motor	\$100.00/unit	n/a	n/a	n/a
Efficient Two-Speed Pool Pump Motor with controller	\$100.00/unit	n/a	n/a	n/a
Efficient Variable-Speed Pool Pump and Motor	\$100.00/unit	n/a	n/a	n/a
Efficient Variable-Speed Pool Pump Motor with controller	\$100.00/unit	n/a	n/a	n/a
Energy* Screw-in CFL 5-13 watts	n/a	\$4.00/each	n/a	\$4.00/each
Energy* Screw-in CFL 14-20 watts	n/a	\$5.00/each	n/a	\$5.00/each
Energy* Screw-in CFL 21-30 watts	n/a	\$6.50/each	n/a	\$6.50/each
Energy* Labeled Refrigerators	n/a	\$50.00/each	n/a	n/a

+ SDG&E is not offering rebates for Package Terminal Air Conditioners

**iv. Marketing and outreach plans, e.g. research, target audience, collateral, delivery mechanisms.**

The Multifamily Energy Efficiency Program marketing plans consist of print collateral material, direct mail campaigns, print advertisement, trade show exhibitions and presentations, statewide advertising, and leveraging with other IOU energy efficiency efforts and programs where feasible. (see targets above, Table 5)

**v. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable:**

MFEER program will coordinate with CEC, ARB, AQMD and other local/Municipalities to implement environmental program to support California's long term strategic plan and CPUC initiatives.

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

### **vi. Similar IOU and POU programs**

The MFEER is a statewide program and there are other programs outside of California implementing similar program designs. (i.e., Austin Energy)

### **b. Program delivery and coordination:**

The MFEER Program offers prescribed rebates for energy efficient products to motivate the multifamily property owners/managers to install energy efficient products in both common areas and dwelling areas of multifamily complexes and common areas of mobile home parks and condominiums. An additional objective is to heighten property owners/managers and tenants energy efficiency awareness and knowledge.

The program leverages an extensive network of contractors to reach property owners and property managers. In addition to these contractors, the program also makes direct outreach to mega-property companies such as the Irvine Company. This network of contractors helps identify perspective properties and contact person. The contractors also help the property managers develop the list of improvements that are eligible for utility incentives. When ready, the contractors install the measures then often will assist the property owners/managers complete the incentive application paperwork.

For marketing and outreach activities, the MFEER not only reaches out to the endusers, the program also make special outreach and training sessions available to the MFEER affiliated contractors on a regular basis.

### **i. Emerging Technologies program**

The program collaborates with the ETP in assessing energy efficiency technologies in the residential/multifamily market that are new and/or underutilized.

### **ii. Codes and Standards program**

The MFEER works with the codes and standards group to ensure all the measures offered by the program are updated timely.

### **iii. WE&T efforts**

The implementation of various training and coverage may differ for each IOU. For SCE, the energy centers traditionally did not offer classes specifically designed for the MFEER contractors and property owners. The MFEER will work with the energy centers to develop new and modify existing education and training classes for contractors and property owners, to assist in advancing the objectives of the Strategic Plan.

### **iv. Program-specific marketing and outreach efforts (provide budget)**

The MFEER marketing plans consist of print collateral material, direct mail campaigns, print advertisement, trade show exhibitions and presentations,

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

statewide advertising, and leveraging other IOU energy efficiency efforts and programs where feasible.

Marketing Budget	As a % of Total Budget	Budgeted Dollar Amount
SCE	\$488,800	0.86%
PG&E		
SDG&E		
SGC		

**v. Non-energy activities of program**

Training of contractors and outreach to mega-property owners are part of the program’s non-energy activities.

**vi. Non-IOU Programs**

The program allows for cross promoting of other applicable programs, such as water companies that offer rebates for clothes washers and dishwashers. Program staff will work with other utilities and groups, as appropriate, to increase program participation and savings levels.

**vii. CEC work on PIER**

The MFEER will work with the residential program team to track the latest developments from CEC and PIER.

**viii. CEC work on codes and standards**

MFEER is very sensitive to the codes and standards work the IOUs and CEC are working on. The program will monitor these activities and incorporate any standards ratcheting as appropriate.

**ix. Non-utility market initiatives**

Along with the HEER program, MFEER supports all Energy Star applications. In addition, MFEER also participate in activities with the local and national housing authorities.

**c. Best Practices:**

Given the difficulty in reaching potential customers, the MFEER is designed to leverage the knowledge and contacts of its network of contractors. Given the limited marketing budget, this targeted outreach method has yielded fruitful results for the program. It also consistently helped the program to overcome split-incentive as a barrier for this segment.

This program also drives permanent change in California and achieves market transformation through the installation of ENERGY STAR interior and exterior hardwired fixtures, thereby reducing tenants’ energy usage in apartments and also reducing property owners’ energy usage in common areas.

## **2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan**

### **d. Innovation:**

A key program innovation is the customer referral process, which was developed to assist property owners who own apartment buildings served by different IOUs. Property owners working with one of the IOUs are automatically referred to the program manager of other IOUs, when their properties are served by multiple IOUs. The IOUs use identical rebate programs and similar rebate applications, which reduce confusion and barriers that typically arise when working with multiple companies.

As one of the few programs in the nation that specifically addresses this hard-to-serve market segment, this unique and innovative program has secured a model approach for other utilities to emulate. In addition, the program represents an innovative partnership among California utilities, demonstrating the great potential of statewide energy efficiency program and creating processes upon which other partnerships can build.

This program is especially innovative since multifamily property owners/managers and tenants traditionally have been unable to receive energy efficiency rebates. Some tenants qualified for the low-income programs, and prior to 2002, under the RCP program, a few multifamily properties received installation of compact fluorescent lamps (CFLs), water heater controllers, and duct test and sealing. The development and implementation of the statewide Multifamily Energy Efficiency Rebate Program has increased the participation of not only property owners/managers (for the common area energy efficient measures), but of tenants as well, who use approximately 80% of the energy in multifamily buildings. Traditionally, this has been an untapped market. Energy savings have increased exponentially each year that rebate funding has been available.

### **e. Integrated/coordinated Demand Side Management (ISDM):**

The IOUs will coordinate program efforts with the local utility integration teams and the Statewide Integration Task Force to identify successful integration approaches and offerings, potential pilot programs and metrics.

The MFEER will work with ISDM initiatives to identify the best possible collaboration. The potential offer could include smart metering, load management and other services, as appropriate. The details of this collaboration will be better defined in the 2009-2011 program cycle.

### **f. Integration across resource types: (energy, water, air quality, etc):**

The program (PG&E and SoCalGas) allows for cross promoting of other available programs, such as water companies that offer rebates for clothes washers and dishwashers. SCE agrees to investigate and implement a similar market program to make it consistent statewide.

SCE and SoCalGas will collaborate to create a pilot program specifically for the Multifamily market segment. The pilot will be created by adding a Multifamily

**2009-2011 Energy Efficiency Programs  
Statewide Residential Energy Efficiency  
Program Implementation Plan**

component to the current (joint) Home Energy Efficiency Survey (HEES) Program. The audits will address water, gas and electric savings for multifamily buildings. SCE/SoCalGas will share the results of the multifamily HEES pilot. If successful, the MFEER will adopt this implementation as part of the statewide initiative.

**g. Pilots:**

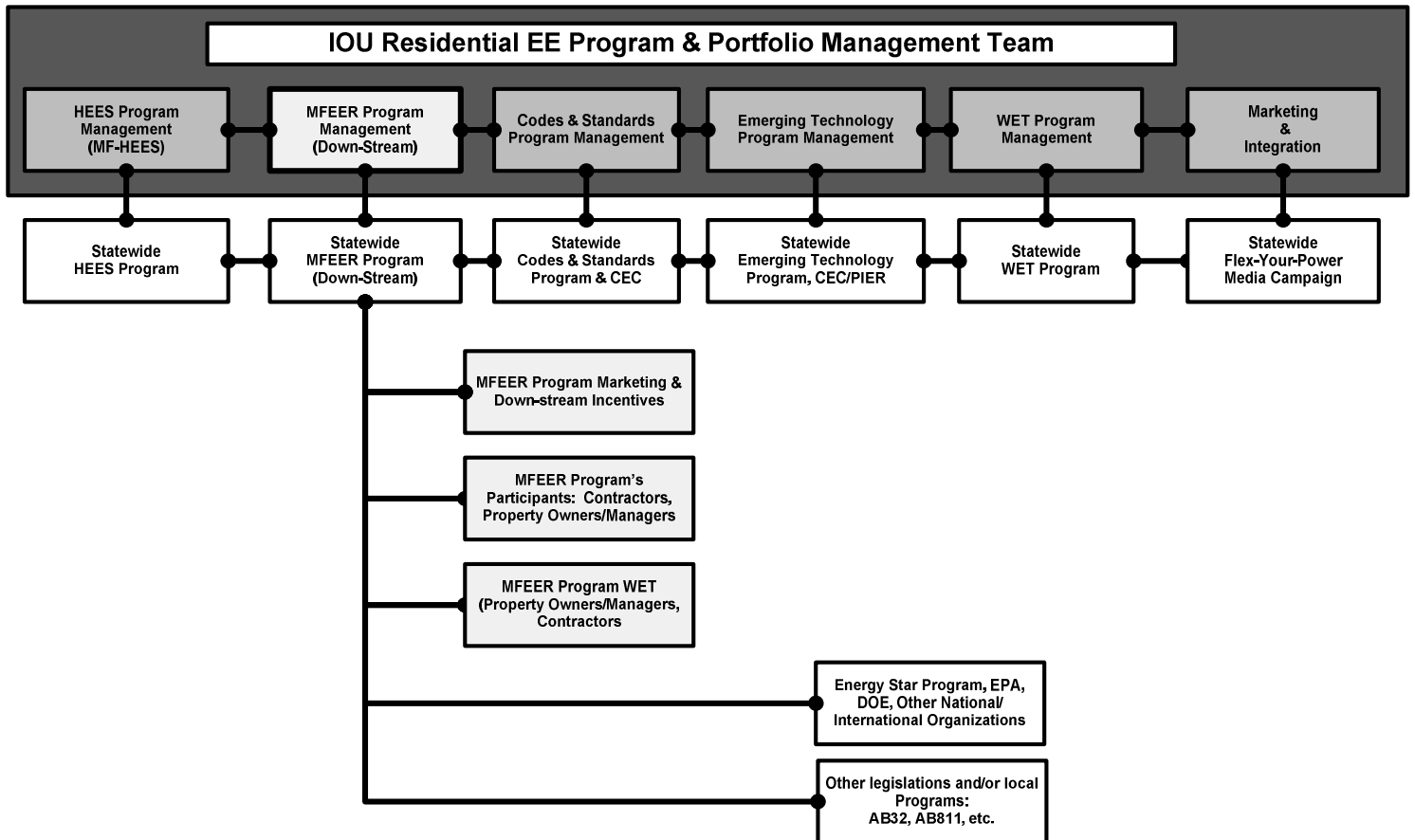
A Multifamily Component will be added to the HEES Program: SCE and SoCalGas will create a pilot program that emulates the current energy audit program for single family residents. In order to accomplish this, we will work with a third party to create the multifamily audit tool. We plan to offer the pilot program at various venues such as the Apartment Owners Association meetings, tradeshow and seminars. This approach should be met favorably as owners typically want to save as much money as possible. By using the Audit to perform a comprehensive energy analysis, the MFEERP core measures will be recommended when appropriate. We will incorporate recommendations for water savings and refer customers to their local water districts when appropriate.

**h. EM&V:**

The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2009-2011 after the program implementation plans are filed. This will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.

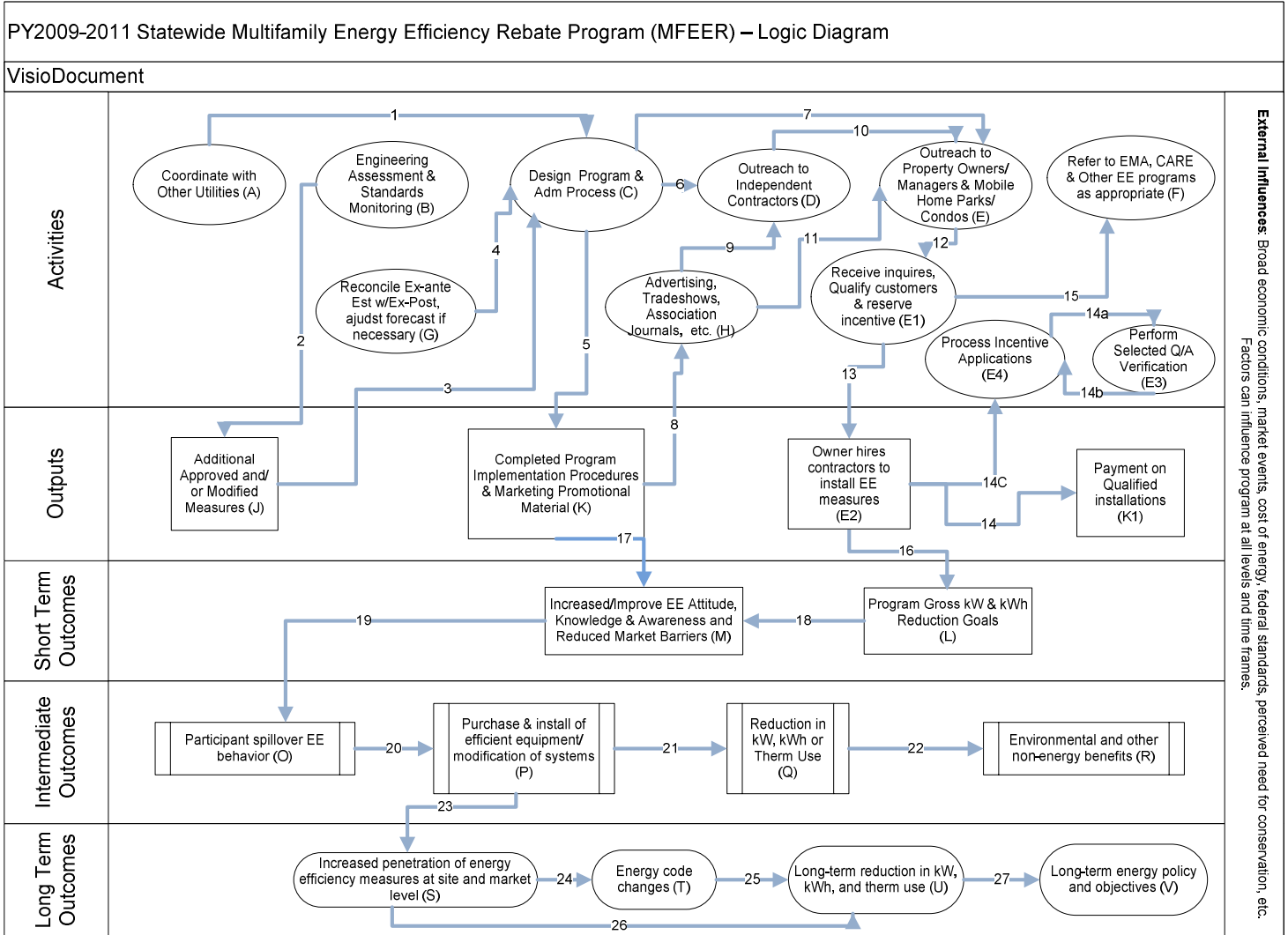
# 2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan

## 7. Program Interaction Diagram: MFEER



# 2009-2011 Energy Efficiency Programs Statewide Residential Energy Efficiency Program Implementation Plan

## 8. Program Logic Model: MFEER





## 2009–2011 Energy Efficiency Programs SW Lighting Market Transformation Program Implementation Plan

1. Program Name: Statewide Lighting Market Transformation Program  
 Program ID#: TBD  
 Program Type: This is a statewide, core program.

2. Projected Program Budget Table

**Table 1**

Program #	Main Program Name / Sub-Programs	Total Administrative Cost (Actual)	Total Marketing & Outreach (Actual)	TOTAL Direct Implementation	Integration Budget Allocated to Other Programs (if Applicable)	Total Budget By Program (Actual)
<b>Market Sector Programs</b>						
	2- SDGE SW Lighting Market Transformation Program					included in the SW Residential
	<b>TOTAL:</b>	\$ -	\$ -	\$ -	\$ -	\$ -

These budget numbers are presented in Appendix F: Energy Division Tables, Graphs & Pie Charts: Table 7.1 - 2009 - 2011 IOU Strategic Planning Program Budget.

3. Projected Program Gross Impacts Table

**Table 2**

Program #	Program Name Sub- Programs	2009 - 2011	2009 - 2011	2009 - 2011
		Three-Year EE Program Gross kWh Savings	Three-Year EE Program Gross kW Savings	Three-Year EE Program Gross Therm Savings
<b>Market Sector Programs</b>				
	2- SDGE SW Lighting Market Transformation Program			
	<b>TOTAL:</b>	0	0	0

These savings values are presented in Appendix F: Energy Division Tables, Graphs & Pie Charts: Table 7.2 - IOU 2009 - 2011 Program Savings Estimates

4. Program Description

a) Describe program

The Statewide Lighting Market Transformation Program (LMT) establishes processes through which the IOUs can develop and test market transformation strategies for emerging lighting technologies (products, systems and design strategies) as well as for technologies already incorporated into their energy-efficiency programs. The LMT Program will address lighting opportunities across residential, commercial, and industrial market segments for both replacement and new construction activities. These LMT activities augment and leverage the existing IOU programs for evaluating and testing the market transformation needs for short and long term activities to get to the zero net energy (ZNE) goals in the California Long-Term Energy Efficiency Strategic Plan (Strategic Plan). LMT includes market research and coordination activities as well as an educational component aimed toward improving the information available to consumers, contractors, and other market actors regarding new and existing lighting technologies. The program also formalizes a process by which the IOUs can rapidly introduce advanced lighting solutions and emerging technologies to the marketplace,

## **2009–2011 Energy Efficiency Programs SW Lighting Market Transformation Program Implementation Plan**

continually improve the IOUs' current lighting programs across all market sectors, and develop innovative new program strategies to continually advance the lighting market.

This program includes three Sub-Programs:

1. The Lighting Technology Advancement Sub-Program explores and chooses processes by which the IOUs can rapidly introduce advanced lighting solutions and emerging lighting technologies to the marketplace. This Sub-Program contains elements to conceptualize and test initiatives that introduce mid-term improvements to current lighting programs in response to product and market developments across all market sectors
2. The Lighting Education and Information Sub-Program addresses the pressing need for more accessible information on lighting technologies across all market sectors and among IOU staff and installation contractors. The Sub-Program helps identify and utilize avenues by which advanced lighting education can be applied to pipelines for large-scale customer applications.
3. The Lighting Market Transformation Sub-Program enables the IOUs to identify gaps in LMT strategies for different technologies and create data-driven solutions. These solutions will inform and leverage energy-efficiency program efforts to fill the gaps in market transformation strategies for each lighting technology. The Sub-Program will develop and test innovative program strategies to advance market transformation and help enfold proven approaches into resource-based production programs. This third Sub-Program will integrate the findings and networks uncovered by the first two Sub-Programs to implement synergistic activities that drive the market forward. It will collaborate with other lighting programs to plot paths and monitor progress toward achieving ZNE objectives.

Together, these Sub-Programs serve numerous related components of the lighting market through all stages of product development, deployment, and end-of-life disposal. Starting from collaboration on technology specification and development with the lighting industry, the program moves on to define the most efficient and effective pathways for each technology's incorporation into the IOUs' customer energy-efficiency programs. The program incorporates a process for investigating the best possible combination of incentives and other market transformation activities for each technology, and then leverages the IOUs other energy-efficiency programs for delivering these products to consumers and contractors – all of whom have been well-educated regarding product choices, applicability, and installation (through the program's educational components). The program's educational component will also educate end-users regarding proper disposal of each technology at the end of its useful life.

### **b) Statement of Problem and program solutions to overcome the problem**

As stated in the Strategic Plan, lighting programs have historically comprised the majority of savings from the California IOU portfolios, particularly in the residential sector. Lighting opportunities are generally recognized as the least expensive strategies for obtaining near-term energy savings. They are also among the easiest strategies to implement. But because the lighting market is changing rapidly the IOU programs must be prepared to move quickly

## **2009–2011 Energy Efficiency Programs SW Lighting Market Transformation Program Implementation Plan**

beyond current lighting programs and re-orient toward measures that extend beyond these new standards.

This program enables the IOUs to move emerging lighting technologies quickly and efficiently into customer energy-efficiency programs and to define market transformation strategies for each technology. The program enables the IOUs to develop pilot programs to test market transformation strategies for a variety of lighting technologies, systems, and/or design strategies. This proposed program also aims to provide a mechanism for further understanding the state of the current market for technologies that have already achieved a noticeable degree of market transformation (such as basic CFLs, high-bay lighting, T-8/T-5 lamps and non dimmable electronic ballasts, and others).

The IOUs pursue a resource acquisition approach to all energy efficiency undertakings, and also apply market transformation principles where they make sense to achieve the objectives of utility system optimization, procurement planning, and societal benefit in ways that justify publicly-funded intervention. These objectives balance areas such as demand side management, demand response, and mitigation of negative environmental impacts. The LMT program will help the IOUs discover opportunities where specific measures become less cost effective to these objectives - and equally important – discover opportunities where concentrating resources into new areas of energy efficient lighting will help meet the objectives in a more suitable way during each industry cycle. In this light, market transformation itself is viewed by the utilities, not as an “end game”, but as an ongoing realignment of priorities and resources in a continually flexible way to apply the most advantageous endeavors for the given economic environment. The task of identifying an “end game” has value and will be applied when indicators show education and incentives for a measure to display diminishing returns because the market is transformed. The task will be applied on the appropriate specific levels such as by retail sector or demographic until it is necessary to be applied at a macro level. If, in a future cycle, the market potential arises for a previously phased out measure, a “renewed game” strategy can be reassessed for that time frame.

### c) Program goals, strategies and measurable objectives

#### **Lighting Technology Advancement Sub-Program**

The IOU programs have contributed to inroads toward market transformation for energy-efficient lighting products in California. The IOUs are also faced with the continuing need to incorporate new technologies into their programs and to develop innovative new program strategies to advance the lighting market.

The goal of this Sub-Program is to formalize a process by which the IOUs can rapidly introduce advanced lighting solutions and emerging technologies to the marketplace, continually improve the IOUs’ current lighting programs across all market sectors, and develop and test innovative new program strategies to continually advance the lighting market. This process involves the following activities:

1. Coordinate with (and leverage the activities of) relevant state, Federal and local organizations including CEC/PIER, CLTC, DOE, LBNL, public institutions, lighting

## **2009–2011 Energy Efficiency Programs SW Lighting Market Transformation Program Implementation Plan**

manufacturers, and end-user groups. The CLTC is annexed for SCE through the SCLTC.

2. Ensure that rigorous quality standards exist for each technology and that each model incorporated into IOU programs meets these standards (to be achieved primarily through leveraging the Lighting Market Transformation Sub-Program)
3. Identify adequate market availability and pipelines for each technology prior to its transition into energy-efficiency programs (resource-based or other)
4. Create “phase-in” market transformation plans with new program strategies and programs to incorporate each technology into resource-based energy-efficiency programs (with the long-term net-zero goal in mind)
5. Develop and test mechanisms to aid the transition of lighting technologies from the IOUs’ Emerging Technologies programs or directly from manufacturers into their incentive or other lighting measure programs (including third-party and LGP programs) at a faster rate than has been achieved historically.
6. Within portfolio target and cost-effectiveness parameters, design and test a package of rebates, incentives, and voluntary industry agreements to bring significant numbers of the best available lighting technologies (SSL) to market (per the Strategic Plan) and leverage other program activities to deploy these products and incentives to end-users

These activities will enable the IOUs to develop a multi-year market transformation plan or “roadmap” for each lighting technology that charts its course from ET programs or manufacturers, into production energy-efficiency programs, and eventually – as market transformation occurs – into a lower profile within programs. This Sub-Program will be closely linked with the Lighting Market Transformation Sub-Program, which will develop appropriate metrics and end-point definitions for each technology. All together, the IOUs will have the information necessary to more closely monitor a specific technology’s progress in the market and provide a reasonable means to predict the timeframes during which the dollar value of incentives for specific measures may become lower, quantities may be reduced in programs, or specific measures no longer achieve the IOUs objectives.

This Sub-Program may involve several additional strategies:

- Leveraging incentives offered by the IOU’s other customer energy-efficiency programs to encourage increased production and distribution of high-quality products
- Augmenting the funding of existing customer energy-efficiency programs to include activities required to fill the LMT gaps identified by the Lighting Technology Advancement Sub-Program;<sup>1</sup>
- Influencing technology development with manufacturers through activities such as design competitions, collaboration in developing equipment specifications

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<sup>1</sup> One such example might be to provide funding to facilitate technological advancement of dimmer switches that work effectively and reliably with CFLs and LEDs so that dimming systems for these technologies are no longer perceived as barrier to their adoption.

**2009–2011 Energy Efficiency Programs  
SW Lighting Market Transformation  
Program Implementation Plan**

- Driving prices for new technologies down through group-purchasing arrangements for large quantities of lighting products among specific end-users (e.g., public universities)
- Engaging in other innovative activities to continually advance the market for new lighting technologies

This Sub-Program will continually push manufacturers to incorporate efficiency gains and demand response into equipment specifications and create demand for improved lighting products through pilot programs, demonstration projects, and other activities.

There are several lighting technologies at varying degrees of readiness for incorporation into the IOUs’ existing energy-efficiency programs, and/or worthy of consideration as new programs are developed. At the December 16, 2008 CPUC Lighting Advisory Group meeting held at the California Lighting Technology Center (CLTC), CPUC advisors and IOU representatives generated a preliminary list. The table below represents some of those technologies. A more detailed and definitive listing will be created within the first year of program operation and will be updated throughout the program cycle on regular basis.

<b>Commercial</b>	<b>Residential</b>	<b>Exterior</b>
Task/Ambient lighting designs (such as the PIER Integrated Office Lighting System)	LED fixtures and systems (e.g., recessed cans, under-cabinet, decorative fixtures, porch and outdoor fixtures, kitchens, bathrooms, and ceiling fans)	Smart Occupancy Sensors (Smart outdoor systems for Fluorescent, HID, Induction, SSL)
LED applications (downlights, under-counter, task, decorative, display, and exterior)	Dimmers that are compatible with CFLs and LEDs	Smart Occupancy sensor systems (for pathway, wall packs, and parking garages/lots)
Integrated and Retrofit-Integrated Classroom Lighting Systems	Super CFLs	Streetlight replacement programs
Dual Relay Occupancy Sensor and Self Commissioning Dual Loop Daylight Harvesting	Halogen IR	
Simplified daylight and occupancy controls	Small HID	
Dimming/controllable fluorescent ballasts		
Daylight with skylights, TDD, etc.		
HID Electronic ballasts		

**Lighting Education and Information Sub-Program**

The goal of this Sub-Program is to address the pressing need for better and more accessible information on lighting technologies. This Sub-Program will provide improved access to information and education regarding existing and emerging lighting technologies among end-users, IOU staff, equipment suppliers, lighting designers, and equipment installation contractors.

As new technologies become available, consumers are faced with the challenges of identifying those technologies, discerning which technology or group of technologies are most appropriate for a given application, understanding the limitations of each technology, and – finally – locating the technologies they wish to purchase. The retail prices of each technology may pose additional

## **2009–2011 Energy Efficiency Programs SW Lighting Market Transformation Program Implementation Plan**

barriers. As one possible strategy for overcoming these barriers, statewide funding has been allocated toward development of a trusted long-term resource for lighting information, workshops, case studies, and best design practices. These efforts should target both new construction and retrofit markets to complement the existing IOU LMT efforts. Similar to the Western Cooling Efficiency Center’s role in the HVAC PIP, a group such as the California Lighting Technology Center (CLTC) at UC-Davis may coordinate educational efforts for lighting technologies. The CLTC is annexed for SCE through the SCLTC, which will serve this purpose in SCE for the SCE Program.

An online resource will also be incorporated into the sub-program’s educational efforts. This resource will have an excellent, cutting-edge design that engages average consumers (both residential and non-residential) and could also include or provide links to online or brick-and-mortar retail outlets that sell the recommended technologies. Links to IOU rebate applications (or online retailers selling IOU-discounted products) may help address the first-cost barrier for consumers.

The IOUs may expand upon the model provided by SCE’s Online Byers Guide. The guide currently includes technical information, a product database, savings calculation tools, a shopping guide that provides customizable specs for customers to print and take to the store, rebate program information and retailer information for a subset of home energy products. The Online Buyers Guide could be expanded to provide detailed information regarding residential and nonresidential lighting technologies.

The CPUC is currently developing an Energy Efficiency Web Portal through its ME&O efforts as required by D.07-10-032. The CPUC’s Web Portal will be a “user-centered, interactive resource” that provides “one integrated point of access to a multitude of energy efficiency information.” This, as well as the CLTC’s Lighting Portal (<http://thelightingportal.ucdavis.edu/>) – which will soon be incorporating a web-based lighting store, may provide additional partnership opportunities.

### **Lighting Market Transformation Sub-Program**

The IOU programs have been instrumental in making significant inroads toward market transformation for efficient lighting products in California. The IOUs must continually address the challenges of determining when a specific lighting technology has become mainstream enough to reduce quantities or per-unit incentives. The Lighting Market Transformation Sub-Program will create a more formalized process for making such determinations.

The CEESP asserts that “it is necessary to develop appropriate rules, metrics, and guidelines for determining when market transformation has occurred and publicly-funded intervention is no longer appropriate, so as to define an end-point for strategies and set the course for new programs and goals.”

This Sub-Program provides an opportunity for the IOUs to conduct activities in support of developing end-point definitions, rules, and progress metrics for specific lighting technologies (such as basic CFLs and high-bay lighting). This Sub-Program has two key goals:

## **2009–2011 Energy Efficiency Programs SW Lighting Market Transformation Program Implementation Plan**

1. Clearly define “market transformation” for each technology by reviewing existing research (especially with regard to market data on technology saturation), identify research gaps, and propose/conduct additional research and data collection as appropriate to increase understanding of the technology (including rate of technology adoption); and
2. Develop appropriate metrics and guidelines for determining when market transformation has occurred and publicly-funded intervention is no longer appropriate, so as to define an end-point for strategies and set the course for new programs and goals.

Closely related to the above goals and to the Technology Advancement Sub-Program is improved coordination and communication between utilities, manufacturers, and research bodies to ensure development of (and strengthen targeted research on) quality technologies that meet utility program specifications.

These activities will be undertaken to help the utilities identify and deliver solutions for filling gaps identified in the market transformation strategies for lighting technologies, systems, and design approaches through the Technology Advancement Sub-Program.

d) Target Audience/s

IOU staff will lead the processes described above. There will be ample opportunities to selectively engage a broader pool of stakeholders, such as manufacturers, retailers, professional associations, end-user groups, and others.

e) Identify if and how this program will provide any elements of Workforce Education & Training.

As new educational materials and approaches are developed, this information will be presented in WE&T courses and planning.

5) Program Rationale and Expected Outcome

- a) If available, Quantitative Baseline and Market Transformation Information: Baselines for new technologies will not be available. Baselines and targets for existing technologies are part of the incentive programs for those technologies
- b) Market Transformation Information: Market Transformation has not been a major focus of the California energy efficiency programs since the energy crisis. Consequently, relatively little attention has been given in recent years to identifying and gathering data on indicators of change towards market transformation. For some programs or sub-programs that promote a single end use or measure, there may be some data available for this purpose, probably from industry sources, that we have not yet identified. For many of the programs, however, this kind of long-term, consistent, and expensive data collection has not been done in California. The relevant baseline information we have been able to find, and any market transformation estimates we are confident enough to offer, are provided below.

## 2009–2011 Energy Efficiency Programs SW Lighting Market Transformation Program Implementation Plan

Beyond that, the utilities request and commit to work with the Energy Division to develop meaningful baseline and market transformation concepts and metrics for programs that do not currently have them, and then design and administer studies to gather and track consistent, reliable and valid baseline and market effects data. We would propose to use the program logic models and The California Evaluation Framework (2004) as guides, and to begin this work immediately after the filing of these Program Implementation Plans, using the bridge funding provided for Evaluation, Measurement & Verification.

The baseline studies must (1) adequately describe the operation of markets that are targeted by a program, (2) confirm our tentative identification of measurable parameters that would indicate changes towards greater efficiency in the market(s) and that are likely to be affected by the program, and (3) gather the current values of those parameters, to serve as baselines against which future market movement can be tracked.

- c) **Program Design to Overcome Barriers:** In this program, market transformation activities will be focused heavily on designing approaches to overcome barriers. A major part of the program involves design and planning that can be transferred to pilots and existing programs. Expected program outcomes include several designs of programs or program components, approaches, strategies, and pilot programs to overcome the barriers inherent in introducing advanced technologies to the market.

The Statewide Lighting Market Transformation Program is intended to drive implementation of strategies to improve movement of technologies from the Emerging Technologies program and from manufacturers, into other customer energy-efficiency programs of the IOU, and ultimately (as the market for each technology is transformed) phase out incentives for each technology. Each Sub-Program addresses key barriers to this process as shown in the table below.

The Statewide Lighting Market Transformation Program is intended to drive implementation of strategies to improve movement of technologies from the Emerging Technologies program, into other customer energy-efficiency programs, and ultimately (as the market for each technology is transformed) phase out incentives for each technology. Each Sub-Program addresses key barriers to this process as shown in the table below.

Sub-Program	Barrier Addressed	Strategy to Address Barrier
Lighting Market Transformation Sub-Program	<ul style="list-style-type: none"> <li>▪ Lack of clear strategy for efficiently phasing technologies into and out of customer energy-efficiency programs</li> <li>▪ Insufficient market data and market transformation metrics for many technologies</li> </ul>	<ul style="list-style-type: none"> <li>▪ Sub-Program establishes processes to define phase-in and phase-out strategies for all technologies.</li> <li>▪ Sub-Program leverages research funding to provide market data sufficient for developing technology roadmaps</li> </ul>
Lighting Technology Advancement Sub-Program	<ul style="list-style-type: none"> <li>▪ Lighting technologies of insufficient quality</li> <li>▪ Insufficient availability of affordable, high-quality models for some lighting technologies</li> </ul>	<ul style="list-style-type: none"> <li>▪ Sub-Program enables utilities to influence technology development with manufacturers through design competitions and/or collaboration in developing equipment specifications;</li> <li>▪ Sub-Program provides opportunity for</li> </ul>



**2009–2011 Energy Efficiency Programs  
SW Lighting Market Transformation  
Program Implementation Plan**

		<p>IOUs to leverage incentives offered by other customer energy-efficiency programs to encourage increased production and distribution of high-quality products.</p> <ul style="list-style-type: none"> <li>▪ Sub-Program includes potential for group-purchasing arrangements among specific end-users (e.g., governmental agencies) to purchase large quantities of lighting products at reduced prices.</li> </ul>
Lighting Information and Education Sub-Program	<ul style="list-style-type: none"> <li>▪ Lack of information/education among end-users, utility staff, and equipment installation contractors</li> <li>▪ Improper technology disposal habits.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Sub-Program provides access to quality information regarding appropriate technology choices and installation practices</li> <li>▪ Sub-Program includes messaging on appropriate disposal methods for lighting technologies</li> </ul>

- b) Quantitative Program Targets: Program targets will not be quantified because baselines do not exist for new technologies and both baselines and targets for market transformation for existing products are included in the applicable incentive program plans. However, the program does set qualitative targets, such as producing two or more Lighting Market Transformation reports, holding multiple meetings to integrate market transformation across programs and utilities, and completing business plans for program related activities or pilots.
- c) Advancing Strategic Plan goals and objectives: This program is designed to address several of the near-term objectives described in the Strategic Plan as described in the table below.

Relevant CLTEESP Goal(s)	Strategy	Near-Term Goals (2009-2011)	Relevant Program Strategies
Residential Goal 4 – High-Performance Residential Lighting  Commercial Goal 3 – High Performance Commercial Lighting	4-1/3-1: Drive continual advances in lighting technology through research programs and design competitions	<ul style="list-style-type: none"> <li>▪ Work with research organizations to develop product with lower energy requirements and improved spectral performance</li> <li>▪ Work with Utilities and Retailers to develop public awareness and demand</li> </ul>	<ul style="list-style-type: none"> <li>▪ Lighting Technology Advancement Sub-Program: IOUs will work with equipment manufacturers to develop specifications for high-quality equipment.</li> <li>▪ Lighting Education and Information Sub-Program will raise public awareness and demand for advanced lighting technologies by providing access to information and educational resources.</li> </ul>
Residential Goal 4 – High-Performance Residential Lighting  Commercial Goal 3 – High Performance Commercial Lighting	4-2/3-2: Create demand for improved lighting products through demonstration projects, marketing efforts, and utility programs	<ul style="list-style-type: none"> <li>▪ Deploy a package of rebates, incentives and voluntary industry agreements to bring significant numbers of the best available lighting technologies (SSL) to market</li> </ul>	<ul style="list-style-type: none"> <li>▪ Lighting Technology Advancement Sub-Program suggests program design strategies including development of appropriate incentive packages. Links to other customer energy-efficiency programs for incentive delivery.</li> </ul>
Residential Goal 4 – High-Performance Residential Lighting	4-3: Continuously Strengthen standards.	<ul style="list-style-type: none"> <li>▪ Continuously incorporate gains in efficiency in the appliance standards.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Lighting Technology IOU core resource programs and the Advancement Sub-Program will continually push manufacturers to incorporate efficiency gains into equipment specifications.</li> </ul>

**2009–2011 Energy Efficiency Programs  
SW Lighting Market Transformation  
Program Implementation Plan**

<p>Residential Goal 4 – High-Performance Residential Lighting</p> <p>Commercial Goal 3 – High Performance Commercial Lighting</p>	<p>4-4/3-3: Coordinated phase out of Utility incentives for purchase of CFLs</p>	<ul style="list-style-type: none"> <li>▪ Ensure that big box and home improvement retailers such as Wal-Mart and Home Depot are ready to stock Energy Star price discounted CFLs in CA as IOUs phase CFL programs out.</li> <li>▪ Utilities engage in negotiations with manufacturers and retailers to buy-down prices and stock the next generation of high efficiency lighting.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Lighting Technology Advancement Sub-Program will chart roadmaps for lighting technologies incorporated into customer energy-efficiency programs, including basic CFLs. The market research component of the Lighting Market Transformation Sub-Program will enable IOUs to clearly define and end-game for this technology while exploring opportunities to incorporate emerging lighting technologies into new and existing programs.</li> </ul>
<p>Residential Goal 4 – High-Performance Residential Lighting</p>	<p>4-5: Ensure environmental safety of CFLs and other emerging lighting solutions</p>	<ul style="list-style-type: none"> <li>▪ Coordinate consumer education and marketing programs to improve disposal habits.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Lighting Education and Information Sub-Program will include messaging on appropriate disposal methods for lighting technologies.</li> </ul>

6) Program Implementation

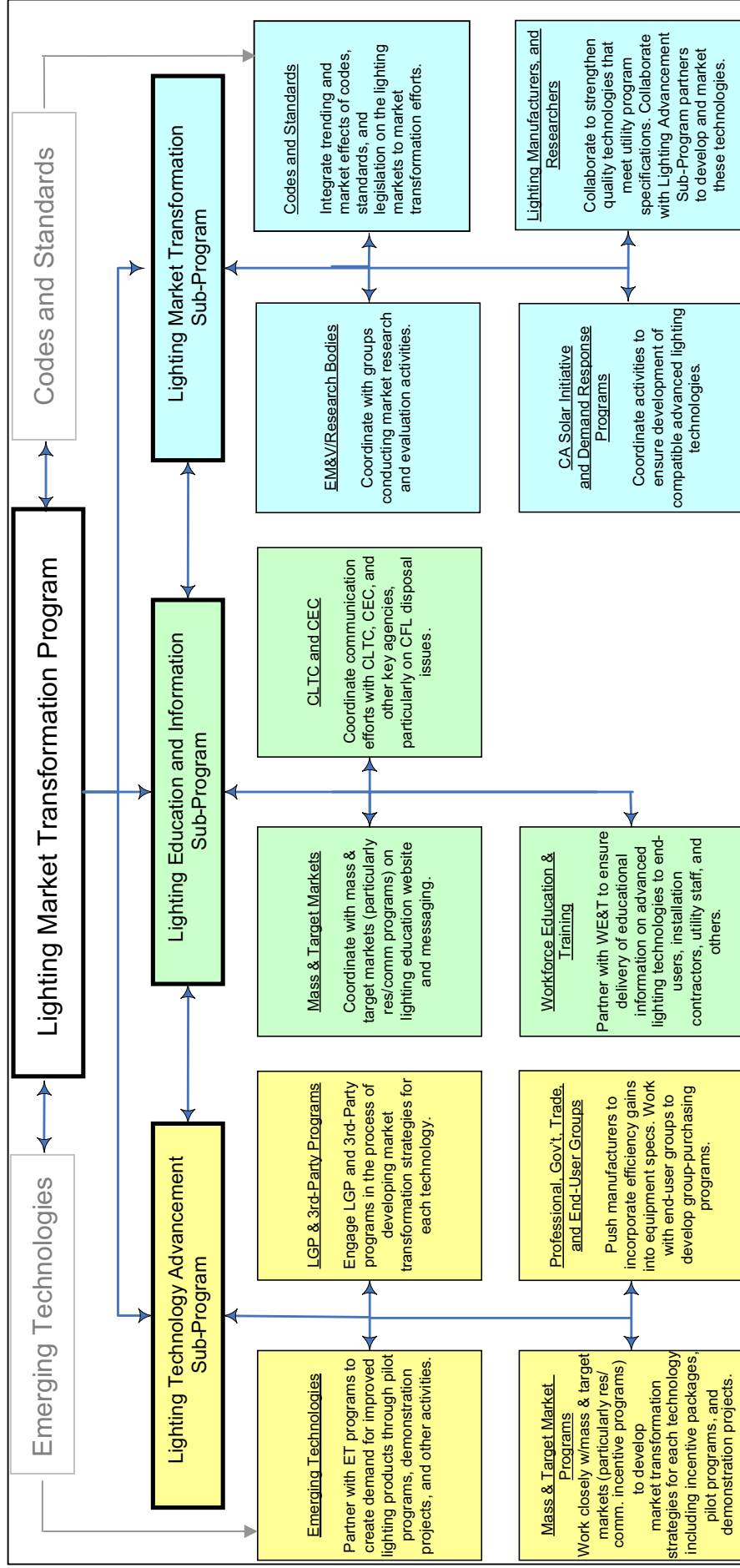
- a) Statewide IOU Coordination: This is a statewide program.
  - i. Program name: The program name is consistent across the utilities.
  - ii. All program delivery mechanisms: Delivery mechanisms include providing information, collaboration, and guidance to program staff, management, and other utilities.
  - iii. Marketing materials and message: Utilities will coordinate their activities regarding educating customers on technologies newly available on the market.
  - iv. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs, CBOs, non-governmental organizations, manufacturers, retailers, trade and business associations, as applicable: These organizations will be included when applicable through normal communication channels. Strategic partnerships with the DOE, EPA, and CEC will allow networking with industry allies through overarching government organizations. Manufacturers, retailers, and non-governmental organizations such as the Consortium for Energy Efficiency (CEE) and NRDC will also serve as strategic allies.
  - v. Similar IOU and POU programs: The program will interface with similar programs across the country to benchmark and leverage knowledge transfer, best practices, and newest technological developments.
- b) Program delivery mechanisms: The utilities will consider and develop statewide strategies towards mid-scale field placement of priority technologies.
- c) Marketing Plan: The utilities will develop statewide coordinated marketing plans for priority technologies.

**2009–2011 Energy Efficiency Programs  
SW Lighting Market Transformation  
Program Implementation Plan**

- d) Best Practices: The program will develop and promote best practices.
- e) Innovation: This program is new, unique, and innovative in its approach as a central point of market transformation activity for lighting within a utility.
- f) Integrated/coordinated Demand Side Management: Load control and other demand response technologies are under-represented in current technology, and this program will work toward bringing them out in new technologies of the future.
- g) Integration across resource types: Integration will take place through monitoring and influencing developments that maximize interactive effects for energy savings across resource types.
- h) Pilots: Pilots leveraging the efforts of the Emerging Technologies Program, mid-scale field placements, small scale incentive program tests, and other avenues will be given priority consideration in this program.
- i) EM&V: This program does not claim energy savings or demand reduction, and its market effects are indirect. Therefore, EM&V is not applicable.

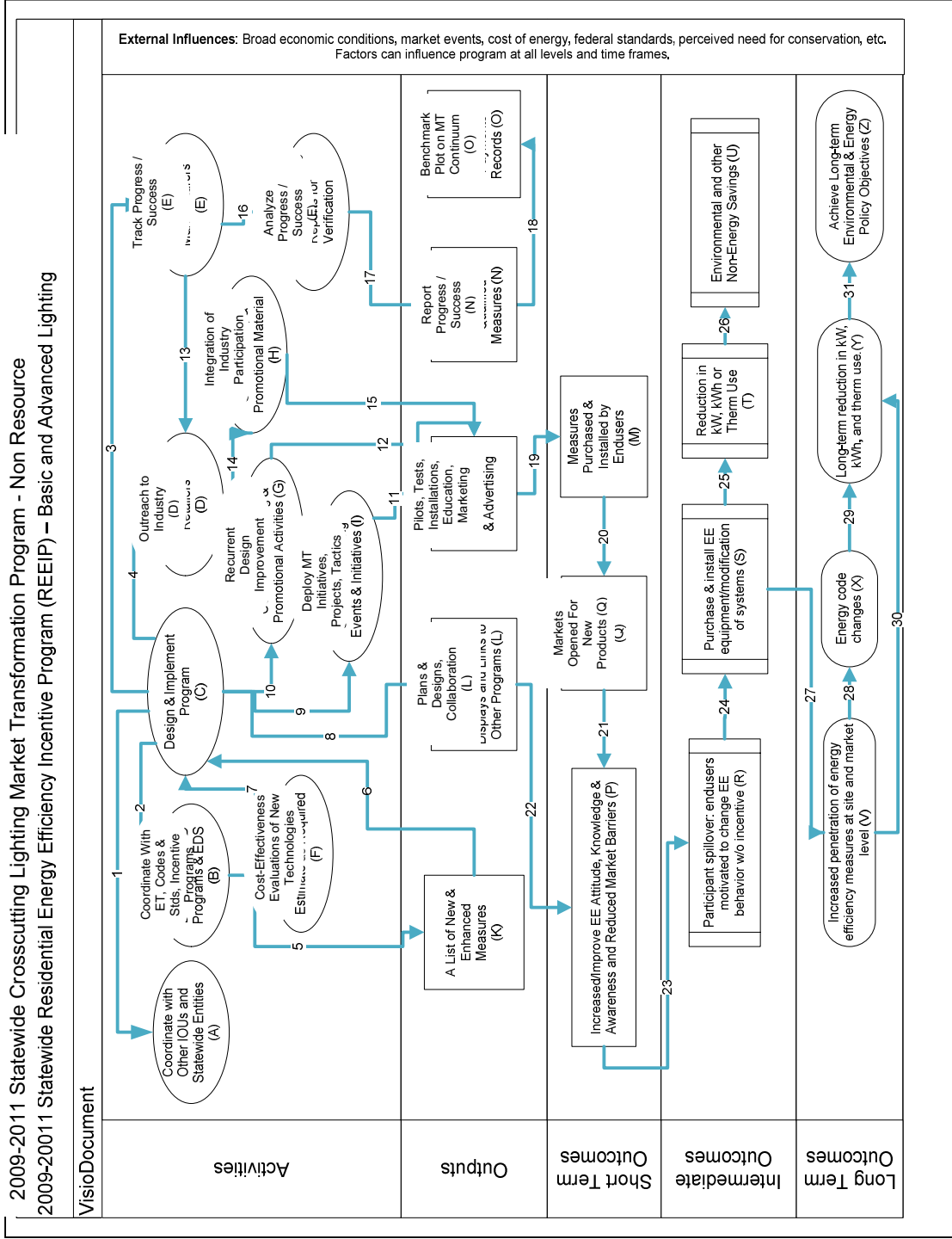
# 2009–2011 Energy Efficiency Programs SW Lighting Market Transformation Program Implementation Plan

5) Diagram of Program:



# 2009–2011 Energy Efficiency Programs SW Lighting Market Transformation Program Implementation Plan

6) Program Logic Model: This is an initial model. One element of the program will be to develop a more comprehensive model.



## 2009–2011 Energy Efficiency Programs Statewide Commercial Energy Efficiency Program Program Implementation Plan

1. Program Name: Statewide Commercial Energy Efficiency Program  
 Program ID: TBD  
 Program Type: Core program

2. Projected Program Budget Table

**Table 1<sup>1</sup>**

Program #	Main Program Name / Sub-Programs	Total Administrative Cost (Actual)	Total Marketing & Outreach (Actual)	TOTAL Direct Implementation	Integration Budget Allocated to Other Programs (if Applicable)	Total Budget By Program (Actual)
<b>Market Sector Programs</b>						
	<b>SW Commercial</b>					
	SW-ComA - Calculated	\$ 675,449.23	\$ 229,289.40	\$ 14,168,117	\$ -	\$ 15,072,856
	SW-ComB - Deemed	\$ 1,203,893.37	\$ 1,440,063.90	\$ 13,222,083	\$ -	\$ 15,866,040
	SW-ComC - Nonresidential Audits	\$ 837,247.98	\$ 598,239.98	\$ 372,124	\$ -	\$ 1,807,612
	SW-ComD - Continuous Energy Improvement	\$ 163,813.29	\$ 442,500.06	\$ 454,624	\$ -	\$ 1,060,938
	SW-ComE - Direct Install	\$ 251,800.42	\$ 600,000.86	\$ 22,045,489	\$ -	\$ 22,897,290
	<b>TOTAL:</b>	<b>\$ 3,132,204</b>	<b>\$ 3,310,094</b>	<b>\$ 50,262,438</b>	<b>\$ -</b>	<b>\$ 56,704,736</b>

These budget numbers are presented in Appendix F: Energy Division Tables, Graphs & Pie Charts: Table 7.1 - 2009 - 2011 IOU Strategic Planning Program Budget.

3. Projected Program Gross Impacts Table – by calendar year

**Table 2**

Program #	Program Name Sub-Programs	2009 - 2011	2009 - 2011	2009 - 2011
		Three-Year EE Program Gross kWh Savings	Three-Year EE Program Gross kW Savings	Three-Year EE Program Gross Therm Savings
<b>Market Sector Programs</b>				
	<b>SW-Commercial</b>	53,403,182	21,373	0
	SW-ComA - Calculated	53,403,182	21,373	0
	SW-ComB - Deemed	82,876,533	17,327	798,895
	SW-ComC - Nonresidential Audits			
	SW-ComD - Continuous Energy Improvement	48,324,771	13,386	0
	SW-ComE - Direct Install			
	<b>TOTAL:</b>	<b>238,007,668</b>	<b>73,458</b>	<b>798,895</b>

<sup>1</sup> Definition of Table 1 Column Headings: Total Budget is the sum of all other columns presented here  
Total Administrative Cost includes all Managerial and Clerical Labor, Human Resource Support and Development, Travel and Conference Fees, and General and Administrative Overhead (labor and materials).

Total Direct Implementation – includes all financial incentives used to promote participation in a program and the cost of all direct labor, installation and service labor, hardware and materials, and rebate processing and inspection used to promote participation in a program.

Total Marketing & Outreach includes all media buy costs and labor associated with marketing production.

Integrated Budget Allocated to Other Programs includes budget utilized to coordinate with other EE, DR, or DG programs.

Total Budget is the sum of all other columns presented here

Definition of Sub-Program: A “sub-program” of a program has a specific title; targets; budget; uses a unique delivery or marketing approach not used across the entire program; and for resource programs, has specific estimated savings and demand impacts.

## **2009–2011 Energy Efficiency Programs**

### **Statewide Commercial Energy Efficiency Program**

#### **Program Implementation Plan**

These savings values are presented in Appendix F: Energy Division Tables, Graphs & Pie Charts: Table 7.2 - IOU 2009 - 2011 Program Savings Estimates.

#### 4. Program Description

- a) The Statewide Commercial Energy Efficiency Program offers California’s commercial customers a statewide-consistent suite of products and services to overcome the market barriers to optimized energy management. The program targets integrated energy management solutions, including energy efficiency, demand response (DR), and distributed generation, through strategic energy planning support; technical support services, such as facility audits, and calculation and design assistance; and financial support through rebates and incentives.

Targeted end-users include all commercial sub-segments such as distribution warehouses, office buildings, hotels, motels, restaurants, schools, universities, colleges, hospitals, retail facilities, entertainment centers, and “hard-to-reach” smaller customers that have similar buying characteristics.

The Statewide Commercial Energy Efficiency Program includes five core statewide sub-program elements, including Continuous Energy Improvement, Non-Residential Audits, Direct Install, Deemed Rebates and the Calculated support services and incentives. Each utility also offers local program elements, third party programs, and local government partnerships that complement and enhance this core offering for their region. As described below, and in complete detail in the Commercial Sub-Program descriptions. Together these offerings are designed to not only overcome the traditional market barriers to energy efficiency, but also use efficiency to advance demand response and distributed generation opportunities uniquely suited to the Commercial segment.

- Continuous Energy Improvement (CEI) is a non-resource sub-program that describes the strategic planning tools and resources which lay the groundwork for long-term integrated energy planning and serve as a launching platform for other utility and non-utility programs and services. Through analysis, benchmarking, long-term goal setting, project implementation support, performance monitoring, and ultimately energy management certification, CEI aims to transform the market from a “project-to-project” approach to a continuous improvement pathway. In support of the California Long Term Energy Efficiency Strategic Plan (CLTEESP), a CEI approach also sets the stage for non-energy resource integration, such as greenhouse gas reduction, water conservation strategies, and regulatory compliance.
- Non-Residential Audits (NRA), including basic audits, Integrated Audits, and Retro Commissioning (RCX) audits, provide an inventory of technical project opportunities and financial analysis information that can be used to populate a customer’s short- or long-term energy plan, and overcome both informational and technical customer barriers.
- The Direct Install rebate offering provides small business customers that have a small peak demand the opportunity to have a third-party contractor retrofit existing systems to energy efficient systems at no cost to the customer.

## **2009–2011 Energy Efficiency Programs Statewide Commercial Energy Efficiency Program Program Implementation Plan**

- The Deemed rebate offering provides utility representatives, equipment vendors, and customers an easy-to-use mechanism to cost-effectively subsidize and encourage adoption of mass market efficiency measures through fixed incentive amounts per unit/measure.
- The Calculated program offering provides standardized incentives for customized and integrated energy efficiency/DR projects for retrofit, and RCX projects, and offers comprehensive technical and design assistance for each. It overcomes information, technical, and financial barriers. Because it provides a customized calculation method that can consider system and resource interactions, it will be the preferred approach for supporting the integrated, whole system, and multi-resource management strategies of the CLTEESP.

When developing program metrics and targets for each sub-program element, each utility will consider market potential as available, past program participation rates, market progress, current economic conditions, work-paper and baseline updates, and customer mix and penetration. Statewide coordination and planning will facilitate inter-utility sharing of successes, lessons learned, and best practices in the pursuit of those targets and metrics.

Statewide coordination and planning between utility program planning staff, utility functional departments, government agencies, and other key partners and stakeholders will also be critical to the advancement of the CLTEESP. Leveraging national and state initiatives, tools and resources to manage energy and resources – including greenhouse gasses (GHG), air quality, and water – is a critical path to optimizing the potential for California’s commercial customer segments to thrive. As described in full in PIP Section 6b, the Statewide Commercial Energy Efficiency Program design includes the staged integration and coordination with existing non-utility programs, initiatives, and regulations today, and later will drive or support advancements in integrated resource planning, energy management certification, industry benchmarking, workforce education and training, and sharing of industry best practices.

The commercial customer markets are uniquely suited to integrated energy strategies. Load management opportunities and demand response have had great success and show additional potential. Opportunities for distributed generation from biogas, biomass, solar, fuel cells, and wind will be supported through this plan in support of state renewable energy targets, state GHG reduction efforts under AB32, and support of emerging carbon markets and offset programs. Consistent with California’s preferred loading order, however, the utilities will continue to aggressively market and support energy efficiency first, as California’s most cost-effective energy resource, while also being mindful of the customer’s ultimate interests and goals.

- b) Technologies addressed through this program effort are varied, and include lighting, HVAC, refrigeration, food service equipment, boilers, vertical transportation, motors, and plug load controls. A comprehensive list is located in Appendix A. Incentive levels will be those aligned with the Calculated and Deemed Sub-Programs.



**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

- c) The Statewide Commercial Energy Efficiency Program will include a wide variety of non-incentive program services intended to support customer strategic planning, educate and train customers and the workforce about energy efficiency, and provide customized technical and project support. The service list includes:

Continuous Energy Improvement (CEI)

- Energy management assessments
- Energy planning
- Baseline and benchmarking
- Project implementation support
- Customer recognition
- Resources on Energy Design Resources website
- Resource Conservation Manager (pilot)

Customer Education and Training

- DOE Basic, Intermediate, and Specialist Training – refrigeration systems, HVAC, motors, compressed air, and steam.
- Other commercial process systems training
- Commercial lighting efficiency seminars
- Regulatory compliance and energy efficiency convergence, for example, NOX and boilers
- Integrated industry-focused workshops, e.g., restaurants, lodging, retail, hospitals, commercial buildings, hi-tech and bio-tech facilities

Workforce Education and Training

- DOE Basic, Intermediate and Specialist Training in support of ANSI Certification, per the CLTEESP.
- Title 24 Training,
- Commercial refrigeration best practices (for designers), in support of the CLTEESP focus on refrigeration
- HVAC best practices for data centers, laboratories, and other specialized use facilities.
- California Advanced Lighting Controls Training Program (CALCTP)

Non Residential Audits

- Basic audits
- Integrated audits
- RCx audits

5. Program Rationale and Expected Outcome

**a) Quantitative Baseline and Market Transformation Information**

Market Transformation (MT) metrics proposed in Tables 3 and 4 are preliminary. The proposed metrics are meant to initiate a collaborative effort to elaborate meaningful metrics that will provide overall indicators of how markets as a whole are evolving. MT metrics should neither be used for short-term analyses nor for specific program analyses; rather, should focus on broad market segments.

## 2009–2011 Energy Efficiency Programs Statewide Commercial Energy Efficiency Program Program Implementation Plan

Market transformation is embraced as an ideal end state resulting from the collective efforts of the energy efficiency field, but differing understandings of both the MT process and the successful end state have not yet converged. The CPUC defines the end state of MT as “Long-lasting sustainable changes in the structure or functioning of a market achieved by reducing barriers to the adoption of energy efficiency measures to the point where further publicly-funded intervention is no longer appropriate in that specific market.”<sup>2</sup> The Strategic Plan recognizes that process of transformation is harder to define than its end state, and that new programs are needed to support the continuous transformation of markets around successive generations of new technologies<sup>3</sup>.

Market transformation programs differ from resource acquisition programs on 1) objectives, 2) geographical and 3) temporal dimensions, 4) baselines, 5) performance metrics, 6) program delivery mechanisms, 7) target populations, 8) attribution of causal relationships, and 9) market structures<sup>4</sup>. Markets are social institutions<sup>5</sup>, and transformation requires the coordinated effort of many stakeholders at the national level, directed to not immediate energy savings but rather to intermediary steps such as changing behavior, attitudes, and market supply chains<sup>6</sup> as well as changes to codes and standards. Resource acquisition programs rely upon the use of financial incentives, but concerns have been raised that these incentives distort true market price signals and may directly counter market transformation progress<sup>7</sup>. According to York<sup>8</sup>, “Market transformation is not likely to be achieved without significant, permanent increases in energy prices. From an economic perspective, there are 3 ways to achieve market transformation: (1) fundamental changes in behavior, (2) provide proper price signals, and (3) permanent subsidy.”

The question of what constitutes successful transformation is controversial because of a Catch-22: Market transformation is deemed successful when the changed market is self-sustaining, but that determination cannot be made until after program interventions are ended. Often, however, the need for immediate energy and demand savings or immediate carbon-emissions reductions will mean that program interventions may need to continue, which would interfere with the evaluation of whether MT is self-sustaining. Market transformation success has also been defined in terms of higher sales of efficient measures than would have otherwise occurred against a baseline absent of program interventions. The real world, however, provides no such control condition. Evaluators must estimate these baselines from quantitative factors such as past market sales that may be sparse and/or inaccurate - particularly for new products. Evaluations must also defer to expert judgments

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<sup>2</sup> California Public Utilities Commission Decision, D.98-04-063, Appendix A.

<sup>3</sup> California Public Utilities Commission (2008) *California Long Term Energy Efficiency Strategic Plan*, p. 5. Available at <http://www.californiaenergyefficiency.com/docs/EEStrategicPlan.pdf>

<sup>4</sup> Pelozo, J., and York, D. (1999). “Market Transformation: A Guide for Program Developers.” Energy Center of Wisconsin. Available at: <http://www.ecw.org/ecwresults/189-1.pdf>

<sup>5</sup> Blumstein, C., Goldstone, S., & Lutzenhiser, L. (2001) “From technology transfer to market transformation”. Proceedings of the European Council for an Energy Efficient Economy Summer Study. Available at [http://www.eceee.org/conference\\_proceedings/eceee/2001/Panel\\_2/p2\\_7/Paper/](http://www.eceee.org/conference_proceedings/eceee/2001/Panel_2/p2_7/Paper/)

<sup>6</sup> Sebald, F. D., Fields, A., Skumatz, L., Feldman, S., Goldberg, M., Keating, K., Peters, J. (2001) *A Framework for Planning and Assessing Publicly Funded Energy Efficiency*. p. 6-4. Available at [www.calmac.org](http://www.calmac.org).

<sup>7</sup> Gibbs, M., and Townsend, J. (2000). The Role of Rebates in Market Transformation: Friend or Foe. In *Proceedings from 2000 Summer Study on Energy Efficiency in Buildings*.

<sup>8</sup> York, D., (1999). “A Discussion and Critique of Market Transformation”, Energy Center of Wisconsin. Available at <http://www.ecw.org/ecwresults/186-1.pdf>.

## **2009–2011 Energy Efficiency Programs**

### **Statewide Commercial Energy Efficiency Program**

#### **Program Implementation Plan**

on what these baselines may have been as well as on the degree of successful market transformation<sup>9</sup>. Due to the subjective nature of these judgments, it is imperative that baselines as well as milestone MT targets be determined and agreed upon through collaborative discussion by all stakeholders, and these targets may need periodic revision as deemed necessary by changing context.

Market transformation draws heavily upon diffusion of innovation theory<sup>10</sup>, with the state of a market usually characterized by adoption rate plotted against time on the well-known S-shaped diffusion curve. In practice, however, the diffusion curve of products may span decades<sup>11</sup>. Market share tracking studies conducted 3, 5 or even 10 years after the start of an MT program may reveal only small market transformation effects<sup>12</sup>. The ability to make causal connections between these market transformation effects and any particular program's activities fades with time, as markets continually change and other influences come into play.

These challenges mentioned above are in reference to programs that were specifically designed to achieve market transformation; and these challenges are only compounded for programs that were primarily designed to achieve energy and demand savings. However, since the inception of market transformation programs almost two decades ago, many lessons have been learned about what the characteristics of successful MT programs are. First and foremost, they need to be designed specifically to address market transformation. “The main reason that (most) programs do not accomplish lasting market effects is because they are not designed specifically to address this goal (often because of regulatory policy directions given to program designers.)<sup>13</sup>” The Strategic Plan recognizes that regulatory policies are not yet in place to support the success of market transformation efforts<sup>14</sup>, but also reflects the CPUC's directive to design energy efficiency programs that can lay the groundwork for either market transformation success or for codes and standards changes.

Above all else, the hallmark of a successful market transformation program is in the coordination of efforts across many stakeholders. The most successful MT programs have involved multiple organizations, providing overlapping market interventions<sup>15</sup>. The Strategic Plan calls for coordination and collaboration throughout, and in that spirit the utilities look forward to working with the CPUC and all stakeholders to help achieve market transformation while meeting all the immediate energy, demand, and environmental needs. Drawing upon lessons learned from past MT efforts, the Energy Center of Wisconsin's guide for MT program developers<sup>16</sup> suggests that the first step is not to set end-point definitions, progress metrics or goals. Rather, the first steps include forming a collaborative of key participants. As the Strategic Plan suggests, these may include municipal utilities, local governments, industry and business leaders, and consumers. Then, with the collective

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<sup>9</sup> Nadel, S., Thorne, J., Sachs, H., Prindle, B., and Elliot, R.N. (2003). “Market Transformation: Substantial Progress from a Decade of Work.” American Council for an Energy-Efficient Economy, Report Number A036. Available at: <http://www.aceee.org/pubs/a036full.pdf>

<sup>10</sup> Rogers (1995) *Diffusion of Innovations*, 5<sup>th</sup> Ed.

<sup>11</sup> Example in bottom chart of this graphic from the New York Times: <http://www.nytimes.com/imagepages/2008/02/10/opinion/10op.graphic.ready.html>

<sup>12</sup> Sebold et al (2001) p. 6-5,

<sup>13</sup> Peters, J.S., Mast, B., Ignelzi, P., Megdal, L.M. (1998). *Market Effects Summary Study Final Report: Volume 1.* Available at <http://calmac.org/publications/19981215CAD0001ME.PDF>.

<sup>14</sup> CPUC (2008) Strategic Plan, p. 5.

<sup>15</sup> Nadel, Thorne, Sachs, Prindle & Elliot (2003).

<sup>16</sup> Pelozo & York, (1999).

## **2009–2011 Energy Efficiency Programs Statewide Commercial Energy Efficiency Program Program Implementation Plan**

expertise of the collaborative, we can define markets, characterize markets, measure baselines with better access to historical data, and define objectives, design strategies and tactics, implement and then evaluate programs. The collaborative will also provide insights that will set our collective expectations for the size of market effects we can expect, relative to the amount of resources we can devote to MT. No one organization in the collaborative will have all the requisite information and expertise for this huge effort. This truly needs to be a collaborative approach from the start.

The metrics and baselines described below in Tables 3 and 4 are presented for the purposes of starting the much-needed discussion between all key participants. These are suggestions, intended to allow key participants to pilot-test processes for establishing baseline metrics, tracking market transformation progress, and for refining evaluation tools. Early trial of these evaluation metrics will reveal any gaps in data tracking so that we may refine our processes before full-scale market transformation evaluations take place.

The set of metrics we selected is intentionally a small set, for several reasons. First, as mentioned, the full set of metrics and baselines need to be selected by key participants. Second, we anticipate that market share data for many mid- and low-impact measures will be too sparse to show MT effects and not cost-effective to analyze. Third, we selected core measures and metrics that would both be indicative of overall portfolio efforts. These measures are also likely to be offered on a broad level by other utilities, providing a greater base of sales and customer data that could be analyzed for far-reaching MT effects.

Therefore, for the Commercial sector, the following approach to quantitative baseline and market transformation information is presented as follows.

The IOUs are proposing metrics believed to reliably market transformation for Energy Efficient equipment in key energy end-use areas. While all metrics fall short of a perfect measure, the ideal metric would have a baseline that is already established that includes a reasonable and easy method of duplication and comparison. Market transformation cannot be measured on a year to year basis but will take several years and measurements to reliably discern trends.

The overarching purpose for this metrics is to gauge the saturation levels of energy efficient lighting and high efficiency boilers in order to understand past accomplishments and future energy savings potential in the commercial sector. Specifically it is proposed that new lighting and boiler saturation studies be conducted. The objective of these studies would be to estimate the efficiency levels of equipment in the field. A comparison could then be made to comparable baseline studies and a determination made if a trend is taking place that indicates that more energy efficient solutions are being installed in commercial applications. As market transformation is more than just market share of measures, the suggested metrics also include an attitudinal metric.

Attitudinal change is an important part of any market transformation effort. This change may be tracked with a battery of questions that probes customer attitudes, knowledge and awareness (AKA) of energy efficiency. In order to gauge an attitudinal based metric for this sector a battery of questions probing AKA among customers would have to be created and used to scale AKA. Examples of AKA would include knowledge of energy efficiency

**2009–2011 Energy Efficiency Programs  
Statewide Commercial Energy Efficiency Program  
Program Implementation Plan**

lighting and other specific measures. Evaluators could also draw from customer surveys used in past program evaluation studies to determine whether any response patterns would be a useful indicator of market transformation, moving forward. The dimensions of any scale would need to be selected by the MT collaborative. The baseline response pattern to the AKA scale would need to be established early during the program cycle. Customers could be surveyed on an annual basis and changes in their AKA tracked along the scale. Responses of customers for a particular sub-program could be pulled out for separate analysis, as needed. In addition, the suggested metrics also include a behavioral metric.

In addition, behavioral change is an important part of any market transformation effort. This change may be tracked with a battery of questions that probes customer past behavior and intentions about energy efficiency. In order to gauge an behavioral based metric for this sector a battery of questions about energy efficient behaviors could be used to create a scale of Energy Behavior. Evaluators could also draw questions about specific behaviors from customer surveys used in past program evaluation studies to determine whether any response patterns would be a useful indicator of market transformation, moving forward. The dimensions of any scale would need to be selected by the MT collaborative. The behaviors that could be probed include maintenance behaviors to keep EE measures operating correctly, and behaviors that maximize energy efficiency of existing equipment. Customers could be surveyed early in the program cycle and their responses on the scale could serve as the baseline for subsequent behavioral change. Customers could be probed annually and their Energy Behavior change measured along the scale. Responses of customers for a particular sub-program could be pulled out for separate analysis, as needed.

With this discussion in mind, IOUs propose the following metrics for this sector:

Table 3

	Baseline Metric			
	Metric A	Metric B	Metric C	Metric D
Measure-based metric	Ratio of high efficiency lighting installed over a base lighting case			
Measure-based metric		Ratio of high efficiency boilers over a base case		
Attitudinal-based metric			Ratio of survey participants that have built EE practices into their business models when considering capital improvements	

**2009–2011 Energy Efficiency Programs  
Statewide Commercial Energy Efficiency Program  
Program Implementation Plan**

Behavioral- Adoption based metric				Behaviors of sector are gauged based on a scale developed to measure energy efficient behaviors in businesses
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**b) Market Transformation Information**

As stated above, market transformation draws heavily upon diffusion of innovation theory, with the state of a market characterized by adoption rate plotted against time on the well-known S-shaped diffusion curve. In practice, however, the diffusion curve of products may span decades. Market share tracking studies conducted 3, 5 or even 10 years after the start of an MT program may reveal only small market transformation effects. Therefore it is problematic, if not impractical, to offer internal annual milestones towards market transformation sectors and specific program activities.

As a consequence, it is not appropriate to offer more than broad and general projections. Any targets provided in the following table are nothing more than best guesstimates, and are subject to the effects of many factors and market forces outside the control of program implementers.

Table 4

	Internal Market Transformation Planning Estimates		
	2009	2010	2011
Ratio of high efficiency lighting installed over a base lighting case	Improvement over baseline, over time	Improvement over baseline, over time	Improvement over baseline, over time
Ratio of high efficiency boilers over a base case	Improvement over baseline, over time	Improvement over baseline, over time	Improvement over baseline, over time
Ratio of survey participants that have built EE practices into their business models when considering capital improvements	Establish baseline	Improvement over baseline, over time	Improvement over baseline, over time
Behaviors of sector are gauged based on a scale developed to measure energy efficient behaviors in businesses	Establish baseline	Improvement over baseline, over time	Improvement over baseline, over time

# 2009–2011 Energy Efficiency Programs

## Statewide Commercial Energy Efficiency Program

### Program Implementation Plan

#### c) Quantitative Baseline and Market Transformation Information

Market Transformation (MT) metrics proposed in Tables 3 and 4 are preliminary. The proposed metrics are meant to initiate a collaborative effort to elaborate meaningful metrics that will provide overall indicators of how markets as a whole are evolving. MT metrics should neither be used for short-term analyses nor for specific program analyses; rather, should focus on broad market segments.

Market transformation is embraced as an ideal end state resulting from the collective efforts of the energy efficiency field, but differing understandings of both the MT process and the successful end state have not yet converged. The CPUC defines the end state of MT as “Long-lasting sustainable changes in the structure or functioning of a market achieved by reducing barriers to the adoption of energy efficiency measures to the point where further publicly-funded intervention is no longer appropriate in that specific market.”<sup>17</sup> The Strategic Plan recognizes that process of transformation is harder to define than its end state, and that new programs are needed to support the continuous transformation of markets around successive generations of new technologies<sup>18</sup>.

Market transformation programs differ from resource acquisition programs on 1) objectives, 2) geographical and 3) temporal dimensions, 4) baselines, 5) performance metrics, 6) program delivery mechanisms, 7) target populations, 8) attribution of causal relationships, and 9) market structures<sup>19</sup>. Markets are social institutions<sup>20</sup>, and transformation requires the coordinated effort of many stakeholders at the national level, directed to not immediate energy savings but rather to intermediary steps such as changing behavior, attitudes, and market supply chains<sup>21</sup> as well as changes to codes and standards. Resource acquisition programs rely upon the use of financial incentives, but concerns have been raised that these incentives distort true market price signals and may directly counter market transformation progress<sup>22</sup>. According to York<sup>23</sup>, “Market transformation is not likely to be achieved without significant, permanent increases in energy prices. From an economic perspective, there are 3 ways to achieve market transformation: (1) fundamental changes in behavior, (2) provide proper price signals, and (3) permanent subsidy.”

The question of what constitutes successful transformation is controversial because of a Catch-22: Market transformation is deemed successful when the changed market is self-

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<sup>17</sup> California Public Utilities Commission Decision, D.98-04-063, Appendix A.

<sup>18</sup> California Public Utilities Commission (2008) *California Long Term Energy Efficiency Strategic Plan*, p. 5. Available at <http://www.californiaenergyefficiency.com/docs/EEStrategicPlan.pdf>

<sup>19</sup> Pelozo, J., and York, D. (1999). “Market Transformation: A Guide for Program Developers.” Energy Center of Wisconsin. Available at: <http://www.ecw.org/ecwresults/189-1.pdf>

<sup>20</sup> Blumstein, C., Goldstone, S., & Lutzenhiser, L. (2001) “From technology transfer to market transformation”. Proceedings of the European Council for an Energy Efficient Economy Summer Study. Available at [http://www.eceee.org/conference\\_proceedings/eceee/2001/Panel\\_2/p2\\_7/Paper/](http://www.eceee.org/conference_proceedings/eceee/2001/Panel_2/p2_7/Paper/)

<sup>21</sup> Sebold, F. D., Fields, A., Skumatz, L., Feldman, S., Goldberg, M., Keating, K., Peters, J. (2001) *A Framework for Planning and Assessing Publicly Funded Energy Efficiency*. p. 6-4. Available at [www.calmac.org](http://www.calmac.org).

<sup>22</sup> Gibbs, M., and Townsend, J. (2000). The Role of Rebates in Market Transformation: Friend or Foe. In *Proceedings from 2000 Summer Study on Energy Efficiency in Buildings*.

<sup>23</sup> York, D., (1999). “A Discussion and Critique of Market Transformation”, Energy Center of Wisconsin. Available at <http://www.ecw.org/ecwresults/186-1.pdf>.

## **2009–2011 Energy Efficiency Programs Statewide Commercial Energy Efficiency Program Program Implementation Plan**

sustaining, but that determination cannot be made until after program interventions are ended. Often, however, the need for immediate energy and demand savings or immediate carbon-emissions reductions will mean that program interventions may need to continue, which would interfere with the evaluation of whether MT is self-sustaining. Market transformation success has also been defined in terms of higher sales of efficient measures than would have otherwise occurred against a baseline absent of program interventions. The real world, however, provides no such control condition. Evaluators must estimate these baselines from quantitative factors such as past market sales that may be sparse and/or inaccurate - particularly for new products. Evaluations must also defer to expert judgments on what these baselines may have been as well as on the degree of successful market transformation<sup>24</sup>. Due to the subjective nature of these judgments, it is imperative that baselines as well as milestone MT targets be determined and agreed upon through collaborative discussion by all stakeholders, and these targets may need periodic revision as deemed necessary by changing context.

Market transformation draws heavily upon diffusion of innovation theory<sup>25</sup>, with the state of a market usually characterized by adoption rate plotted against time on the well-known S-shaped diffusion curve. In practice, however, the diffusion curve of products may span decades<sup>26</sup>. Market share tracking studies conducted 3, 5 or even 10 years after the start of an MT program may reveal only small market transformation effects<sup>27</sup>. The ability to make causal connections between these market transformation effects and any particular program's activities fades with time, as markets continually change and other influences come into play.

These challenges mentioned above are in reference to programs that were specifically designed to achieve market transformation; and these challenges are only compounded for programs that were primarily designed to achieve energy and demand savings. However, since the inception of market transformation programs almost two decades ago, many lessons have been learned about what the characteristics of successful MT programs are. First and foremost, they need to be designed specifically to address market transformation. "The main reason that (most) programs do not accomplish lasting market effects is because they are not designed specifically to address this goal (often because of regulatory policy directions given to program designers.)<sup>28</sup>" The Strategic Plan recognizes that regulatory policies are not yet in place to support the success of market transformation efforts<sup>29</sup>, but also reflects the CPUC's directive to design energy efficiency programs that can lay the groundwork for either market transformation success or for codes and standards changes.

Above all else, the hallmark of a successful market transformation program is in the coordination of efforts across many stakeholders. The most successful MT programs have involved multiple organizations, providing overlapping market interventions<sup>30</sup>. The Strategic

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<sup>24</sup> Nadel, S., Thorne, J., Sachs, H., Prindle, B., and Elliot, R.N. (2003). "Market Transformation: Substantial Progress from a Decade of Work." American Council for an Energy-Efficient Economy, Report Number A036. Available at: <http://www.aceee.org/pubs/a036full.pdf>

<sup>25</sup> Rogers (1995) *Diffusion of Innovations*, 5<sup>th</sup> Ed.

<sup>26</sup> Example in bottom chart of this graphic from the New York Times: <http://www.nytimes.com/imagepages/2008/02/10/opinion/10op.graphic.ready.html>

<sup>27</sup> Sebold et al (2001) p. 6-5,

<sup>28</sup> Peters, J.S., Mast, B., Ignelzi, P., Megdal, L.M. (1998). *Market Effects Summary Study Final Report: Volume 1.* Available at <http://calmac.org/publications/19981215CAD0001ME.PDF>.

<sup>29</sup> CPUC (2008) Strategic Plan, p. 5.

<sup>30</sup> Nadel, Thorne, Saches, Prindle & Elliot (2003). Page 155 of 1423



## **2009–2011 Energy Efficiency Programs Statewide Commercial Energy Efficiency Program Program Implementation Plan**

Plan calls for coordination and collaboration throughout, and in that spirit the utilities look forward to working with the CPUC and all stakeholders to help achieve market transformation while meeting all the immediate energy, demand, and environmental needs. Drawing upon lessons learned from past MT efforts, the Energy Center of Wisconsin's guide for MT program developers<sup>31</sup> suggests that the first step is not to set end-point definitions, progress metrics or goals. Rather, the first steps include forming a collaborative of key participants. As the Strategic Plan suggests, these may include municipal utilities, local governments, industry and business leaders, and consumers. Then, with the collective expertise of the collaborative, we can define markets, characterize markets, measure baselines with better access to historical data, and define objectives, design strategies and tactics, implement and then evaluate programs. The collaborative will also provide insights that will set our collective expectations for the size of market effects we can expect, relative to the amount of resources we can devote to MT. No one organization in the collaborative will have all the requisite information and expertise for this huge effort. This truly needs to be a collaborative approach from the start.

The metrics and baselines described below in Tables 3 and 4 are presented for the purposes of starting the much-needed discussion between all key participants. These are suggestions, intended to allow key participants to pilot-test processes for establishing baseline metrics, tracking market transformation progress, and for refining evaluation tools. Early trial of these evaluation metrics will reveal any gaps in data tracking so that we may refine our processes before full-scale market transformation evaluations take place.

The set of metrics we selected is intentionally a small set, for several reasons. First, as mentioned, the full set of metrics and baselines need to be selected by key participants. Second, we anticipate that market share data for many mid- and low-impact measures will be too sparse to show MT effects and not cost-effective to analyze. Third, we selected core measures and metrics that would both be indicative of overall portfolio efforts. These measures are also likely to be offered on a broad level by other utilities, providing a greater base of sales and customer data that could be analyzed for far-reaching MT effects.

Therefore, for the Commercial sector, the following approach to quantitative baseline and market transformation information is presented as follows.

The IOUs are proposing metrics believed to reliably market transformation for Energy Efficient equipment in key energy end-use areas. While all metrics fall short of a perfect measure, the ideal metric would have a baseline that is already established that includes a reasonable and easy method of duplication and comparison. Market transformation cannot be measured on a year to year basis but will take several years and measurements to reliably discern trends.

The overarching purpose for this metrics is to gauge the saturation levels of energy efficient lighting and high efficiency boilers in order to understand past accomplishments and future energy savings potential in the commercial sector. Specifically it is proposed that new lighting and boiler saturation studies be conducted. The objective of these studies would be to estimate the efficiency levels of equipment in the field. A comparison could then be made

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<sup>31</sup> Pelozo & York, (1999).

**2009–2011 Energy Efficiency Programs  
Statewide Commercial Energy Efficiency Program  
Program Implementation Plan**

to comparable baseline studies and a determination made if a trend is taking place that indicates that more energy efficient solutions are being installed in commercial applications. As market transformation is more than just market share of measures, the suggested metrics also include an attitudinal metric.

Attitudinal change is an important part of any market transformation effort. This change may be tracked with a battery of questions that probes customer attitudes, knowledge and awareness (AKA) of energy efficiency. In order to gauge an attitudinal based metric for this sector a battery of questions probing AKA among customers would have to be created and used to scale AKA. Examples of AKA would include knowledge of energy efficiency lighting and other specific measures. Evaluators could also draw from customer surveys used in past program evaluation studies to determine whether any response patterns would be a useful indicator of market transformation, moving forward. The dimensions of any scale would need to be selected by the MT collaborative. The baseline response pattern to the AKA scale would need to be established early during the program cycle. Customers could be surveyed on an annual basis and changes in their AKA tracked along the scale. Responses of customers for a particular sub-program could be pulled out for separate analysis, as needed. In addition, the suggested metrics also include a behavioral metric.

In addition, behavioral change is an important part of any market transformation effort. This change may be tracked with a battery of questions that probes customer past behavior and intentions about energy efficiency. In order to gauge an behavioral based metric for this sector a battery of questions about energy efficient behaviors could be used to create a scale of Energy Behavior. Evaluators could also draw questions about specific behaviors from customer surveys used in past program evaluation studies to determine whether any response patterns would be a useful indicator of market transformation, moving forward. The dimensions of any scale would need to be selected by the MT collaborative. The behaviors that could be probed include maintenance behaviors to keep EE measures operating correctly, and behaviors that maximize energy efficiency of existing equipment. Customers could be surveyed early in the program cycle and their responses on the scale could serve as the baseline for subsequent behavioral change. Customers could be probed annually and their Energy Behavior change measured along the scale. Responses of customers for a particular sub-program could be pulled out for separate analysis, as needed.

With this discussion in mind, IOUs propose the following metrics for this sector:

**Table 3**

	<b>Baseline Metric</b>			
	<b>Metric A</b>	<b>Metric B</b>	<b>Metric C</b>	<b>Metric D</b>
Measure-based metric	Ratio of high efficiency lighting installed over a base lighting case			
Measure-based metric		Ratio of high efficiency boilers over a		

**2009–2011 Energy Efficiency Programs  
Statewide Commercial Energy Efficiency Program  
Program Implementation Plan**

		base case		
Attitudinal-based metric			Ratio of survey participants that have built EE practices into their business models when considering capital improvements	
Behavioral-Adoption based metric				Behaviors of sector are gauged based on a scale developed to measure energy efficient behaviors in businesses

**d) Market Transformation Information**

As stated above, market transformation draws heavily upon diffusion of innovation theory, with the state of a market characterized by adoption rate plotted against time on the well-known S-shaped diffusion curve. In practice, however, the diffusion curve of products may span decades. Market share tracking studies conducted 3, 5 or even 10 years after the start of an MT program may reveal only small market transformation effects. Therefore it is problematic, if not impractical, to offer internal annual milestones towards market transformation sectors and specific program activities.

As a consequence, it is not appropriate to offer more than broad and general projections. Any targets provided in the following table are nothing more than best guesstimates, and are subject to the effects of many factors and market forces outside the control of program implementers.

**Table 4**

	<b>Internal Market Transformation Planning Estimates</b>		
	<b>2009</b>	<b>2010</b>	<b>2011</b>
Ratio of high efficiency lighting installed over a base lighting case	Improvement over baseline, over time	Improvement over baseline, over time	Improvement over baseline, over time
Ratio of high efficiency boilers over a base case	Improvement over baseline, over time	Improvement over baseline, over time	Improvement over baseline, over time
Ratio of survey participants that have built EE practices into their business models	Establish baseline	Improvement over baseline, over time	Improvement over baseline, over time

**2009–2011 Energy Efficiency Programs  
Statewide Commercial Energy Efficiency Program  
Program Implementation Plan**

when considering capital improvements			
Behaviors of sector are gauged based on a scale developed to measure energy efficient behaviors in businesses	Establish baseline	Improvement over baseline, over time	Improvement over baseline, over time

e) Program Design to Overcome Barriers:

The 2009-11 Statewide Commercial Energy Efficiency Program builds on past program successes and best practices to overcome both common and unique barriers to efficiency in the segment, including:

Commercial barriers:

- Commercial customers are a diverse and geographically widespread sector, dependent on regional resources for information,
- Small business customers, such as franchisees, are generally regarded as ‘hard-to-reach’ and are traditionally less likely to install EE technologies due to financial, geographic, ethnic, and other market barriers..
- Building owners, especially landlord owners<sup>32</sup>, want to minimize first cost for new buildings as well as for renovation.
- For multi-tenant landlord owned property management buildings, property managers operate differently from owners because the building is their business. Decision making is more complex, with emphasis on building value and Return on Investment (ROI) rather than lower operating costs. They also depend on complex legal agreements, and building and tenant turn over.
- Breaking the tenant landlord barrier for implementing efficiency measures is a critical step to market penetration.
- Energy efficiency improvements are not perceived to add value and marketability of properties
- Institutional owners are often constrained by rigid boundaries separating capital development and operating budgets and are limited by lowest-bid regulations for capital projects.
- There is a general lack of awareness of the benefits of energy efficiency, and uncertainty and skepticism over long-term energy and cost savings.
- Some activities like Healthcare and Biotech also face strong regulatory issues to be integrated in the energy efficiency offer (for example: OSHPD and CALOSHA).
- In some activities like High-Tech and Hospitality, international competition drives short-term survival attitudes versus a long-term continuous improvement

<sup>32</sup> For properties where the landlord owns the equipment and the lessee pays the bills, there is currently minimal incentive for the customer or the landlord to invest. Page 159 of 1423

## **2009–2011 Energy Efficiency Programs**

### **Statewide Commercial Energy Efficiency Program**

#### **Program Implementation Plan**

approach. In addition franchises have additional barriers to overcome such as Franchise owner approval.

- Efficient design alternatives can be lost in low-cost bidding scenarios.
- Whole system opportunities are missed by individual equipment vendors.
- Customers are often not aware of systems operating optimally.
- Performance issues resulting from improper equipment installation, maintenance and poor owner/operator education create customer dissatisfaction with energy efficiency measures.

By uniquely approaching constituent vertical market sub segments, this Commercial Energy Efficiency Program will better serve commercial customers while gaining efficiency and consistency in the delivery of the programs. This targeted and focused approach will mitigate the indicated EE adoption barriers as follows:

- Program applications and processes will be simplified and made more consistent. There will be a central core incentive/rebate offering, with service-specific riders added as needed. This will enable customers to better understand the program delivery process. Program verification processes will also be made more consistent so that the customer is touched fewer times for multiple offerings.
- A package of program bundles will be made available so that typical offerings for a sub segment will be grouped together. This will minimize lost opportunities as a more comprehensive program and service offering will be readily available for customers.
- Marketing outreach efforts will be more focused on customer sub-segments rather than programs, which should lead to improved customer adoption for all programs. Utilities will continue to foster strategic partnerships with industry associations such as BOMA, DGS, Green Building Council, AHRI, ASHRAE, Manufacturers Trade Associations, and specific sub-segment professional association as CHA, CSHEE, ISPE, etc., to engage in a multi-faceted approach to marketing energy efficiency practices and programs to targeted users.
- Program bundling will be configured so that customers will have greater flexibility in how they enroll; however, the program bundles will be packaged so that customers will be encouraged to take a more comprehensive approach to EE.
- Because program offerings will be bundled, especially through the Continuous Energy Improvement Program, the program eligibility requirements will be made more consistent, leading to fewer areas where customers are not served.
- For public sector customers, existing federal and state programs and mandates will be leveraged.
- Utilities will expand the On-Bill Financing Program, which offers unique benefits to government departments by allowing them to retain rebates and cost savings from EE projects without having to upstream these financial benefits to the General Fund. This triggers and expedites EE project adoption.
- The new construction whole building approach (WBA) will be extended to existing buildings as one example of the customized bundling outlined in the CLTEESP. This approach will make available the tools and resources necessary for customers opting to take the most comprehensive approach to EE.

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

- Coordination with other parties will be enhanced so that related programs (e.g. water conservation, reduction GHG emissions, LEED™, etc.) are clearly and concisely communicated to customers, which should improve participation in all offerings.
- During the 2009-11 period, as part of AB 1103 requirements, utility data to be used for benchmarking buildings will be provided by the IOUs to the EPA for facility owners' use. While providing this data will meet the intent of the law, a new offering will be added (the Energy Benchmarking Program) that will allow customers to learn the process and methodology for setting up their own benchmarks. This will give customers the information required to understand how their buildings perform and how the improvements they make can be tracked. It will associated with Retro-Commissioning services, focusing on operation improvements and allowing many projects to funded through operating budgets, overcoming a common financial barrier related to capital budget approvals.
- The California Advanced Lighting Controls Training Program (CALCTP) is a team made up of the IOUs, POUs, contractor and labor organizations, community colleges and other interested stakeholders. The goal is to promote the proper design, installation and commissioning of advanced lighting controls through training and certification of contractors. CALCTP is being piloted in 2009 and will be expanded into a full-fledge program in 2010-11. CALCTP addresses specific market barriers preventing increased adoption of advanced lighting controls by ensuring a qualified contractor base is available for customers interested in lighting retrofits. Additional consideration will be given to including additional lighting incentives for systems installed by certified contractors. CALCTP also supports Statewide Workforce Education & Training activities by partnering with local community colleges and labor organizations to deliver the training.

f) Quantitative Program Targets: Program targets are provided at the Sub-Program level. Refer to each Commercial Sub-Program for more information.

**Table 5**

Program Name	Program Target by 2009	Program Target by 2010	Program Target by 2011
Target #1			
Target #2			
Target #3			
Target #4			

g) Advancing Strategic Plan goals and objectives:

Many activities under the Commercial Statewide Portfolio advance the goals, strategies, and objectives of the California Long Term Energy Efficiency Strategic Plan (CLTEESP). Details on these actions are provided in the tables found in the Commercial

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

Sub-Program descriptions. The examples below highlight some of the Portfolio strategies that align with the Strategic Plan:

- **Integration:** To encourage greater use of IDSM, IOUs will
  - Offer customers solutions that integrate site-specific and optimized packages of comprehensive energy efficiency, demand response, solar and combined heat and power and thermal storage opportunities.
  - Develop an active cooperation network among the different stakeholders, such as corporate and local managers, OSHPD, engineering firms, service companies, architects, and vendors.
  - Create customized long-term plans with large corporations connecting corporate and local levels integrating energy efficiency, DR, self-generation and renewables.
  
- **New energy efficiency delivery methods:** To take advantage of the significant opportunities offered by information, behavior-change strategies and training as delivery channels for increasing energy efficiency, utilities will:
  - Drive expanded involvement of the California Commissioning Collaborative in developing statewide measurement and verification protocols and professional training and accreditation programs for the retrocommissioning industry
  - Champion adoption of stringent codes and standards within the industry.
  - Publish baselines, best practices and calculation tools to facilitate the dissemination of information and to help customers select and evaluate energy efficient solutions.
  
- **Financing and Funds Leveraging:** To overcome cost barriers to energy efficiency, the IOUs will:
  - Offer on-bill financing
  - Create new incentives for on-peak demand reduction related to retrofits and retrocommissioning.
  - Partner with integrators like Siemens, Trane to aggregate energy efficiency with other building improvements, such as security, safety, waste management, and IT.
  - Analyze the green vision of the corporations to align energy plans towards their objectives
  
- **Advanced Products:** IOUs will create demand for advanced, energy-saving products—such as lighting and HVAC—by expanding incentives to include both financial incentives and technical assistance for advanced systems, working closely with Emerging Technologies to bring new technologies through development to the market, and strengthening relationships with vendors.
  
- **Workforce Development:** To expand their role in creating and meeting the demand for a robust energy efficiency workforce, the IOUs will:
  - Support the development of new and innovative programs to influence commercial trade schools to teach about the financial incentives, tools, protocols, partnerships, expert analysis, and implementation support services that promote commercial building energy efficiency and optimum load management.

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

- Engage various industry and energy-wise stakeholders to expand their current intellectual knowledge and coordinate education/training opportunities through the WE&T program, outreach through ME&O, and coordination with research and technology.
- Expand the CALCTP initiative to create additional opportunities for lighting contractors to become certified in the proper installation of advanced lighting control systems.
  
- **ZNE Commercial Buildings:** To help make ZNE a reality in the commercial sector, utilities will:
  - Facilitate benchmarking and constant improvement by supporting the initiative recently launched by the DOE and Lawrence Berkeley Laboratory.
  - Continue leadership position in the national Office of the Future Consortium (“Consortium”) which was established to help shape and inform the research and product development of individual component products that have the ability to communicate with each other, are interoperable, and that create a system that will meet defined performance standards for a described office space type. The recent publication of the 25% Solution is intended to identify significant reductions in energy used by lighting, plug loads and HVAC systems using a comprehensive “Systems” approach that also improves lighting quality and air conditioning/heating performance. The efforts of the Consortium will be fully integrated into the Calculated and Deemed incentive programs to create a delivery mechanism that supports the path to ZNE buildings.

6. Program Implementation

SDG&E will offer six Commercial sub-programs: Calculated Incentive, Deemed Savings, Non-Residential Audits, Direct Install, Continuous Energy Improvement, and K-12 Private Schools. SDG&E plans to implement the K-12 Private Schools Program through a third-party contractor. This program is described in separate third-party PIP.

SDG&E will not offer the other two sub-programs because those programs were determined to be less effective given SDG&E’s customer base. The sub-PIPs for the programs not offered have been removed from this PIP.

a. Statewide IOU Coordination:

SDG&E will coordinate with the other IOUs to ensure that the Statewide Commercial Program is continuously updated and enhanced throughout the three-year implementation cycle. This effort will focus on the crosscutting program elements described in PIP section 6.0b, including Emerging Technologies, Codes and Standards, Workforce Education and Training, Marketing and Outreach, and Non-IOU programs and market initiatives. Each IOU will assign program leads who will be responsible for monitoring key updates to each crosscutting program element and bringing them to the statewide group for discussion. Such updates might result in statewide program enhancements or modifications. IOU leads will then be responsible for incorporating program modifications at the IOU level to support statewide consistency when appropriate. Such items will be tracked in the meeting minutes to facilitate a record of statewide initiatives.



## **2009–2011 Energy Efficiency Programs Statewide Commercial Energy Efficiency Program Program Implementation Plan**

In addition, the five Commercial sub-programs will be coordinated on a statewide level to unify the implementation of program aspects such as program name, program delivery mechanisms, incentive levels, marketing and outreach plans, and IOU program interactions. (For a detailed description of each of these program aspects, please refer to the Commercial Sub-Program PIPs later in this document). The two statewide coordination systems (one for the broad programmatic level and one designed for the sub-program level) will interact with and support one another. These coordination efforts will be described below, focusing on how the IOUs will work together to effect the continuous improvement of the Statewide Commercial Program.

The Statewide IOU Coordination process for the Statewide Commercial Program will be as follows:

- **Designate an IOU Program “Lead”** – The coordination process will begin with each IOU designating a Statewide Commercial Program “lead.” The IOU lead will represent one Commercial sub-program and liaise with the cross-cutting program element managers, investigating new innovations, special accomplishments, and challenges experienced by sub-program managers in all IOUs. Where such innovations or challenges show potential for impacting the Statewide Commercial Program across multiple sub-programs or the statewide program as a whole, the IOU lead will present such information to a quarterly Steering Committee meeting.
- **Establish protocols for Steering Committee Meetings** – The IOUs will coordinate to establish protocols on scheduling meetings, agenda setting, interstate travel, meeting minutes and tracking of action items identified.
- **Hold Periodic Steering Committee Meetings** – The Commercial Steering Committee will be comprised of all designated IOU leads (including at least one lead for each of the five sub-programs), and possibly other contributing stakeholders identified by the IOUs. At the Steering Committee meeting, individual innovations, challenges, and accomplishments experienced in one IOU or by one sub-program will be transmitted to all IOUs. The Steering Committee will evaluate these individual IOU and sub-program experiences, hear ideas for course corrections and overcoming challenges, replicate successful innovations for consistency statewide, resolve differences in implementation to stay unified, and measure the Commercial Program’s progress against statewide metrics and goals.
- **Adopt Program Enhancements** – Once the Steering Committee agrees that a particular implementation policy or innovation has merit on a statewide level, each IOU lead will distribute the information to their sub-program managers for adoption and integration. Therefore, the IOU lead will act as a conduit, feeding sub-program information up to the statewide Steering Committee and distributing measures for adoption back to the sub-program managers. This feedback loop will assure consistency and unity in programmatic improvements across the IOUs. In some cases, it may be necessary to invite the sub-program managers to the Steering Committee meeting to get their feedback and ensure they receive the same message.

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

- **Evaluate Program Enhancements Against Statewide Targets** – To complete the adaptive management loop, the Steering Committee will track the program’s accomplishment of statewide targets and goals to ensure that adopted program enhancements are generating their intended results. The Steering Committee will determine whether further course corrections are needed, and if so, rely on the above coordination process to generate the improvements necessary to stay on track.

The high-level focus of this statewide coordination effort will enable the capture of new innovations and opportunities for program improvement, correct program weaknesses that reveal themselves during implementation, and ensure achievement of statewide targets across IOU service territories. Therefore, statewide focus on program unity and continuous program improvement over the course of the three year implementation cycle will be assured.

b. Program delivery and coordination:

i. Emerging Technologies program

The long-term energy efficiency vision of California can only be attained through the continuous development, verification, and acceptance of new technologies into the market. Portfolio staff actively works with statewide emerging technologies staff to identify new emerging technologies, support evaluation and demonstration, develop and promote case studies, and market results to applicable customers with the goals of total market penetration and eventual movement into code. The Commercial Program is currently working to support a diverse list of emerging technologies including advanced building system controls, LED lighting technologies, forklift battery chargers, commercial refrigeration advancements, commercial refrigeration design enhancements, and solar thermal applications (hot water).

ii. Codes and Standards program

The program will rely on the Codes and Standards program to maintain an updated and relevant list of measures that will support savings. As Codes and Standards impact measures, the program will act to align itself with appropriate offerings. Programs will include new offerings that will allow flexibility in adapting to changes in codes and standards, market trends, and technologies. Planned enhancements to Title 24 will be reflected in incentive levels and eligible measures and services. In the Statewide Commercial Program, current efforts will continue to be focused on transitioning the market to accept new Title 24 code changes, and incorporating best practices and advanced energy efficiency practices into that marketing and outreach effort.

iii. WE&T efforts

WE&T will focus on developing a robust network of industry trade allies, vendors, engineers, design teams and others who can support the market transformation strategies of the Strategic Plan. In the near-term, the Statewide Commercial Program

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

WE&T will support national American National Standards Institute (ANSI) Energy Management Certification development efforts, as outlined in the Strategic Plan. Specifically, prerequisite trainings will be offered in DOE systems trainings to lay the groundwork for certification level trainings. Programs will closely coordinate with key stakeholders to ensure that California is poised to adopt this national standard and be a leader in this effort. Education and training will take place at energy centers, at technology test centers, and through targeted program offerings.

iv. Program-specific marketing and outreach efforts (budget provided in Table 1)

Utilities will continue to foster strategic partnerships with trade associations and industry groups to engage in a multi-faceted approach to marketing energy efficiency practices and programs to targeted users. Specific efforts will include:

- Attending trade association meetings and submitting information in monthly newsletters.
- Close partnerships with key industry associations, and participation in their annual conferences, with an effort to develop conference speaking engagements.
- Targeted integrated education and training to specific market sectors to support peer-to-peer interactions and industry advancement.
- Ads and articles, with program information and case studies, in trade magazines.
- Targeted customer efforts through assigned account representatives and program engineers, third parties, and government partnerships.
- Phone and web-based customer support and outreach.
- Market sector specific collateral that drives customers to account representatives and websites for additional support.

v. Non-energy activities of program

Please refer to PIP section 6.0f.

vi. Non-IOU Programs

In addition to those efforts described in PIP section 6.0f, there are a variety of programs that will be coordinated with and leveraged in support of Program objectives. They include:

- Connecting customers with The Climate Registry.
- AB32 support through CO2 tracking in program resources.
- Regulatory program coordination, including EPA air quality standards, water quality standards, and new refrigerant regulations.
- Non-utility financing resources, including from water utilities, industry and private banking, state and federal incentives, funds, grants, and loan products to support energy and other resource management objectives.
- Water/Energy efforts within California.
- ANSI standard (see PIP section 6.4, CEI).
- ISO international energy management standards (see PIP section 6.4, CEI).

## **2009–2011 Energy Efficiency Programs Statewide Commercial Energy Efficiency Program Program Implementation Plan**

The Program will continue to engage with Air Quality Management Districts, California Energy Commission, CA Air Resources Board, US Department of Energy, water agencies, and other government agencies responsible for regulating the various aspects and operations of customer facilities participating in the programs.

vii. CEC work on PIER

The Program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies and PIER projects. The program will work with PIER on researching new technologies for evaluation and testing for application in mainstream projects.

viii. CEC work on codes and standards

Please refer to PIP section 6.0b.ii, Codes and Standards.

ix. Non-utility market initiatives

The Statewide Commercial Program will coordinate with applicable market initiatives to leverage market momentum and areas of mutual advantage. The Program will leverage the following efforts:

- California Green Building Initiative
- Leadership in Energy and Environmental Design (LEED)
- Zero Net Energy
- US Department of Energy
- AB1103

c. Best Practices:

As described in previous PIP sections, the Commercial Program reflects the best and most successful components of each utility's prior commercial program offerings. The Program also introduces new elements from other utilities and national efforts as well. Best practices include:

- A Continuous Energy Improvement approach that transforms the market and reduces energy intensity while pursuing technical and management opportunities.
- Development of a prioritization process, leveraging the CEI sub program, that works to identify the most significant upgrade potential based on building and ownership characteristics. This process will help guide customers to an integrated approach leveraging all of the available utility programs for a customer segment rather than only pursuing the "low hanging fruit". The utilities will continuously educate the various delivery channels on the importance of the building integrated approach and how to increase customer participation at a whole building level.
- Technical Assistance: The IOUs recognize the need for a personalized, full service approach when providing technical assistance to customers –from audits to design

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

and technical assistance, presentation of recommendations, resources to develop a long term plan, and the potential of project management assistance with financial incentives.

- Vendor Partnerships: This strategy will be coupled with vendor support and educational workshops and classes to provide the full breath of support customers may need to influence their decision to implement energy efficient equipment and practices.
- Statewide Coordination: The IOU program representatives will meet on a quarterly basis to improve program operations by sharing successes and areas of operational concerns.
- Leveraging Local Commercial Resources: Resources such as industry associations, trade associations, and facility management associations will be leveraged.

d. Innovation:

Significant innovative aspects of the Commercial Program offering include:

Integration

- Continuous Energy Improvement will foster a long-term energy management approach.
- Integrated Energy Assessments provide targeted customers with integrated solutions in efficiency, DR, and DG, and advise customers on other sustainability practices such as water conservation opportunities, CO2 reduction potential or other programs references.
- IOUs will link customers with the Climate Registry to support carbon foot printing of a customer's facilities.

Marketing

- The Customer segmentation work currently underway will support development of new, targeted integrated marketing and outreach plans outlining multiple delivery channels that target customers based on their needs.
- Closer coordination with third parties, government partnerships, core programs, and other delivery channels will optimize portfolio performance.
- Utilities will increase outreach to new trade and community-based associations, leveraging best practices identified in American Council for an Energy Efficient Economy study of utility Commercial Energy Efficiency Programs.
- Energy Design Resources, a web-based informational clearinghouse under development statewide by IOUs, will be expanded as a web-based hub of commercial best practice information, training, modeling and performance tracking tools.
- Expanded workforce education and training efforts with vendors, design teams, industry association members and other key market actors will help overcome many customer informational and transactional barriers.
- Training will be provided on modeling and quantifying savings opportunities through tools such as eQUEST and Energy Pro.

# 2009–2011 Energy Efficiency Programs

## Statewide Commercial Energy Efficiency Program

### Program Implementation Plan

#### Implementation

- Utilities will coordinate process improvements for statewide programs to ease participation barriers.

Energy performance measuring and benchmarking assistance to customers will enable customers to compare themselves to “best in class” peers utilizing tools such as the U.S. EPA’s Portfolio Manager Benchmarking tool.

#### e. Integrated/coordinated Demand Side Management:

An integrated portfolio is cost effective, captures program delivery efficiencies, and serves the needs and wants of customers, who prefer a single, informed utility point of contact to help inform and prioritize their energy investment decisions based on their unique needs. To that end, the statewide utilities and the Statewide Commercial Program are making substantial progress in advancing integrated solutions:

- **Marketing:** As described in PIP section 6.0b.iv, the IOUs will place major emphasis on optimizing message delivery to customers. Advanced customer segmentation is being used to develop detailed integrated marketing and outreach plans which will outline tactics and key messages that appeal to individual customers’ specific needs.
- **Program Delivery:** The account representatives, who serve as the key customer point of contact, will attend an integrated sales strategy and training program to ensure consistent delivery of portfolio offerings.
- **Education and training:** especially workshops organized around a customer segment – provides an ideal situation to integrate customer energy solutions. Utilities will build on past successes to provide integrated workshops to restaurants, retailers, office building facility managers, lodging, and warehouses. The workshop topics generally start with “analysis” resources and methods, and move on to “conservation”, “efficiency”, “demand response”, then “generation” topics and resources. These workshops provide opportunities for utilities to cross-sell solutions and share key information with other utility departments. As appropriate, Workforce Education and Training will also cover integrated energy and system solutions, which will be increasingly important as Critical Peak Pricing matures.
- **Program Design:** The availability of a Continuous Energy Improvement approach, especially for the largest, most strategic customer accounts, will facilitate a thoughtful, integrated energy plan and will allow utilities to stay engaged in supporting the progress of that plan.
- **Integrated Audits:** combine funds and resources of energy efficiency and demand response programs to provide integrated recommendations to customers that emphasize energy management in proper sequence, in support of the CA Loading Order. Permanent reductions will be achieved through energy efficiency first, and then through demand response. Incentives from both programs can help reduce payback cost and support advanced energy management decisions. Demand response opportunities will be targeted in the larger facilities, especially as part of monitoring-

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

based retro-commissioning efforts where the controls to facilitate demand response efforts would be installed.

f. Integration across resource types: (energy, water, air quality, etc):

California's Commercial sectors face a multitude of environmental, regulatory, and financial (Landlord owned, capital outlay) challenges that impede the adoption of new energy efficiency technologies. In addition, new regulations aimed at improving air quality, water quality and reducing toxic environmental pollutants are proving to be expensive and disruptive to business as usual, and in many cases will have the impact of increasing energy use in compliance.

The Statewide Commercial Program proposes to leverage these challenges to coordinate with the regulating agencies and the programs they are operating in order to support mutually advantageous program designs, customer incentives, marketing opportunities, and implementation opportunities. In particular, the utilities will:

- Pursue opportunities to partner with water agencies to offer joint energy and a water incentive in support of projects that reduce both resources, which reduces project costs and improves payback.
- Integrate topics like LEED certification into targeted customer workshops, marketing and communications, building on a strong track record from the 2006-8 program cycles.
- Have third party programs focus on specific customer segments offering a complete project package that will include integration aspects.

g. Pilots:

During the course of the three-year program cycle, the utilities may initiate a pilot depending on the needs of the commercial customers. An "Office of the Future" pilot is currently being reviewed for 2010. The program focuses on a partnership with property owners and managers to influence the tenant improvement process and facilitates tenant related actions.

**2009–2011 Energy Efficiency Programs  
Statewide Commercial Energy Efficiency Program  
Program Implementation Plan**

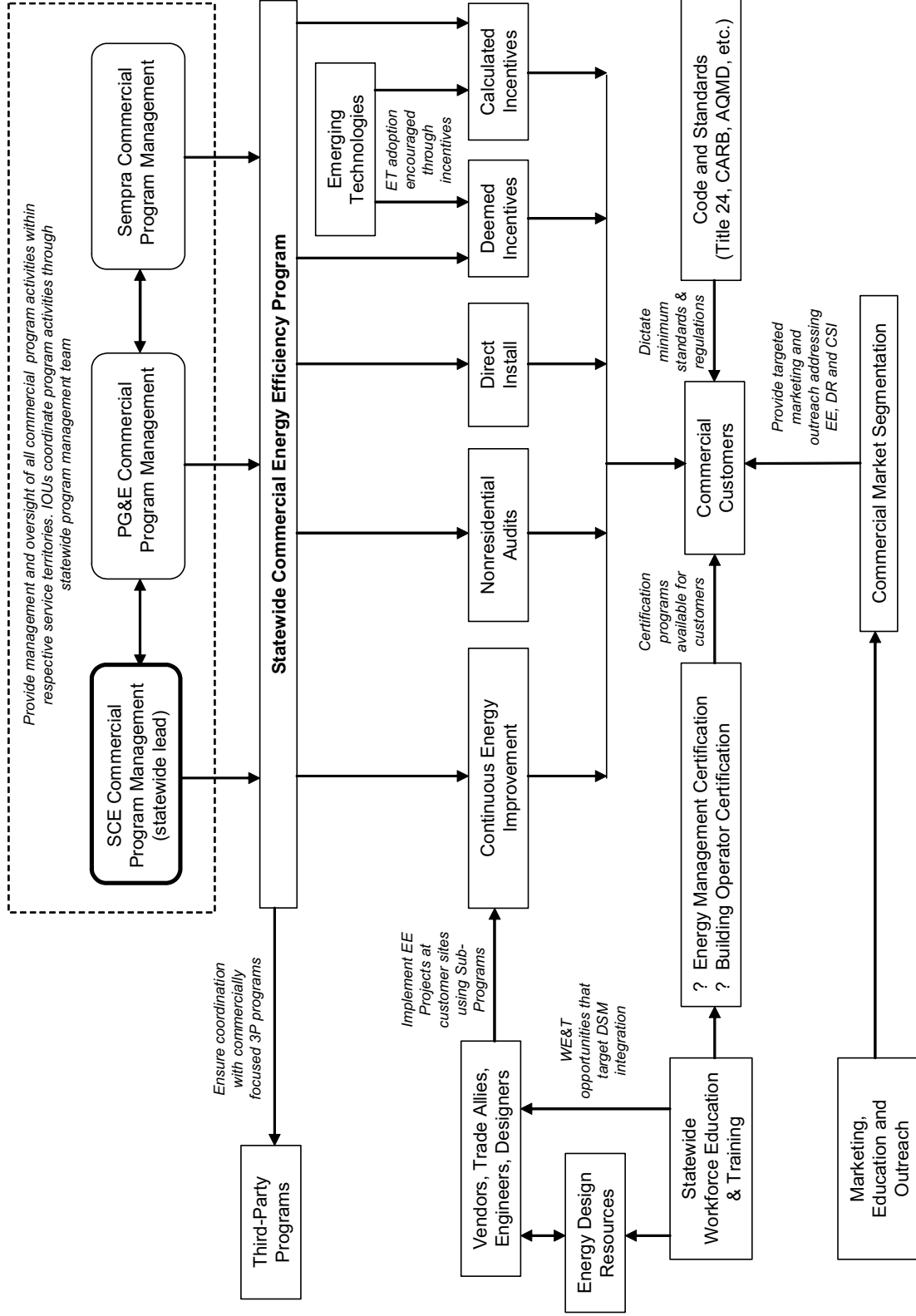
h. EM&V:

The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2009-2011 after the program implementation plans are filed. This will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.



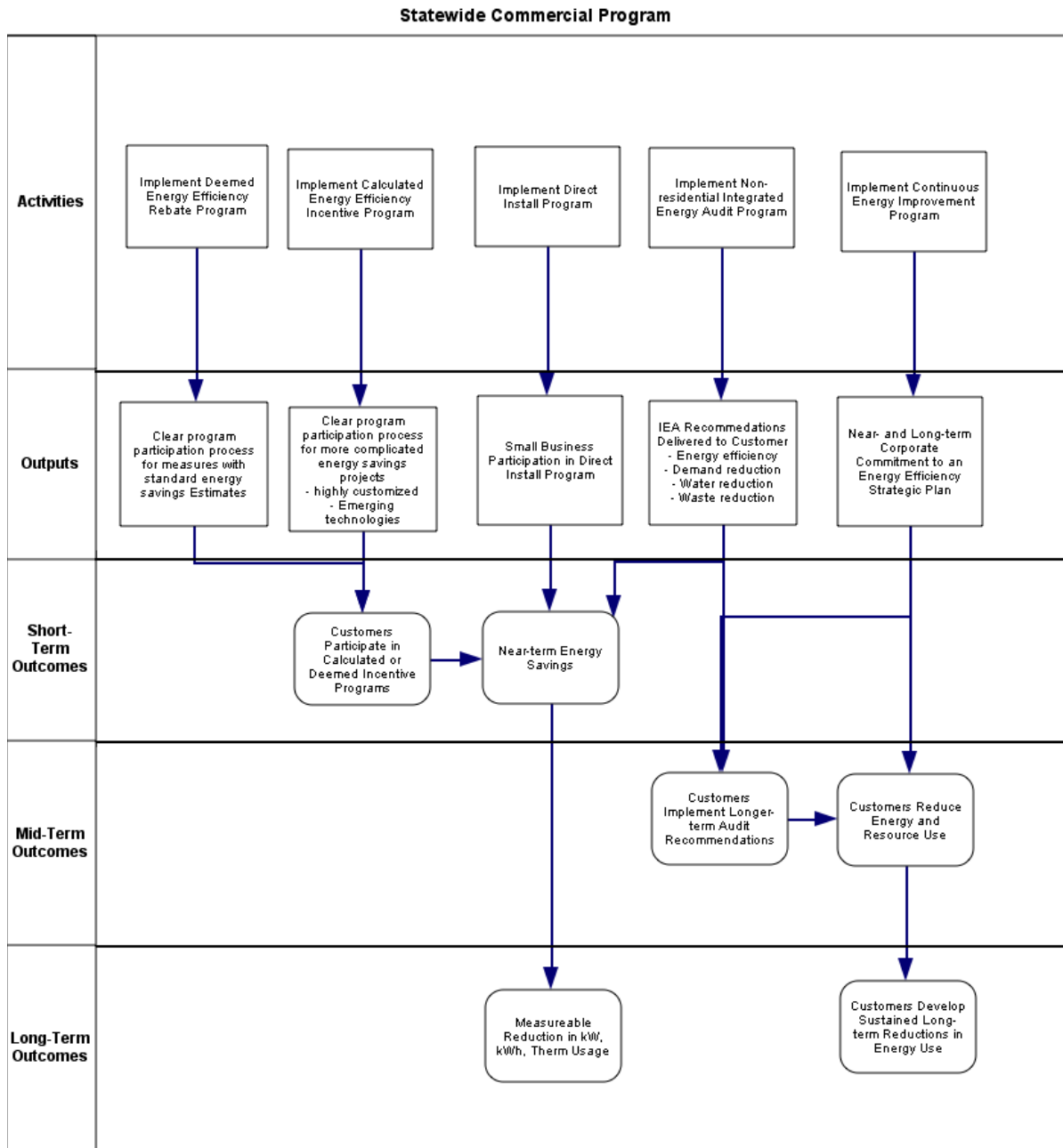
# 2009–2011 Energy Efficiency Programs Statewide Commercial Energy Efficiency Program Program Implementation Plan

7. Diagram of Program:



# 2009–2011 Energy Efficiency Programs Statewide Commercial Energy Efficiency Program Program Implementation Plan

## 8. Program Logic Model:



**2009–2011 Energy Efficiency Programs  
Statewide Commercial Energy Efficiency Program  
Program Implementation Plan**

1. Program Name: Calculated Incentives  
Program ID#: TBD  
Program Type: Sub-Program

2. Projected Program Budget Table

**Table 1<sup>1</sup>**

Program #	Main Program Name / Sub-Programs	Total Administrative Cost (Actual)	Total Marketing & Outreach (Actual)	TOTAL Direct Implementation	Integration Budget Allocated to Other Programs (if Applicable)	Total Budget By Program (Actual)
<b>Market Sector Programs</b>						
	Commercial					
	Sub-Program #1					
	Sub-Program #2					
	Sub-Program #3					
	Sub-Program #4					
	Etc.					
	<b>TOTAL:</b>					

These budget numbers are presented in Appendix F: Energy Division Tables, Graphs & Pie Charts: Table 7.1 - 2009 - 2011 IOU Strategic Planning Program Budget.

3. Projected Program Gross Impacts Table – by calendar year

**Table 2**

Program #	Program Name / Sub-Programs	2009 - 2011	2009 - 2011	2009 - 2011
		Three-Year EE Program Gross kWh Savings	Three-Year EE Program Gross kW Savings	Three-Year EE Program Gross Therm Savings
<b>Market Sector Programs</b>				
	Core Program #1			
	Sub-Program #1			
	Sub-Program #2			

<sup>1</sup> Definition of Table 1 Column Headings: Total Budget is the sum of all other columns presented here  
Total Administrative Cost includes all Managerial and Clerical Labor, Human Resource Support and Development, Travel and Conference Fees, and General and Administrative Overhead (labor and materials).  
Total Direct Implementation – includes all financial incentives used to promote participation in a program and the cost of all direct labor, installation and service labor, hardware and materials, and rebate processing and inspection used to promote participation in a program.  
Total Marketing & Outreach includes all media buy costs and labor associated with marketing production.  
Integrated Budget Allocated to Other Programs includes budget utilized to coordinate with other EE, DR, or DG programs.  
Total Budget is the sum of all other columns presented here  
Definition of Sub-Program: A “sub-program” of a program has a specific title; targets; budget; uses a unique delivery or marketing approach not used across the entire program; and for resource programs, has specific estimated savings and demand impacts.

**2009–2011 Energy Efficiency Programs  
Statewide Commercial Energy Efficiency Program  
Program Implementation Plan**

Program #	Program Name / Sub-Programs	2009 - 2011	2009 - 2011	2009 - 2011
		Three-Year EE Program Gross kWh Savings	Three-Year EE Program Gross kW Savings	Three-Year EE Program Gross Therm Savings
	Sub-Program #3			
	Sub-Program #4			
	Etc.			
	<b>TOTAL:</b>			

These savings values are presented in Appendix F: Energy Division Tables, Graphs & Pie Charts: Table 7.2 - IOU 2009 - 2011 Program Savings Estimates.

4. Program Description

- a) The statewide non-residential Calculated Incentives Sub-Program provides customers technical and calculation assistance, as well as incentives based on calculated savings, to influence the design and installation of energy efficient equipment and systems in both retrofit and added load applications.

The Calculated Incentives Sub-Program is utilized for projects where a rebate is not available through the statewide Deemed program, where project conditions require customized calculations to provide the most accurate savings estimates, or where a project has interactive effects that are best captured through whole building or whole system modeling. Because calculated savings estimates are based on actual customer operating conditions, pre-inspections (for retrofit projects) and post-inspections are typically required as part of each utility’s project documentation.

An important element of the Calculated Incentives Sub-Program is the design assistance and calculation assistance provided by the IOUs to influence customers to select the most efficient design and equipment options. For both retrofit and added load projects, IOUs work with the customer and their project team to evaluate their proposed projects and provide a report recommending efficient design alternatives and detailing energy savings, CO<sub>2</sub> reductions, and calculated incentives available for exceeding Title 24 code or industry standard practice baselines as appropriate. This information is also available to customers through the Non-Residential Audit offering. The combination of technical support and the availability and commitment of approved utility incentive funds is an essential driver to overcome key customer barriers, including lack of technical resources and lack of capital for energy efficiency projects.

Customers and project sponsors (contractors, design teams, vendors, ESCOs) participating in the Calculated Incentives Sub-Program may also opt to complete their own calculations for submittal to the IOUs for review and approval. For this purpose, consistent statewide calculators are publically available to customers for use if desired. The statewide utility-created and maintained SPC Calculator can be used for retrofits and is available online and through CDs. For whole building

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

construction projects, IOUs accept both Energy Pro, available for license, and the utility-sponsored EQEST, available for free on the statewide Energy Design Resources website [www.energydesignresources.com](http://www.energydesignresources.com).

Depending on whether a project is a retrofit or added load project, and on whether Title 24 is triggered for a particular project, different baselines are applied to capture appropriate project savings. For retrofit projects, incentives are capped at 50% of the total project costs. For added load projects, incentives are capped at 50% of the incremental project cost.

- b) The Calculated Incentives Sub-Program is a resource program that offers financial incentives for energy efficiency projects involving the installation of new, high-efficiency equipment or systems. The more kWh or therms saved by the energy efficiency project, the higher the incentive payment will be. The incentive options offered by the Calculated Sub-Program have seen high participation due to the program's flexibility in customizing appropriate energy efficiency solutions for a diverse range of customers. Below is a listing of all calculated measures grouped by measure category for all IOUs. Specific measures for each IOU are provided in the attached E3.

**2009–2011 Energy Efficiency Programs  
Statewide Commercial Energy Efficiency Program  
Program Implementation Plan**

#	MeasureName	Per kWh Incentive	Per kW Incentive
1	Air Compressor System Replacement / Upgrade	\$0.09	\$100
2	ASD - HVAC Compressor Motors	\$0.15	\$100
3	ASD - Others	\$0.09	\$100
4	Building Shell Improvements	\$0.09	\$100
5	Carbon Monoxide Sensors	\$0.09	\$100
6	Controls - Non-Lighting	\$0.09	\$100
7	Equipment - Other not specified	\$0.09	\$100
8	Extruder System Replacement / Upgrade	\$0.09	\$100
9	Fan and Pump System Upgrades	\$0.09	\$100
10	Furnace / Energy Efficient	\$0.09	\$100
11	Heat Recovery Equipment (Process)	\$0.09	\$100
12	Heat Recovery Equipment (Space Conditioning)	\$0.15	\$100
13	HVAC - Chiller	\$0.15	\$100
14	HVAC - Complete Subsystem Replacement / Upgrade	\$0.15	\$100
15	HVAC - Heat Pump	\$0.15	\$100
16	HVAC - Other	\$0.09	\$100
17	HVAC - Package Unit	\$0.15	\$100
18	Injection Molding Machine Replacement / Upgrade	\$0.09	\$100
19	Insulation	\$0.09	\$100
20	Lighting	\$0.05	\$100
21	Lighting Controls	\$0.05	\$100
22	Motors Project (HVAC Compressor)	\$0.15	\$100
23	Motors Project (Non-HVAC Compressor)	\$0.09	\$100
24	Precooling Equipment	\$0.15	\$100
25	Process - Chiller	\$0.15	\$100
26	Process - Complete Subsystem Replacement / Upgrade	\$0.15	\$100
27	Professional Wet Cleaning	\$0.09	\$100
28	Pumping System Replacement / Upgrade	\$0.09	\$100
29	Rapid Closing Door	\$0.09	\$100
30	Refrigeration - Complete Subsystem Replacement / Upgrade	\$0.15	\$100
31	Refrigeration - Other	\$0.09	\$100
32	Series to Parallel Street Lighting	\$0.09	\$100
33	Special Window Glazing & Glazing Treatments	\$0.09	\$100
34	Vacuum Systems	\$0.09	\$100
35	Window Replacement	\$0.09	\$100

2. The Calculated Incentives Sub-Program is primarily an incentive program designed to achieve energy savings through measure implementation; however it does provide such non-incentive measures as technical and calculation assistance to help customers navigate through the application process. This assistance ensures that the sub-program captures lost opportunities by not allowing projects to fall behind schedule simply because the customer does not have the resources to shepherd through the process.

5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information:

**2009–2011 Energy Efficiency Programs  
Statewide Commercial Energy Efficiency Program  
Program Implementation Plan**

**Table 3**

	<b>Baseline Metric</b>		
	Metric A	Metric B	Metric C
Overall Program	TBD	TBD	TBD
Sub Program #1			
Sub Program #2			
Sub Program #3			

Refer to the overarching PIP section

- b) Market Transformation Information: As discussed in the core Commercial Energy Efficiency PIP, reasonable numeric targets cannot be proposed at this time, but will be developed as a result of the efforts described in Section 5.a.

**Table 4**

Market Sector and Segment	<b>Internal Market Transformation Planning Estimates</b>		
	2009	2010	2011
Metric A	Baseline	Baseline + TBD	2010 + TBD
Metric B			
Metric C			
Metric D			

Refer to the overarching PIP section

- c) Program Design to Overcome Barriers: The Statewide Calculated Incentives Sub-Program offers customers incentives to implement energy efficiency measures that have been identified primarily through standard utility energy efficiency audits, in-depth facility/process assessments or retro-commissioning studies.

Other avenues used to identify energy efficiency opportunities include Programs that provide Education and Outreach, Workforce Education and Training, or through IOU Emerging Technologies Programs.

The Calculated Incentives Sub-Program addresses and eliminates a significant number of barriers to energy efficiency for commercial customers such as:

- A high percentage of the time, developers, building owners, building managers and building contractors build or retrofit to current standards (i.e. Title 24). On the Architect and Engineering Firm side, design engineers specify what they know or what they are familiar with. The Calculated Incentives Sub-Program encourages or rewards developers, building owners, building managers, contractors, and A&E Firms to “push the efficiency envelope” and exceed Title 24 requirements, or to exceed industry accepted

## **2009–2011 Energy Efficiency Programs Statewide Commercial Energy Efficiency Program Program Implementation Plan**

baseline standards when retrofitting existing buildings or systems by providing up-to-date information on emerging technologies and providing incentives to bridge the “chasm” which typically prevent emerging technologies from being adopted by the market.

- In several instances, high efficiency Emerging Technologies are viable, but are unknown to facility owners and system designers and thus, are slow to penetrate the market, causing energy efficiency opportunities to be “lost.” The Calculated Incentives Sub-Program helps speed market penetration and associated energy savings for Emerging Technologies by offering “premium” incentives for emerging technologies that are “proven” but not widely employed in the markets for which they are intended (e.g. solid state lighting, advanced lighting controls, etc.).
- Across all Non-residential customer segments, a significant barrier mentioned is “Access to Information”. This can be a lack of awareness of operating “best practices”, lack of awareness of energy efficiency opportunities, difficulty accessing industry relevant technical assistance, inadequate availability of qualified industry specialists or lack of personnel resources to fully assess a building, system or process. Also, in many instances, customers are not sure of how a specific energy efficiency project will impact their emissions, resource consumption or waste discharge streams.

These barriers are overcome by providing:

- Highly skilled Energy Management Professionals that perform basic and integrated facility assessments;
- IOU Workforce Education and Training seminars through the Energy Centers;
- Web-based information and energy management tools that assist with identifying DSM opportunities;
- In-depth plant or system assessments such as the assessments jointly provided by the IOU’s and the U.S. Department of Energy (DOE), that focus on improving production and optimizing energy efficiency;
- Incentives based on energy savings quantified through technical assessments or basic audits that help customers overcome internal financial hurdle rates;
- Incentive mechanisms that reward implementation of advanced technologies;
- Integrated solutions that conserve energy and reduce GHG emissions; and
- Statewide SPC Estimator that provides energy savings calculation for most popular and common retrofit projects and measures, assists in filling out program applications, and simplifies its processing.

The Calculated Incentives Sub-Program delivers a consistent message statewide to commercial customers about the benefits, energy savings and GHG reductions that efficient technologies and “best operating practices” offer. This eliminates the barrier often run into by commercial customers of getting incorrect or out-of-date information from local networks.



**2009–2011 Energy Efficiency Programs  
Statewide Commercial Energy Efficiency Program  
Program Implementation Plan**

The Calculated Incentives Sub-Program not only brings IOU incentive information to customers, but in many instances also provides additional information about other opportunities for project assistance, such as State or Federal funds available for energy efficiency projects, Tax incentives or other local sources of project funding.

- d) Quantitative Program Targets: The sub-program will achieve the following targets:

**Table 5**

Program Name	Program Target by 2009	Program Target by 2010	Program Target by 2011

- e) Advancing Strategic Plan goals and objectives: The unifying objective of the CLTEESP is to employ market transforming strategies to encourage marketplace adoption of energy efficient measures to a point that public investment in energy efficiency is no longer necessary (Section 1, page 4). The Calculated Incentives Sub-Program will support this effort by employing two of the five market transformation policies identified in the CLTEESP. Specifically, the Program will offer “carrots” in the form of financial incentives to help pull the marketplace towards energy efficiency. The Calculated Incentives Sub-Program will also provide education and informational resources through marketing and program outreach efforts. Therefore, these program elements will work in concert to transform the market towards sustained, long-term energy savings.

The program will help to achieve the following near-term strategic goals as identified in Chapter 3 of the CLTEESP:

- 2-3: Ensure compliance with minimum Title 24 codes – The Calculated Incentives Sub-Program only provides incentives for projects that exceed current Title 24 minimum baselines. Incentive mechanisms will be created to ensure deeper levels of energy reductions including implementation of the Office of the Future Consortium’s Phase 2 recommendations, “The 25% Solution”, which seek to reduce energy usage 25 percent below Title 24-2005 baselines.
- 2-5: Develop tools and strategies to reduce energy consumption in commercial buildings – The Calculated Incentives Sub-Program directly supports this effort by collecting data and conducting energy use and efficiency studies that, when collected over multiple IOU service territories, will be very helpful in supporting statewide efforts to establish a robust and useful knowledge base for the commercial sector.

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

- 2-7: Develop business models that deliver integrated energy management solutions – The Calculated Incentives Sub-Program will implement incentive mechanisms that will “reward comprehensive energy management retrofits” such as incentives for reaching certain stretch goals that produce significant energy savings beyond an established baseline.
- 2-8: Improve utilization of plug load technologies – The existing incentive structure pays for energy reductions through plug load measures. Additional incentives that encourage greater penetration of plug load technologies may be required and will be developed to support technologies recommended by PIER, the Office of the Future Consortium, etc.

6. Program Implementation

The Calculated Incentives Sub-Program will provide customers with technical and calculation assistance, as well as incentives based on calculated savings, to influence the design and installation of energy efficient equipment and systems in both retrofit and added load applications. The Calculated approach will be utilized for projects in one of three circumstances: where a rebate is not available through the Deemed Rebates Sub-Program, where project conditions require customized calculations to provide the most accurate savings estimates, or where a project has interactive effects that are best captured through whole building or whole system modeling. Because calculated savings are based on actual customer operating conditions, pre-inspections (for retrofit projects) and post-inspections are typically required as part of each utility’s project documentation.

An important element of the Calculated Incentives approach is the design and calculation assistance provided by utilities to influence customers to select the most efficient design and equipment options. For both retrofit and added load projects, the IOUs will work with the customer’s project team to evaluate their proposed projects and provide a report recommending efficient design alternatives. The report will detail energy savings, CO<sub>2</sub> reductions, and calculated incentives available for exceeding Title 24 code or industry standard practice baselines, as appropriate. This information will also be available to customers through the Non-Residential Audit Sub-Program. The combination of technical support and the availability of approved utility incentive funds will be an essential driver to overcome key customer barriers, including lack of technical resources and lack of capital for energy efficiency projects.

Customers and project sponsors (i.e., contractors, design teams, vendors, and ESCOs) participating in the Calculated Incentives Sub-Program will have the option to complete their own savings calculations for submittal to the utilities for review and approval. For this purpose, statewide-consistent calculators are publicly available to customers for use if desired. The statewide, utility-created and maintained Standard Performance Contract (SPC) Calculator can be used for retrofits and some new construction applications and is available online and through CDs. For whole

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

building construction projects, SDG&E will accept both Energy Pro, available for license, and the utility-sponsored EQEST, available for free on the statewide Energy Design Resources website ([www.energydesignresources.com](http://www.energydesignresources.com)).

Depending on whether a project is a retrofit or added load project, and on whether Title 24 is triggered for a particular project, different baselines are applied to capture appropriate project savings. For retrofit projects, incentives will be capped at 50% of the total project cost. For added load projects, incentives will be capped at 50% of the incremental project cost.

The Calculated Incentives Sub-Program will offer customers incentives to implement energy efficiency measures that have been identified primarily through standard IOU energy efficiency audits or in-depth facility/process assessments. Other avenues used to identify energy efficiency opportunities include programs that provide Education and Outreach, Workforce Education and Training, or through IOU Emerging Technologies Programs.

The Calculated Sub-Program will deliver a consistent, statewide message to non-residential customers about the benefits, energy savings and GHG reductions that efficient technologies and “best operating practices” offer to customers. This will overcome barriers often run into by non-residential customers, such as receiving incorrect or out of date information from local networks.

Information about the services offered by the Calculated Incentives Sub-Program will be delivered through Account Representatives, utility Call Centers, Partnerships, Third Parties, and utility Internet sites. Calculated Sub-Program information will also be made available through industry events, such as the World Ag Expo, through industry organizations, such as the California League of Food Processors and The Building Owners and Managers Association (BOMA), American Water Works Association (AWWA), Hydraulic Institute, and through advertising in industry and trade publications.

The Calculated Sub-Program will not only bring IOU incentive information to customers, but in many instances will also provide additional information about other opportunities for project assistance, such as State or Federal funds available for energy efficiency projects, tax incentives, and other local sources of project funding.

The Calculated Sub-Program will use Retrocommissioning (RCx) as a resource to deliver energy savings. The non-resource portion of RCx is located in the Non-Residential Audits Sub-Program. However, as RCx provides calculated savings, the resource aspect of this offering will be located in the Calculated Incentives Sub-Program. RCx is a systematic process to identify and correct operational problems or inherent repair and maintenance deficiencies that lead to excessive energy use. Unlike retrofits, which focus on equipment replacement, or O&M, which focuses on routine maintenance, RCx focuses on identifying and correcting problems that may not be readily identified by a standard energy audit. O&M items with an effective

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

useful life greater than three years will also be identified through this assessment. Furthermore, opportunities often exist to optimize existing systems to operate more efficiently than originally designed with minimal new capital outlay. Finally, the IOUs will coordinate with the Society of Building Science Educators to improve existing tools and practices for building retrocommissioning so that deep energy savings can be realized in commercial buildings per the Strategic Plan.

RCx will be offered as a bundle of products and services. RCx providers will perform several tasks to identify measures. These tasks include, but are not limited to:

- Conduct an initial benchmark
- Collect data to quantify the owner’s operational requirements
- Perform detailed on-site audits to evaluate operational deficiencies and/or operational optimization opportunities inclusive of improved and enhanced preventive maintenance and repair programs
- Define measures, quantify savings
- Assist customers with measure implementation
- Verify completion of measures
- Provide post installation documentation and training as well as other persistence techniques
- Conduct post-project benchmark

Further Information

- For information on sub-program design to overcome market barriers, please refer to PIP section 5.c.
- For information on sub-program targets, please refer to PIP section 5.d.
- For information on how the sub-program advances the Strategic Plan, please refer to PIP section 5e.

a) Statewide IOU Coordination:

The Calculated Incentives Sub-Program will follow the process for Statewide IOU Coordination described in PIP section 6.0.a.

b) Program delivery and coordination:

i. Emerging Technologies program

The long-term EE vision of California can only be attained through the continuous development, verification, and acceptance of new technologies into the market. The achievement of long-term goals requires new technology as well as information, training and market development to maximize the EE benefits of cutting edge technologies. In recognition of the importance of emerging technologies, the Statewide Commercial Energy Efficiency Program is poised to adopt the efficiency potential of new technologies through its sub-

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

programs. In addition, portfolio staff will actively work to incorporate promising emerging technologies and PIER projects.

ii. Codes and Standards program

The Calculated Incentives Sub-Program will rely on the Codes and Standards program to maintain an updated and relevant list of measures that will support savings. As Codes and Standards impact measures, the program will act to align itself with appropriate offerings. Programs will include new offerings that will allow flexibility in adapting to changes in codes and standards, market trends, and technologies. Planned enhancements to Title 24 will be reflected in incentive levels and eligible measures and services. As the market moves toward “low energy” or “zero net energy” buildings, specific changes to each element of the bundling will be made to ensure the latest cost effective technologies/services (e.g., LEDs) are made available as these technologies transition from 1) R&D to 2) Emerging technologies to 3) Incubation to 4) Mainstream.

iii. WE&T

WE&T is a portfolio of education and training programs that showcase energy efficient equipment found on the list of measures offered by the Calculated Sub-Program. The education and training will take place through energy centers, technology test centers, and education and training program offerings. In addition to providing the education and training, the classes also address how customers can enroll and participate in relevant energy efficiency program offerings. An Energy Efficiency representative will be present at these training events to provide detailed information on the program-specific attributes.

iv. Program-specific marketing and outreach efforts (budget provided in Table 1)

The Calculated Sub-Program will be marketed through IOU Account Executives, as well as through educational, outreach and other marketing activities. Marketing activities will target business customers, ESCOs, trade associations, local business groups and government entities to generate interest and program participation. In addition, direct customer contact by Account Executives, Demand Response Program outreach, phone and email support will be provided.

Marketing campaigns will provide a wide range of action-oriented solutions targeted to “personas” identified through segmentation research. In addition, marketing efforts will be “bundled”. That is, a menu of demand response, energy efficiency, and conservation programs will provide customers a full array of EE and DR options. By providing packaged energy management solutions for each industry segment SDG&E will be better able to communicate with and serve customers.

## **2009–2011 Energy Efficiency Programs Statewide Commercial Energy Efficiency Program Program Implementation Plan**

Marketing efforts will incorporate a variety of marketing tactics/activities to promote the Calculated Sub-Program. Education, awareness and outreach efforts will rely on a combination of mass media communication channels and targeted communication channels to ensure the messages reach the intended audiences with enough frequency to motivate attitude and behavior changes. The marketing strategies may include, but are not limited to, a mix of print, radio, TV, direct mail, e-mail, personal contact, trade shows, trade association meetings, customer workshops and seminars, energy related and other community events and partnerships with business and industry organizations, specialized collateral, case studies, website links and information with regular updates, bill inserts, press releases, and newspapers.

The ideal marketing mix will be assessed for maximum awareness and participation. Marketing and outreach will be coordinated among the IOUs utilizing the statewide coordination process described in Section 6.0a.

### v. Non-energy activities of program

The Calculated Sub-Program will provide design and calculation assistance prior implementation to help the customer plan energy efficiency measure installation. Therefore, design assistance, in the form of integrated audits that look across the various EE program offerings, as well as incentive and resource programs available through other entities (e.g. water agencies), will be used to identify the opportunities to be recommended to the non-residential customer.

In addition, the Water Efficiency Pilot Program will provide potential opportunities to reduce water use and achieve associated energy efficiency savings. Since some customers within the program sectors are major water users, the utilities will be well positioned to assist customers in realizing linked water/energy benefits as a result of the Water Efficiency Pilot Program.

### vi. Non-IOU Programs

The Calculated Sub-Program will continue to engage with Air Quality Management Districts, CEC, CARB, DOE, water agencies, and other government agencies responsible for regulating the various aspects and operations of customer facilities participating in the programs.

### vii. CEC work on PIER

The Calculated Sub-Program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies and PIER projects. The program will work

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

with PIER on researching new technologies for evaluation and testing for application in mainstream projects.

viii. CEC work on codes and standards

Please refer to PIP section 6.b.ii.

ix. Non-utility market initiatives

Through pre-installation design and technical assistance, the Calculated Sub-Program will support and provide educational resources on AB32, renewables, ANSI certification, facility benchmarking, Continuous Energy Improvement, California Green Building Initiative, and other initiatives as directed. The IOUs will remain engaged in these efforts and work to influence the development of increasingly higher standards.

c) Best Practices:

The Calculated Sub-Program approach constitutes “best practice” by:

- Providing cost-effective energy efficiency. The program will reimburse up to 50% of the energy efficiency project cost.
- Basing energy savings on actual facility operations, process measurement, and accepted engineering protocols for calculating energy savings.
- Performing measurement and verification of energy savings post-installation.
- Being customer-focused. The incentive options offered have seen high participation due to the program’s flexibility in customizing appropriate energy efficiency solutions for a diverse range of customers.
- Avoiding lost opportunities by utilizing a comprehensive approach.
- Producing both short- and long-term energy savings.
- Providing co-branding opportunities supporting the reduction of greenhouse gases.
- Using an application process that is both easy and friendly; and
- Developing new Pilots to test innovative approaches that achieve deeper savings.

d) Innovation:

Innovative aspects of the program are aimed at improving major program performance indicators such as accuracy of energy saving calculations, higher realization rates, overcoming energy efficiency barriers, reducing application processing time and administrative costs, and integrating energy management.

For the new program cycle, IOUs will implement a new incentive structure that emphasizes peak demand reduction, addresses the current economic downturn and

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

will better motivate customers to participate in energy efficiency incentive programs. During the 2009-2011 program cycles, the new incentive structure will be periodically evaluated so that necessary changes can be made in order to enhance program benefits and performance.

The IOUs will continue working collaboratively on modifications to program Policies and Procedures to address ongoing changes in customer expectations, market conditions and program flexibility. Such changes have been and will be targeting ease of program understanding and participation, measures eligibility, increase of customer economical benefits, and policy restrictions that will be identified as barriers to participation. The IOUs are implementing such a process based on market studies conducted on the subject. Future modifications may include incentive caps or the early retirement of measures/equipment.

The IOUs are planning to utilize the well-received Savings By Design (SBD) simplified tool and extend it to energy efficiency retrofit projects. Such tools substantially reduce application processing and review time, and minimize number of hand-offs, while not sacrificing accuracy of energy saving calculations.

The IOUs intend to consolidate various calculating software such as SPC Software, Engage and other measure-specific calculating tools to standardize calculating methodology. This will ensure that calculations will be more uniform and consistent among all stakeholders. This will not limit the use of nationally recognized standard DOE toolsets for certain measures.

The IOUs are also planning to continue and expand the Retrocommissioning Program in multiple target markets. Retrocommissioning is a systematic process for optimizing an existing building or system's performance by identifying operational deficiencies and making necessary adjustments to correct the system. Measures may involve resetting, repair or replacement of existing system controls and components, and in general are low-cost projects with simple payback periods of less than four years.

After an energy audit is complete and applicable no-cost/low-cost measures identified, the scope of work will be handed-off to an RCx implementer who, in-turn, will follow RCx program protocols, execute the scope of work (measure implementation, M&V plan, incentive payment for energy savings, etc.) and report final results to the core program office.

e) Integrated/coordinated Demand Side Management:

Where possible, the IOUs will use an integrated approach to addressing DSM opportunities. Innovative integrative aspects include merging energy efficiency and demand response analysis and converting recommendations to projects under the Calculated Sub-Program. In addition, the program will process and review energy efficiency and demand response measures in a single application. Providing



**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

analytical information about applicable distributed generation solutions will maximize customer adoption rates for the most cost-effective energy management opportunities.

f) Integration across resource types:

Please refer to PIP section 6.0f.

g) Pilots:

There are no Pilots associated with the Calculated Incentives Sub-Program.

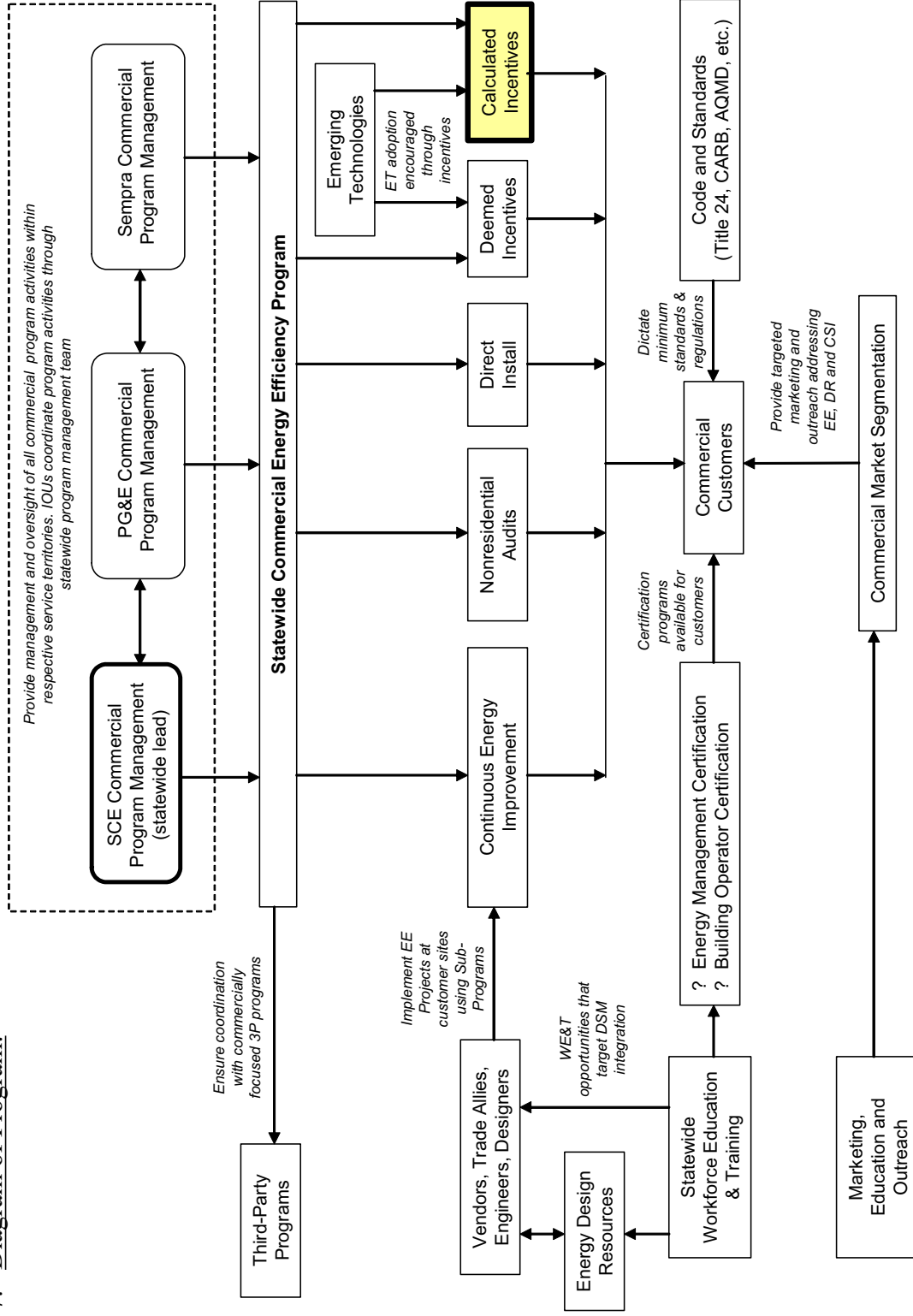
h) EM&V:

SDG&E is proposing to conduct market assessment/characterizations and process evaluations by market segment. Within each of these evaluations, a portion of the research will be assigned to third-party contractors to ensure that the third-party programs are being run efficiently and that their integration to the portfolio is effective.

There is no Efficiency Measurement & Verification (EM&V) process specified for the Calculated Incentives Sub-Program. However, SDG&E's third-party contractor will maintain a comprehensive tracking system which will include each measure, installed or recommended, for each facility as well as the anticipated energy savings.

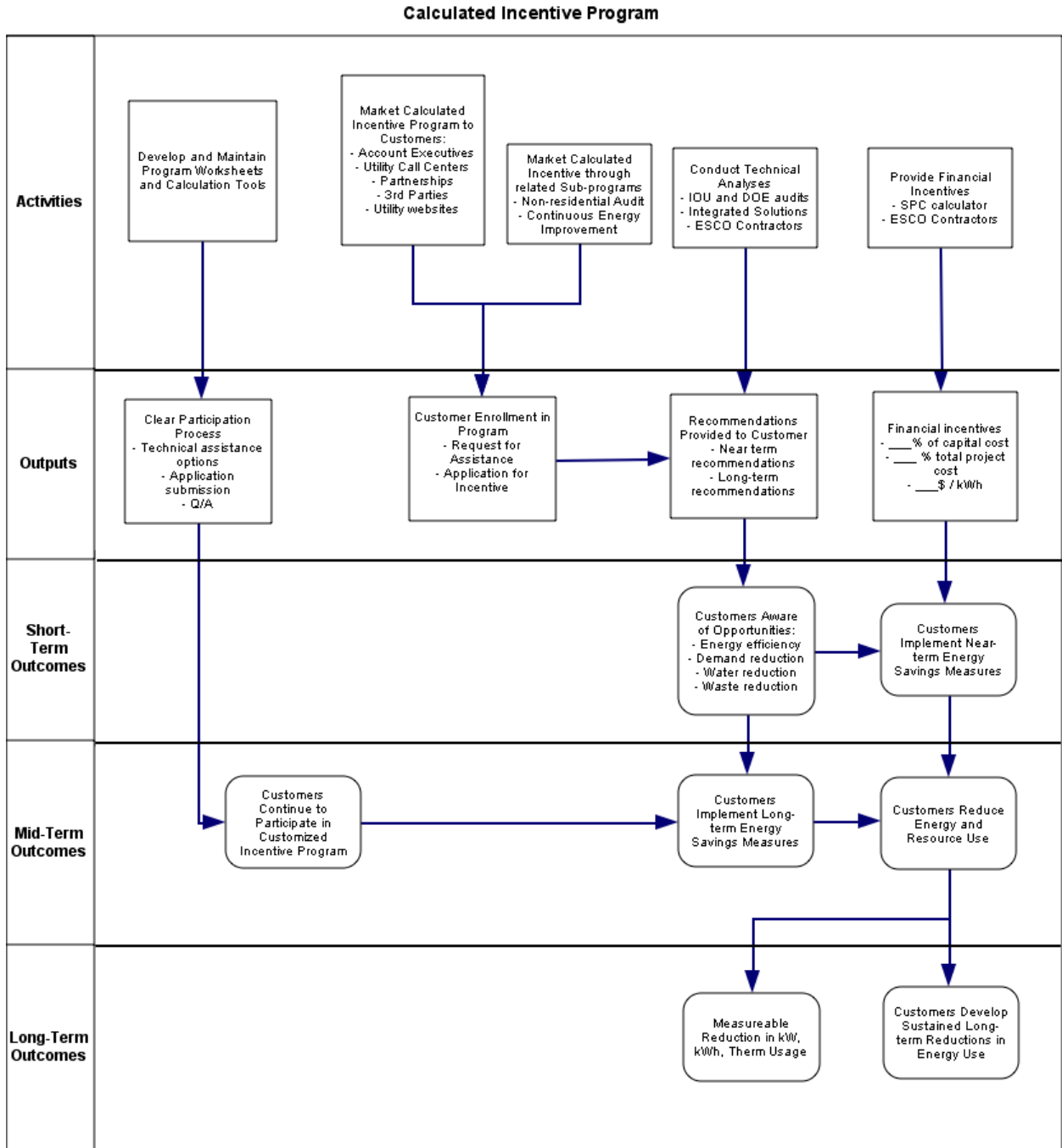
# 2009–2011 Energy Efficiency Programs Statewide Commercial Energy Efficiency Program Program Implementation Plan

7. Diagram of Program:



# 2009–2011 Energy Efficiency Programs Statewide Commercial Energy Efficiency Program Program Implementation Plan

## 8. Program Logic Model:



## 2009–2011 Energy Efficiency Programs Statewide Commercial Energy Efficiency Program Program Implementation Plan

1. Program Name: Deemed Incentives  
Program ID#: TBD  
Program Type: Sub-Program

2. Projected Program Budget Table

**Table 1<sup>1</sup>**

Program #	Main Program Name / Sub-Programs	Total Administrative Cost (Actual)	Total Marketing & Outreach (Actual)	TOTAL Direct Implementation	Integration Budget Allocated to Other Programs (if Applicable)	Total Budget By Program (Actual)
<b>Market Sector Programs</b>						
	Core Program #1					
	Sub-Program #1					
	Sub-Program #2					
	Sub-Program #3					
	Sub-Program #4					
	Etc.					
	<b>TOTAL:</b>					

These budget numbers are presented in Appendix F: Energy Division Tables, Graphs & Pie Charts: Table 7.1 - 2009 - 2011 IOU Strategic Planning Program Budget.

3. Projected Program Gross Impacts Table<sup>2</sup> – by calendar year

**Table 2**

Program #	Program Name / Sub-Programs	2009 - 2011	2009 - 2011	2009 - 2011
		Three-Year EE Program Gross kWh Savings	Three-Year EE Program Gross kW Savings	Three-Year EE Program Gross Therm Savings
<b>Market Sector Programs</b>				
	Core Program #1			
	Sub-Program #1			
	Sub-Program #2			

<sup>1</sup> Definition of Table 1 Column Headings: Total Budget is the sum of all other columns presented here

Total Administrative Cost includes all Managerial and Clerical Labor, Human Resource Support and Development, Travel and Conference Fees, and General and Administrative Overhead (labor and materials).

Total Direct Implementation – includes all financial incentives used to promote participation in a program and the cost of all direct labor, installation and service labor, hardware and materials, and rebate processing and inspection used to promote participation in a program.

Total Marketing & Outreach includes all media buy costs and labor associated with marketing production.

Integrated Budget Allocated to Other Programs includes budget utilized to coordinate with other EE, DR, or DG programs.

Total Budget is the sum of all other columns presented here

Definition of Sub-Program: A “sub-program” of a program has a specific title; targets; budget; uses a unique delivery or marketing approach not used across the entire program; and for resource programs, has specific estimated savings and demand impacts.

<sup>2</sup> For all-electric IOUs, the therm column should include interactive effects.

**2009–2011 Energy Efficiency Programs  
Statewide Commercial Energy Efficiency Program  
Program Implementation Plan**

Program #	Program Name / Sub-Programs	2009 - 2011	2009 - 2011	2009 - 2011
		Three-Year EE Program Gross kWh Savings	Three-Year EE Program Gross kW Savings	Three-Year EE Program Gross Therm Savings
	Sub-Program #3			
	Sub-Program #4			
	Etc.			
	<b>TOTAL:</b>			

These savings values are presented in Appendix F: Energy Division Tables, Graphs & Pie Charts: Table 7.2 - IOU 2009 - 2011 Program Savings Estimates.

4. Program Description

- a) The statewide commercial Deemed Incentives Sub-Program provides rebates for the installation of new energy efficient equipment. Deemed retrofit measures have prescribed energy savings and incentive amounts and are generally intended for projects that have well defined energy and demand savings estimates (i.e. T12 to T8 replacements). The Deemed Incentive mechanism is designed to help influence the installation of energy efficient equipment and systems in both retrofit and added load applications by reducing the initial purchase costs of such equipment and reducing the “hassle” of participating in utility rebate programs by offering a simple application process.

The Deemed Incentives Sub-Program directly addresses key market factors that lead to higher energy costs for California businesses. Providing a menu of prescribed common measures simplifies the process of reviewing project proposals and provides a "per-widgit" rebate that reduces the cost of retrofitting outdated and inefficient equipment. This sub-program makes it attractive for customers to spend money in the short-run in order to achieve lower energy costs in the long-run

- b) The following measure categories are eligible for Deemed Incentives:
- Lighting
  - Air conditioning equipment
  - Food service equipment
  - Refrigeration
- c) The Deemed Incentives Sub-Program is primarily an incentive program designed to achieve energy savings through measure implementation; however it does provide such non-incentive measures as technical consultation and application preparation assistance to help customers navigate through the application process. This assistance ensures that the sub-program captures lost opportunities by not allowing projects to fall behind schedule simply because the customer does not have the resources to shepherd through the process.

5. Program Rationale and Expected Outcome

- a) Quantitative Baseline and Market Transformation Information:

**2009–2011 Energy Efficiency Programs  
Statewide Commercial Energy Efficiency Program  
Program Implementation Plan**

**Table 3**

	<b>Baseline Metric</b>		
	Metric A	Metric B	Metric C
Overall Program			
Sub Program #1			
Sub Program #2			
Sub Program #3			

Refer to the overarching PIP section

b) Market Transformation Information:

**Table 4**

Market Sector and Segment	<b>Internal Market Transformation Planning Estimates</b>		
	2009	2010	2011
Metric A			
Metric B			
Metric C			
Metric D			

Refer to the overarching PIP section

- c) Program Design to Overcome Barriers: The Statewide Deemed Incentives Sub-Program offers customers rebates to implement energy efficiency measures that have been identified primarily through standard utility energy efficiency audits, in-depth facility/process assessments or retro-commissioning studies. The sub-program is designed to help commercial customers overcome barriers to adopting energy efficiency program measures by reducing financial costs to the customers for the implementation of energy efficient measures that address major end-uses (e.g. lighting, HVAC, plug loads). Additionally, the easy-to-use online and paper application process reduces that hassle and transaction costs generally associated with Calculated Incentives, where engineering calculations and pre- and post-monitoring may be required.

The Deemed Incentives Sub-Program delivers a consistent message statewide to commercial customers about the benefits, energy savings and GHG reductions that efficient technologies and “best operating practices” offer. This eliminates the barrier often run into by commercial customers of getting incorrect or out-of-date information from local networks.

The Deemed Incentives Sub-Program not only brings IOU incentive information to customers, but in many instances also provides additional information about other opportunities for project assistance, such as State or Federal funds available for energy efficiency projects, Tax incentives or other local sources of project funding.

In several instances, high efficiency Emerging Technologies are viable, but are unknown to facility owners and system designers and thus, are slow to penetrate the market, causing energy

**2009–2011 Energy Efficiency Programs  
Statewide Commercial Energy Efficiency Program  
Program Implementation Plan**

efficiency opportunities to be “lost.” The Deemed Incentives Sub-Program helps speed market penetration and associated energy savings for Emerging Technologies by offering “premium” incentives for emerging technologies that are “proven” but not widely employed in the markets for which they are intended (e.g. solid state lighting, advanced lighting controls, etc.).

d) Quantitative Program Targets: The sub-program will achieve the following targets.

**Table 5**

Program Name	Program Target by 2009	Program Target by 2010	Program Target by 2011

e) Advancing Strategic Plan goals and objectives: The unifying objective of the CLTEESP is to employ market transforming strategies to encourage marketplace adoption of energy efficient measures to a point that public investment in energy efficiency is no longer necessary (Section 1, page 4). The Deemed Incentives Sub-Program will support this effort by employing two of the five market transformation policies identified in the CLTEESP. Specifically, the Program will offer “carrots” in the form of financial incentives to help pull the marketplace towards energy efficiency. The Deemed Incentives Sub-Program will also provide education and informational resources through marketing and program outreach efforts. Therefore, these program elements will work in concert to transform the market towards sustained, long-term energy savings.

The program will help to achieve the following near-term strategic goals as identified in Chapter 3 of the CLTEESP:

- 2-3: Ensure compliance with minimum Title 24 codes – The Deemed Incentives Sub-Program only provides incentives for projects that exceed current Title 24 minimum baselines. Incentive rates will be created to encourage the implementation of advanced technologies (e.g. solid state lighting) to ensure deeper levels of energy reductions including implementation of the Office of the Future Consortium’s Phase 2 recommendations, “The 25% Solution”, which seek to reduce energy usage 25 percent below Title 24-2005 baselines.
- 2-5: Develop tools and strategies to reduce energy consumption in commercial buildings – The Deemed Incentives Sub-Program directly supports this effort by collecting data and conducting energy use and efficiency studies that, when collected over multiple IOU service territories, will be very helpful in supporting statewide efforts to establish a robust and useful knowledge base for the commercial sector.
- 2-7: Develop business models that deliver integrated energy management solutions – The Deemed Incentives Sub-Program will implement incentive mechanisms that will “reward comprehensive energy management retrofits” such as incentives for reaching certain stretch goals that produce significant energy savings beyond an established baseline. Additionally the iBonus concept (see Section 6.e) will further encourage integrated solutions.

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

- 2-8: Improve utilization of plug load technologies – The existing incentive structure pays for energy reductions through plug load measures. Additional incentives that encourage greater penetration of plug load technologies may be required and will be developed to support technologies recommended by PIER, the Office of the Future Consortium, etc.

6. Program Implementation

The Deemed Sub-Program, commonly referred to as Express Efficiency, will pay rebates for the installation of new energy efficient equipment. Itemized retrofit measures have prescribed energy savings and incentive amounts. Incentives and savings payouts will be based upon deemed measures in the DEER database or through SDG&E's work papers.

These measures are categorized under the following end uses:

- Lighting
- Air conditioning
- Food service
- Refrigeration
- Industrial Process
- Motors
- Plug loads
- High-Efficiency Water Heating
- Greenhouse Curtains and Infrared Films
- Pipe and Tank Insulation
- Steam Traps

The Deemed Sub-Program will address key market factors that contribute to higher energy costs for California businesses. Providing a menu of prescribed common measures simplifies the process of reviewing project proposals and provides a "per-widget" rebate that reduces the cost of retrofitting outdated and inefficient equipment. This element makes it attractive for customers to spend money up front in order to achieve lower energy costs in the long run.

Using itemized energy efficiency measures is intended to overcome barriers that prevent many customers from adopting energy efficiency alternatives. The barriers will be addressed by itemizing common energy efficiency measures and rebates, stimulating the supply of high efficiency equipment and products (through higher demand), and offering rebates that help offset higher start up and down payment expenses for energy efficient retrofits.

Furthermore, to ensure equity to all customer segments, this program will continue to offer statewide-consistent, cost-offsetting itemized rebates to help customers with the cost of installing new energy efficient equipment.

The Deemed Sub-Program will be implemented and coordinated through the same processes used in the Calculated Sub-Program. The Deemed Sub-Program will include the following two elements:



## **2009–2011 Energy Efficiency Programs Statewide Commercial Energy Efficiency Program Program Implementation Plan**

- Existing itemized retrofit (e.g. Express Efficiency)
- Other itemized measures as relevant.

Applicants who wish to participate in the itemized retrofit element will be allowed to reserve funds for their projects. Reservations will be taken via phone, fax, internet, or mail. SDG&E will maintain an online reservation system for the convenience of applicants. Although reservations are not required, SDG&E recommends that customers reserve funds. At the time that they make a reservation, the applicant will be notified if a pre-inspection is required. Pre-inspection is not required unless there is prior participation at the proposed project location for the same measures being reserved. Projects with prior participation are subject to mandatory pre- and post-inspection. If an applicant does not reserve funds and submits an application that raises the issue of prior participation, the applicant is responsible for clearly demonstrating that the requirements in the terms and conditions were met before a rebate will be paid.

The Deemed Sub-Program will be part of the integrated strategy to promote energy efficiency to non-residential customers. The Statewide Deemed Team will hold regular conference calls and in-person meetings to share successes challenges, and best practices in delivering energy efficiency via deemed rebates. As described in PIP section 6.0a, the Deemed IOU Lead will participate in periodic Steering Committee meetings for the Agriculture, Industrial, and Commercial sectors to share successes, challenges, and best practices in delivering energy efficiency to each market sector and associated sub-segments.

Customers can enroll in the Deemed Sub-Program via paper or online application. Measures will be the same across IOUs and incentive levels will also be aligned, unless markets in the individual IOUs require adjustments based on research, communication with industry, and/or changes in the economic landscape.

The Deemed Sub-Program will work with the other sub-programs to design customer facing marketing materials that integrate EE offerings into a complete energy savings package that is focused on individual market segments.

Where appropriate, IOUs will coordinate with Publicly Owned Utilities (POUs) to extend customer reach and more deeply penetrate each customer segment and technology market. Each IOU will also coordinate internally with Government Partnership Programs to maximize the effectiveness of Program offerings and minimize overlap and confusion.

For information on measures and incentive levels offered under this sub-program, please refer to PIP section 4.b.

### Further Information

- For information on sub-program design to overcome market barriers, please refer to PIP section 5.c.
- For information on sub-program targets, please refer to PIP section 5.d.
- For information on how the sub-program advances the Strategic Plan, please refer to PIP section 5e.

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

a) Statewide IOU Coordination:

Consistent statewide specifications and rebate values make it easier for national chains and manufacturers to understand and support IOU rebate programs. Statewide coordination also includes regular meetings to share industry contacts, marketing strategies and lessons learned. Coordinated statewide participation at relevant industry events has reduced costs through sharing.

Please refer to PIP section 6.0.a for more details on statewide coordination, which will be followed for this sub-program.

b) Program delivery and coordination:

i. Emerging Technologies program

To meet California's future energy efficiency goals, in terms of overall usage, greenhouse gas reductions, and peak demand usage, new technologies and new applications of technology are needed. The Deemed Sub-Program will seek support from ETP's incubation and development of new technologies to meet the needs of the marketplace. ETP provides the pipeline of new technologies that Deemed looks to incorporate to maintain a robust selection of energy savings equipment. The program will look to ETP to provide customers with technology information, validating effectiveness as an unbiased and neutral expert.

ii. Codes and Standards program

The Deemed Sub-Program will rely on Codes and Standards to maintain an updated and relevant list of measures that support savings. As Codes and Standards impact measures, the Deemed program will act to align itself with appropriate offerings.

iii. WE&T

WE&T is a portfolio of training and information programs that showcase energy efficient equipment found on the list of measures offered in the Deemed Sub-Program. Dissemination of information takes place through energy centers, technology test centers, and information and training program offerings. During classes, time is dedicated to energy efficiency programs and how customers can participate. In 2009-2011, an Energy Efficiency representative will be available to deliver EE program messages and answer questions.

iv. Program-specific marketing and outreach efforts (budget provided in Table 1)

The following will be used as marketing and outreach channels:

- Non-contracted vendors are a key delivery channel for the Deemed Sub-Program; therefore, marketing will emphasize building awareness with more vendors in the territory. Training vendors on how to participate effectively in the program will also be a focus in the new program cycle.

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

- Community Based Organizations (CBOs), Faith Based Organizations (FBOs), and Non-Profit Organizations, who have unique access and membership, are expected to be emphasized as a delivery channel.
- Trade associations and industry networks.
- Unique channels that offer complementary value propositions from the customers' perspective (e.g. energy, water, materials management, recyclables, corporate citizenry, etc.).

v. Non-energy activities of program

Please refer to PIP section 6.0b.v for details.

vi. Non-IOU Programs

The Deemed Sub-Program will continue to engage with Air Quality Management Districts, CEC, CARB, DOE, water agencies, and other government agencies responsible for regulating the various aspects and operations of customer facilities participating in the programs.

vii. CEC work on PIER

The Deemed Sub-Program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies and PIER projects. The program will work with PIER on researching new technologies for evaluation and testing for application in mainstream projects.

viii. CEC work on codes and standards

Please refer to PIP section 6.0b.viii.

ix. Non-utility market initiatives

Please refer to PIP section 6.0b.ix.

c) Best Practices:

To maximize program effectiveness, best practices in Program Design and Implementation will be employed and shared among IOUs.

Best practices in Program Design include:

- Regular communication among IOUs to ensure consistent program design.
- Identification of qualifying products simply and effectively (Examples; ENERGY STAR®, CEE, FSTC website).
- Seeks input from industry in the development of new measures.

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

- Rewards customers that continually improve energy efficiency by offering rebates that lower the cost of leading edge technologies.
- Achieves market transformation by generating business for upstream manufacturers that develop highly efficient products.

Best practices in Program Implementation include:

- Strives to simplify messaging and participation for the customer (i.e., “look for the ENERGY STAR label”, “purchase from a qualifying products list”, etc.)
- Understands the key motivators that drive an industry and uses that information to market the program.
- Consistent statewide specifications and rebate values make it easier for national chains and manufacturers to understand and support IOU rebate programs.
- Statewide coordination also includes regular meetings to share industry contacts, marketing strategies and lessons learned. Coordinated statewide participation at relevant industry events has reduced costs through sharing.

d) Innovation:

An innovative program aspect is that SDG&E is considering streamlining Deemed program applications to allow non-residential customers to apply for and receive rebates online.

e) Integrated/coordinated Demand Side Management:

Where possible, IOUs will use an integrated approach to address DSM opportunities. Innovative integrative aspects include merging energy efficiency and demand response offerings in the Deemed program application. Providing analytical information about applicable distributed generation solutions will maximize customer adoption rates for the most cost-effective energy management opportunities.

f) Integration across resource types:

Integration across resource types (e.g., energy, water, and air quality) will be explored. Examples include working with Water Agencies to co-promote appliances that save water and energy and working with Air Quality Management Districts to co-promote Boilers and Water Heating measures that save energy and improve air quality.

g) Pilots:

There are no Pilots associated with the Deemed Sub-Program.

h) EM&V:

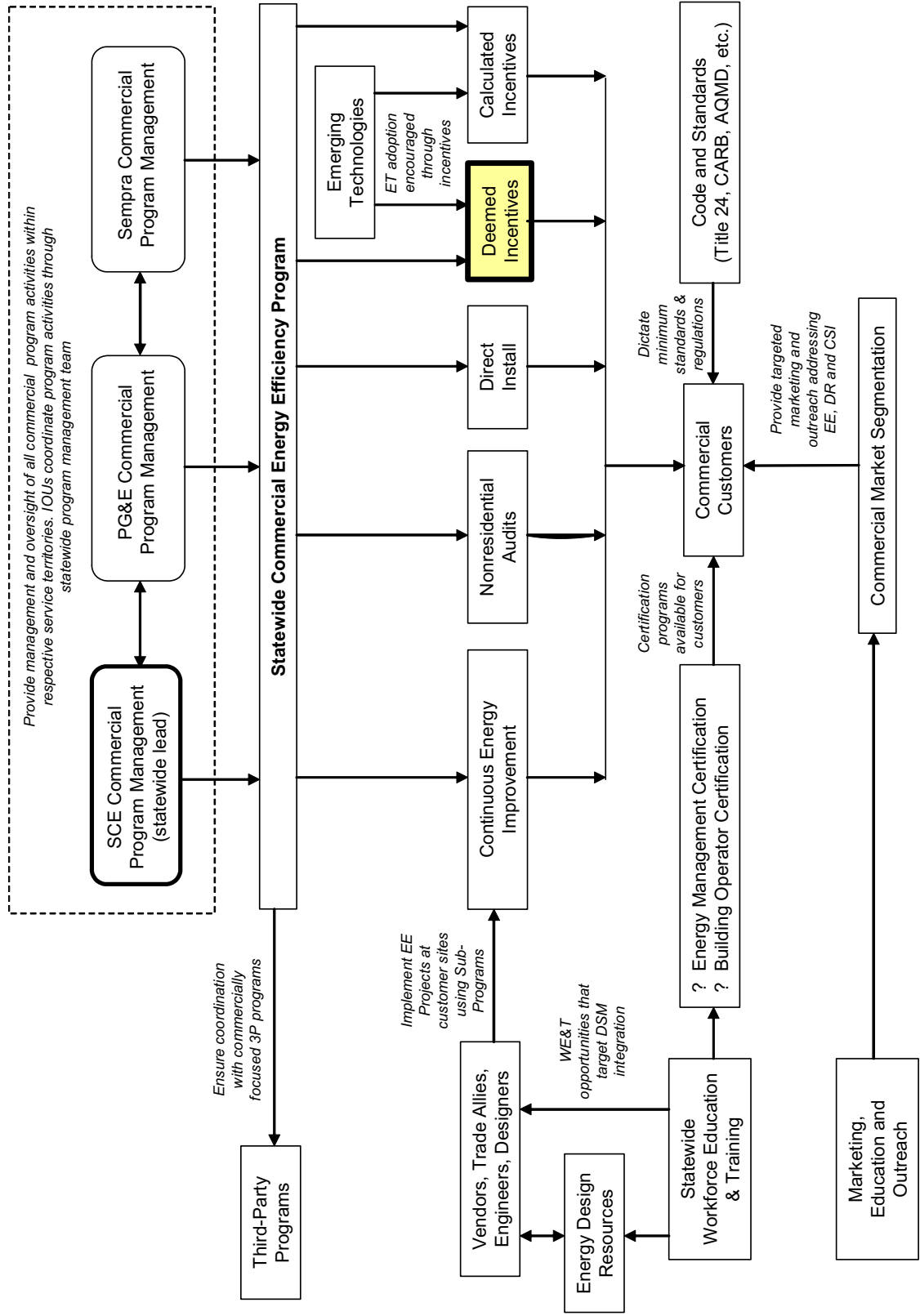
SDG&E is proposing to conduct market assessment/characterizations and process evaluations by market segments. Within each of these evaluations, a portion of the research will be assigned to third party contractors to ensure that the third party programs are being run efficiently and that their integration to the portfolio is effective.

**2009–2011 Energy Efficiency Programs  
Statewide Commercial Energy Efficiency Program  
Program Implementation Plan**

There is no Efficiency Measurement & Verification (EM&V) process specified for the Deemed Incentives Sub-Program. However, SDG&E's third-party contractor will maintain a comprehensive tracking system which will include each measure, installed or recommended, for each facility as well as the anticipated energy savings.

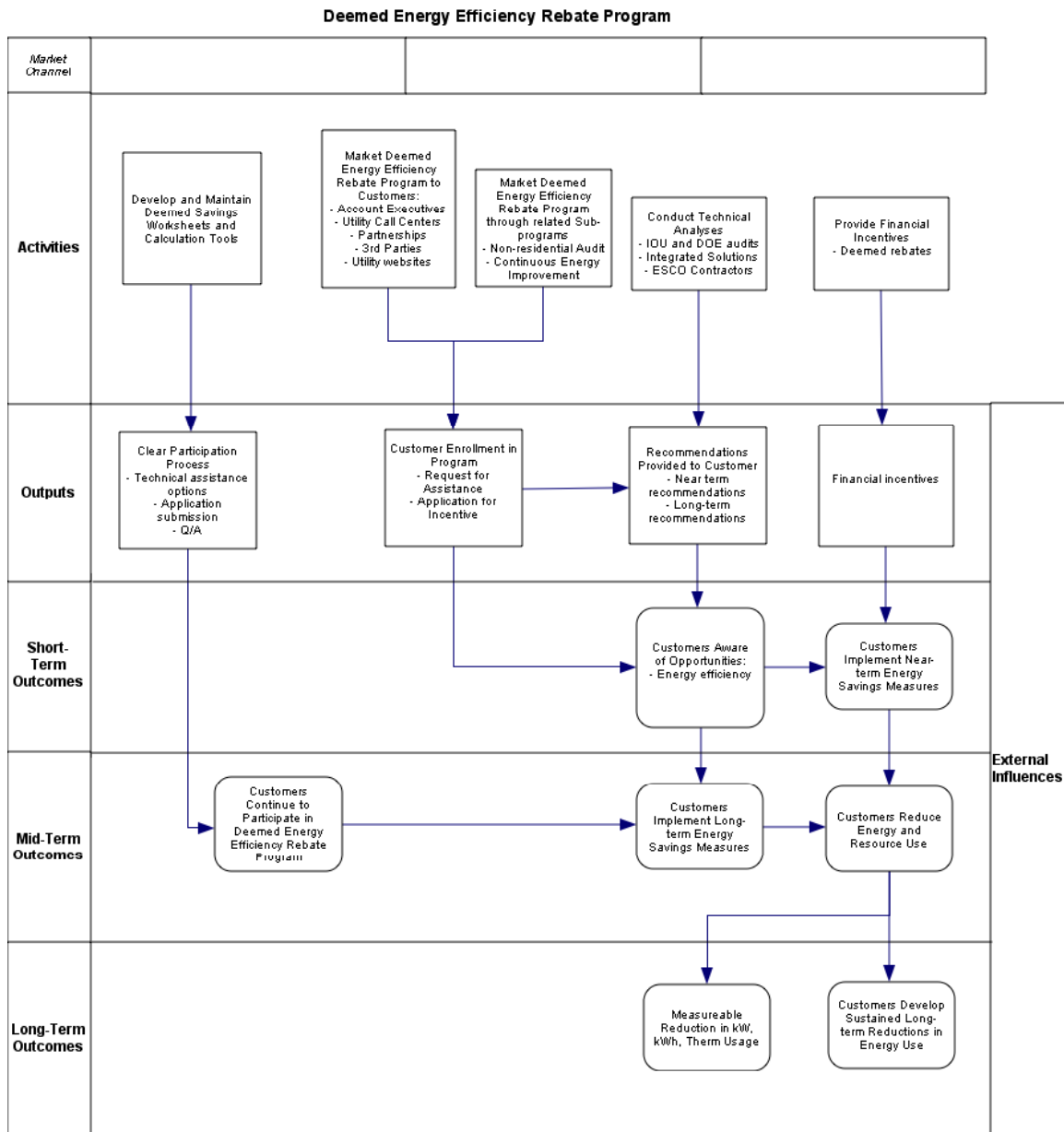
# 2009–2011 Energy Efficiency Programs Statewide Commercial Energy Efficiency Program Program Implementation Plan

7. Diagram of Program:



# 2009–2011 Energy Efficiency Programs Statewide Commercial Energy Efficiency Program Program Implementation Plan

## 8. Program Logic Model:



## 2009–2011 Energy Efficiency Programs Statewide Commercial Energy Efficiency Program Program Implementation Plan

1. Program Name: Non-Residential Audits  
Program ID#: TBD  
Program Type: Sub-Program

2. Projected Program Budget Table

**Table 1<sup>1</sup>**

Program #	Main Program Name / Sub-Programs	Total Administrative Cost (Actual)	Total Marketing & Outreach (Actual)	TOTAL Direct Implementation	Integration Budget Allocated to Other Programs (if Applicable)	Total Budget By Program (Actual)
<b>Market Sector Programs</b>						
	Core Program #1					
	Sub-Program #1					
	Sub-Program #2					
	Sub-Program #3					
	Sub-Program #4					
	Etc.					
	<b>TOTAL:</b>					

These budget numbers are presented in Appendix F: Energy Division Tables, Graphs & Pie Charts: Table 7.1 - 2009 - 2011 IOU Strategic Planning Program Budget.

3. Projected Program Gross Impacts Table<sup>2</sup> – by calendar year

**Table 2**

Program #	Program Name / Sub-Programs	2009 - 2011	2009 - 2011	2009 - 2011
		Three-Year EE Program Gross kWh Savings	Three-Year EE Program Gross kW Savings	Three-Year EE Program Gross Therm Savings
<b>Market Sector Programs</b>				
	Core Program #1			

<sup>1</sup> Definition of Table 1 Column Headings: Total Budget is the sum of all other columns presented here  
Total Administrative Cost includes all Managerial and Clerical Labor, Human Resource Support and Development, Travel and Conference Fees, and General and Administrative Overhead (labor and materials).  
Total Direct Implementation – includes all financial incentives used to promote participation in a program and the cost of all direct labor, installation and service labor, hardware and materials, and rebate processing and inspection used to promote participation in a program.  
Total Marketing & Outreach includes all media buy costs and labor associated with marketing production.  
Integrated Budget Allocated to Other Programs includes budget utilized to coordinate with other EE, DR, or DG programs.

Total Budget is the sum of all other columns presented here  
Definition of Sub-Program: A “sub-program” of a program has a specific title; targets; budget; uses a unique delivery or marketing approach not used across the entire program; and for resource programs, has specific estimated savings and demand impacts.

<sup>2</sup> For all-electric IOUs, the therm column should include interactive effects.



**2009–2011 Energy Efficiency Programs  
Statewide Commercial Energy Efficiency Program  
Program Implementation Plan**

Program #	Program Name / Sub-Programs	2009 - 2011	2009 - 2011	2009 - 2011
		Three-Year EE Program Gross kWh Savings	Three-Year EE Program Gross kW Savings	Three-Year EE Program Gross Therm Savings
	Sub-Program #1			
	Sub-Program #2			
	Sub-Program #3			
	Sub-Program #4			
	Etc.			
	<b>TOTAL:</b>			

These savings values are presented in Appendix F: Energy Division Tables, Graphs & Pie Charts: Table 7.2 - IOU 2009 - 2011 Program Savings Estimates.

4. Program Description

a) The Non-Residential Audits (NRA) Sub-Program is designed to deliver a coordinated statewide integrated demand side management activity that promotes energy efficiency, demand response, distributed generation and emerging technologies. Within the Non-Residential Audit umbrella, there are three distinct elements:

- Remote Audit: The Remote Audit element is designed as a “do-it-yourself” audit tool that is offered to customers in various formats including, but not limited to, web-based, mail-in, and telephone-based. The audit results will be available in English as well as other languages based on particular demographics for each IOU service territory.
- Integrated Energy Audits: The Integrated Energy Audit (IEA) element is designed to help customers understand and identify their energy usage and provide concrete suggestions for maximizing energy efficiency, demand response, and distributed-generation options. The goal is to educate customers and offer implementation guidance to bridge the education/action gap. A full spectrum of energy management services will be offered to customers in support of the Integrated Demand-Side Management (IDSM) portfolio. In addition, IEA will provide Savings Calculation Assistance (SCA) targeted to specific end-uses and systems for retrofit applications in existing buildings. SCA will be provided by the IOU engineers or through contracted third-party energy engineering firms and will help customers prepare and submit accurate, technically complete retrofit project applications to the Commercial Deemed and Calculated Incentive Sub-Programs. This technical assistance will expedite the process and reduce expensive and time consuming rework later in the process.

## **2009–2011 Energy Efficiency Programs**

### **Statewide Commercial Energy Efficiency Program**

#### **Program Implementation Plan**

- Retro-commissioning: The Retro-commissioning (RCx) element is designed to optimize existing building or system performance by identifying operational deficiencies and making necessary adjustments to correct the deficiency. A “Master List of Findings” results from the initial assessment that identifies low-cost projects with simple payback periods of less than 4 years. These projects may involve resetting, repair or replacing of existing system controls and components. Larger scale retrofit projects that result from the assessment are referred to other sub-programs for completion (i.e. Calculated and Deemed Incentives).

The Non-Residential Audits Sub-Program is designed to support the goals of the California Long Term Energy Efficiency Strategic Plan (CLTEESP) by providing customers with comprehensive building-specific information on cost-effective DSM opportunities. The IOUs believe this approach is the best way to influence market transformation, serve customers’ needs, and increase adoption of DSM solutions.

The program strategy is designed to serve a diverse class of customers and will bridge offerings across different IOU programs. From a customer perspective, the audit analyses will appear as a single package, identifying comprehensive options (i.e., energy efficiency, demand response, and distributed-generation) that simplifies the customer decision-making process.

The primary program objectives are to:

- Support the Strategic Plan by offering integrated audits that address the full spectrum of energy solutions, including energy efficiency, demand response, and distributed generation (California Solar Initiative and distributed generation);
- Build upon established popularity and increased demand for audits to supplement delivery channel marketing efforts;
- Implement innovative processes and establish an infrastructure that will distinguish NRA from past programs;
- Maintain statewide consistency by offering the same set of energy audits and using them as instrument to offer customer best energy management practices and projects; and
- Offer additional products and services to bridge the gap between educating customers about energy and environmental issues and taking action. Guide and support customers as they implement technologies, processes and practices to achieve energy efficiency goals.
- Provide a channel to recommend new and/or emerging technologies appropriate for the customer’s facility (e.g. solid state lighting, lighting controls, demand control ventilation, etc.)

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

- b) The Non-Residential Audit Sub-Program is a non-resource, service program which does not offer measures/incentives, but provides an avenue for implementing measures through core commercial incentive programs (refer to the Commercial Deemed and Calculated Sub-Programs for specific information).
  
- c) All activities conducted under the Non-Residential Audit Sub-Program are non-resource that with no associated incentives. Such activities include: marketing and outreach, retrofit project scoping, technical assistance, incentive application assistance, savings calculation assistance, etc.

**2009–2011 Energy Efficiency Programs  
Statewide Commercial Energy Efficiency Program  
Program Implementation Plan**

5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information:

**Table 3**

	<b>Baseline Metric</b>		
	Metric A	Metric B	Metric C
Overall Program			
Sub Program #1			
Sub Program #2			
Sub Program #3			

Refer to the overarching PIP section

b) Market Transformation Information:

**Table 4**

Market Sector and Segment	<b>Internal Market Transformation Planning Estimates</b>		
	2009	2010	2011
Metric A			
Metric B			
Metric C			
Metric D			

Refer to the overarching PIP section

a) Program Design to Overcome Barriers: The Non-Residential Audit Sub-Program will help overcome customer’s lack of awareness of DSM opportunities by providing comprehensive energy solutions that the customer can implement through relevant IOU incentive and/or finance programs. The audit results summarize the cost/benefit of identified projects and include the effect of utility incentives on the first cost of the facility upgrade. The sub-program also addresses the hassle or transaction costs that prevent customers from acting upon the audit recommendation. This barrier is reduced through the Savings Calculation Assistance, which facilitates the customers completion of an incentive program application for their project(s)

b) Quantitative Program Targets: The sub-program will achieve the following targets:

**2009–2011 Energy Efficiency Programs  
Statewide Commercial Energy Efficiency Program  
Program Implementation Plan**

**Table 5**

Program Name	Program Target by 2009	Program Target by 2010	Program Target by 2011

c) Advancing Strategic Plan goals and objectives

The Non-Residential Audit Sub-Program is designed to promote DSM coordination and the integration strategies of the Strategic Plan. Foremost are recognition of the linkage between energy and environmental policy and the importance of integrating energy efficiency, demand response and distributed generation to support California’s plan to reduce greenhouse gas emissions. .

Specific near-term strategies proposed by the CLTEESP that are addressed by the Non-Residential Audits Sub-Program include:

2-1: Ensure all State-Owned and Leased Buildings are Retro-commissioned – By offering a dedicated retro-commissioning program a mechanism is created whereby IOUs can facilitate the achievement of this goal as a coordinated effort with the IOU Government and Institutional Partnership Programs.

2-5: Strengthen Tool and Practices for Building Commissioning – Based on the IOUs experience with managing the 2006-08 Retro-commissioning program, lessons learned and best practices can be integrated into the 2009-11 offering. To increase market adoption of these program best practices, the IOUs will work in cooperation with the California Commissioning Collaborative to disseminate relevant information to the retro-commissioning community.

2-5: Identify New and Improved Tools and Strategies to Reduce Energy Consumption in Commercial Buildings – Starting with energy conservation and proceeding to distributed generation and demand response opportunities, the audits demonstrate to the customer a comprehensive, site-wide solution for near and longer term energy consumption and clearly state the positive greenhouse gas effects of their actions. Addressing customer energy needs through long-term solutions allows consideration of technologies and projects that benefit the state and planet for a decade or longer (e.g., HVAC systems, industrial processes and equipment, facility envelope upgrades and enhancements). Recommendations for retrofit opportunities within existing commercial building stock contribute to California’s zero net energy goals. Recommendations for operation and

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

maintenance (O&M) practices on on-going commissioning will ensure that customer facilities continue to operate in an efficient manner.<sup>3</sup>

In addition, Non-Residential Audits promote acceptable practices of accounting, auditing, and evaluation by:

- Offering targeted audits, savings calculation assistance and simplifying the audit-to-project documentation process to bridge the gap between educating customers about energy solutions to environmental issues and taking action.
- Guiding and supporting customers as they implement technologies, processes and practices to achieve energy efficiency savings.

Energy-saving results will be achieved by providing comprehensive follow up with customers who have received an energy audit. Follow up will include targeted, end-use energy analysis and implementation of “audit to project” conceptual work.

## 6. Program Implementation

The Non-Residential Audits Sub-Program features basic audits, integrated audits and Retrocommissioning (RCx) audits. Audits are technical surveys of energy utilization that occurs throughout a customer’s facility. They provide a system view of equipment and processes that consume energy. In this holistic system view, four discrete components of the Strategic Plan (including Energy Conservations, Energy Efficiency, Demand Reduction and Self Generation) are evaluated in various combinations. Each combination will be reviewed for its societal benefits, logical order, and customer benefits, and then presented to the customer in the recommendations section of the final audit report.

As described below, the Non-Residential Audits Sub-Program will offer basic, integrated and RCx audits during the 2009-11 program cycle.

### Basic Audits

Three types of basic audits will be offered.

- Focused – This on-site audit will be equipment focused. The report will provide a written summary of existing equipment, proposed equipment, and a description of the value of proposed equipment in terms of calculated energy savings. The report will also refer customers to appropriate EE programs such as the Deemed and Calculated offerings.

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<sup>3</sup> Note that recommended O&M solutions will be linked with Quality Maintenance principles established by the Statewide Residential and Commercial HVAC Program, thus supporting many of the goals of Chapter 6 of the CLTEESP.

## **2009–2011 Energy Efficiency Programs Statewide Commercial Energy Efficiency Program Program Implementation Plan**

- Walk-through – This on-site audit will be systems focused. The report will provide written recommendations on a standardized form that have one or more single line recommendations. Customers will be informed of savings potential and referred to appropriate EE programs.
- Remote – This type of audit will offer the same customer benefits as the on-site audits, but differs in that it is a web-based service appropriate for small to medium-sized non-residential customers.

### Integrated Audits

Integrated audits will be offered to non-residential customers who require in-depth and detailed information. These audits usually involve complex processes with an operational assessment that includes customized energy savings calculations. In addition, Integrated Audits will provide targeted customers with integrated solutions in efficiency, DR, and DG, and will, in some cases, advise customers on other sustainability practices such as water conservation opportunities and CO2 reduction potential.

### Retrocommissioning Audits

The Non-Residential Audits Sub-Program will house the audits portion of the Retrocommissioning (RCx) program offering, while the Calculated Sub-Program will house the incentives portion of RCx. RCx is a systematic process to identify and correct operational problems or inherent repair and maintenance deficiencies that lead to excessive energy use. Unlike retrofits, which focus on equipment replacement, or O&M, which focuses on routine maintenance, RCx focuses on identifying and correcting problems that may not be readily identified by a standard energy audit. Operations and Maintenance items with an effective useful life greater than three years will also be identified through this assessment. Furthermore, opportunities often exist to optimize existing systems to operate more efficiently than originally designed with minimal new capital outlay. The RCx Program will incorporate initial feedback from the 2006-2008 program cycle by expanding its reach into the Agriculture and Industrial sectors. Finally, the IOUs will improve existing tools and practices for building retrocommissioning to reduce energy consumption in commercial buildings per the Strategic Plan.

RCx will be offered as a bundle of products and services. RCx providers will perform several tasks to identify measures. These tasks include, but are not limited to:

- Conduct an initial benchmark
- Collect data to quantify the owner's operational requirements
- Perform detailed on-site audits to evaluate operational deficiencies and/or operational optimization opportunities inclusive of improved and enhanced preventive maintenance and repair programs

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

- Define measures, quantifying implementation costs and savings
- Assist customers with measure implementation
- Verify completion of measures
- Provide post installation documentation and training as well as other persistence techniques
- Conduct a post-project benchmark

The sub-program will also help overcome first-cost barriers that typically prevent customers from implementing IDSM measures by guiding them to relevant IOU incentive and/or finance programs. Benefits from non-IOU programs, such as those offered by water agencies and Air Quality Management Districts, may be presented as well. Both basic and integrated audits will calculate energy savings. SDG&E will also support the customer in determining subsequent cost savings and Return on Investment – an important component that affects customer’s profitability.

To support the core utility programs, Non-Residential Audits will provide Savings Calculation Assistance (SCA), targeted to specific end uses and systems, to support nonresidential retrofit applications. SCA will be provided by SDG&E engineers or contracted energy engineering firms and will help customers submit accurate, technically complete nonresidential retrofit applications. This assistance will speed the process and reduce expensive, time consuming rework later in the process.

For medium to large-sized customers, SDG&E may provide walk through audit services using SDG&E contractors, third-parties, and other representatives depending on the complexity of the facility and the estimated savings potential. Less complex facilities may benefit from online audit tools.

Through the Statewide IOU Coordination process, IOUs will consider additional customer recognition options for customers who utilize audit results to move forward with energy efficiency, demand response and distributed generation measures. Such options may include, but not be limited to, co-payments, rewards, case studies, or additional incentives.

For information on measures and incentive levels offered under this sub-program, please refer to PIP section 4.b.

Further Information

- For information on sub-program design to overcome market barriers, please refer to PIP section 5.c.
- For information on sub-program targets, please refer to PIP section 5.d.
- For information on how the sub-program advances the Strategic Plan, please refer to PIP section 5e.



**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

a. Statewide IOU Coordination:

The Non-Residential Audits sub-program will follow the process for Statewide IOU Coordination described in PIP section 6.0.a. Coordination is anticipated to be rather streamlined, as the Energy Audit has been a statewide program since 2002, and all IOUs use the same types of energy audits for the same type of customer segments.

b. Program delivery and coordination:

i. Emerging Technologies program

Consistent two-way communication between the Emerging Technologies program and the Non-Residential Audits Sub-Program will accelerate implementation of pilot programs for demonstrating promising new EE technologies and practices. Additionally, Non-Residential Audits will enable auditors to seek potential applications among targeted customer segments so that ET may gauge potential for promising technologies.

ii. Codes and Standards program

As noted in PIP section 6.0.b.ii, the Non-Residential Audits Sub-Program will work closely with Codes and Standards to recommend appropriate technologies and products to customers.

iii. WE&T efforts

For information on how this sub-program links to WE&T, please refer to PIP section 6.0.b.iii.

iv. Program-specific marketing and outreach efforts (budget provided in Table 1)

A broad range of marketing activities will be used to promote all audit offerings and elevate customer engagement. Marketing plans will incorporate the results of EM&V studies, which specify necessary steps for program enhancement.

Non-Residential Audits will be promoted via direct communication between customers and Account Executives. In addition, IOUs will use traditional advertising activities such as trade publications, utility websites, bill inserts, brochures, and Trade Shows. Marketing activities will be coordinated between IOUs, and the Demand Response and Distributed Generation departments within SDG&E.

**2009–2011 Energy Efficiency Programs  
Statewide Commercial Energy Efficiency Program  
Program Implementation Plan**

v. Non-energy activities of the program

Integrated audits are a key tool for identifying non-energy opportunities for specific customers, as noted in PIP section 6.0.b.v.

vi. Non-IOU Programs

Please refer to PIP section 6.0.b.vi.

vii. CEC work with PIER

Please refer to PIP section 6.0.b.vii.

viii. CEC work on codes and standards

Please refer to PIP section 6.0.b.viii

ix. Non-utility market initiatives

Please refer to PIP section 6.0.b.ix.

c. Best Practices:

The Non-Residential Audits Sub-Program leverages Workforce Education & Training efforts to expand the reach of the audits to external resources such as third-parties, University internship programs, and municipal utilities. In conjunction with the California Center for Sustainable Energy (CCSE), the sub-program will develop a workforce that is trained to identify energy efficiency and demand response opportunities. These best practice efforts have made the IOU audits program successful in the past, as evidenced by the evolution and progression of the private-sector energy services industry.

In addition, the Non-Residential Audits Sub-Program will improve the adoption rate of energy efficiency and demand-side management opportunities recommended by audits. IOUs will provide comprehensive support and establish an extended follow-up plan. For example, customers who complete an online basic audit (using the Utility Energy Audit Tool) will get a printout of recommendations specific to their facility and information on rebates and incentives, which simplify measure adoption. Following on-site audits for large customers, assigned account managers will contact customers to review audit recommendations and present technical and financial assistance to help them implement measures.

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

d. Innovation:

The discussion below presents the innovative aspects of the Non-Residential Audits Sub-Program.

Integration with RCx

Energy Efficiency measures recommended in audit reports comprise three categories defined by their relative cost for implementation – no cost, low cost and capital projects. Integrated audits will be a primary source of leads for potential RCx projects, which assist customers with implementation of no cost and low cost EE measures. In return, RCx contractors, as appropriate, will also recommend that customers pursue a full Integrated Audit before embarking on RCx efforts. In the 2009 – 2011 Non-Residential Audits Sub-Program, cross training and coordination between Integrated Audits and RCx will be increased to encourage optimum effectiveness in achieving an integrated offering.

To encourage implementation of energy audit recommendations, SDG&E will also provide information to customers, such as contractor lists, financial resources and technical assistance, to make it easier for customers to take action in response to audit recommendations.

Energy Challenger Audit Tool

To implement the integrated audits for smaller customers, SDG&E has developed a Web-based audit (do-it-yourself or auditor-performed) that includes education on various demand side management solutions as well as greenhouse gas calculations. The Energy Challenger Tool will enable customers to conduct their own energy audits by logging onto the SDG&E Website. It will be the primary tool to provide energy efficiency and greenhouse gas information and analyses to small to medium-sized customers. Customers will supply account information, zip code or a telephone number, which will calibrate the tool for their specific microclimate. Additional questions, presented through the latest online graphic interface, will provide robust customization of their end energy use (e.g., type of business, type of residential building, hours of operation, number of inhabitants, etc.). Energy Challenger will specifically address potential measures that qualify for rebates and incentives and provide simple payback information.

SDG&E is planning to participate in the development of the Universal Energy Audit Tool (UEAT) with the other IOUs. The UEAT will provide a portfolio of audits that are easily accessible to SDG&E program managers. It will provide them with unified data resources, a central repository of recommendations and algorithms, and an interface to enable customization of energy audit formats to meet specific customer needs.

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

Historical data from the UEAT, from previous energy audits and efficiency projects implemented at their own facilities, will be accessible to all residential and nonresidential SDG&E customers via Web-based tools.

e. Integrated/Coordinated Demand Side Management:

The Non-Residential Audits Sub-Program will offer Integrated Demand-Side Management (IDSMS) solutions to SDG&E customers to optimize energy consumption in California and deliver significant environmental benefits. Audit reports will offer an array of no-cost, low-cost and capital-intensive actions to provide customers with an array of choices on how to invest in energy efficiency, demand response and distributed generation. The program will integrate demand-side energy management opportunities to ensure that the customer has the information available to make a cost-effective, productive decision that meets his/her business requirements and goals.

The Non-Residential Audits Sub-Program is a core strategy of an overall integrated customer approach. It features a technical and comprehensive survey of energy utilization throughout the customer facility, providing a system view of equipment and processes that consume energy. In this holistic system view, four discrete components of the Strategic Plan (Energy Conservation, Energy Efficiency, Demand Reduction and Self Generation) are evaluated concurrently in various combinations. These combinations will be reviewed for their logical order and customer benefits, and then presented to the customer in the recommendations section of the integrated audit's final report.

The audit will be composed of a site survey, plant operating parameters, and customer input to produce a final energy audit report. The report's recommendations will be optimized to achieve energy savings, reduce environmental impacts and increase productivity and economic viability for the participating customer.

During the integrated audit process, an auditor will analyze and describe multiple energy efficiency, time-of-use management, demand response, and self-generation measures and recommendations. Then, working with the customer, the auditor will optimize a course of action utilizing the SDG&E portfolio to craft an integrated solution that is tailored to the customer's specific business needs and requirements.

The following examples illustrate how the integrated process will be implemented utilizing available programs and services:

- After an Integrated Audit is completed, no-cost/low-cost energy conservation measures may be transferred to the Retro-commissioning program for implementation.

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

- Capital investment measures selected by a customer will become subject to a more rigorous calculation of energy savings under the Saving Calculation Assistance service. These calculations may accompany a customer application to the Deemed or Calculated Sub-Program to implement a retrofit project.
- Demand response measures can be evaluated for their applicability to load shifting and demand response events.
- Distributed generation opportunities and benefits will be presented to the customer with particular references to respective incentive programs.

Non-Residential Audits will support the Commercial, Industrial, and Agricultural sectors by developing sector experts among external resources such as third-parties, University internship programs, and municipal utilities, and by offering on-line audit tools. In addition, Integrated Audits will be offered to large customers. To deliver an Integrated Audit, SDG&E Engineers will work with assigned SDG&E customer account representatives and the audited firm project leads. This team will translate sector specific market and technical information into a strategic energy resources plan by incorporating Energy Conservation, Energy Efficiency, Demand Response and Self Generation.

SDG&E will continue to partner with the Local Government Partnerships program by offering Integrated Audits to qualified governmental agencies as it has during the 2006 – 2008 Program. In the future, this effort will increase the number of Regional, County and City aggregated audits to establish a strategic plan for these customers and better integrate DR and Self Generation with Energy Conservation and Energy Efficiency. These customers often have multiple accounts that do not meet the demand threshold for on-site audits on their own, but when aggregated they can constitute one of the largest energy consumers in the area.

SDG&E will provide training and guidance to Third Party program vendors to broaden their audit focus beyond their program offering in order to identify potential in other end use systems. In this way SDG&E will minimize inefficient and, to the customer, the hassle of multiple visits. Expanding the scope of Third Party program vendor audits will provide customers with additional opportunities through combinations of equipment upgrades in conjunction with other Third Party programs.

Both basic and integrated audits will refer customers to appropriate Third Party program vendors based on audit report recommendations. The SDG&E Call Center and Account Representatives will provide this service. In addition, the future UEAT (on-line audit tool) will provide potential opportunities via automated selection based on survey input.

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

f. Integration across resource types (energy, water, air quality, etc):

A comprehensive audit marketing plan will be aligned and coordinated with the marketing plans for each of the resource programs in order to maximize effectiveness, integrate offerings, and, where appropriate, refer customers to relevant DSM programs. SDG&E will also look to partner with interested public and governmental bodies to proactively promote energy efficiency and environmentally responsible actions, in partnership with programs such as the local government partnerships and green communities.

Integrated Audits will serve as the foundation for integrated offerings by providing a truly comprehensive energy assessment to customers, providing them information and recommendations around energy efficiency, distributed-generation, demand response, environmental programs, such as the Cool Planet program, and other relevant programs. SDG&E will provide customers with a complete picture of their energy usage, options for reducing costs and using energy more efficiently, and direct them to programs that meet their needs and situation.

Marketing collateral and messages for energy efficiency will be integrated with other SDG&E programs. Through additional market segmentation and feedback from customers, SDG&E will further adjust approaches based on the varied needs of targeted customers.

Services from the Non-Residential Audits Sub-Program may also be available to low income energy efficiency and third party program staff and customers.

g. Pilots:

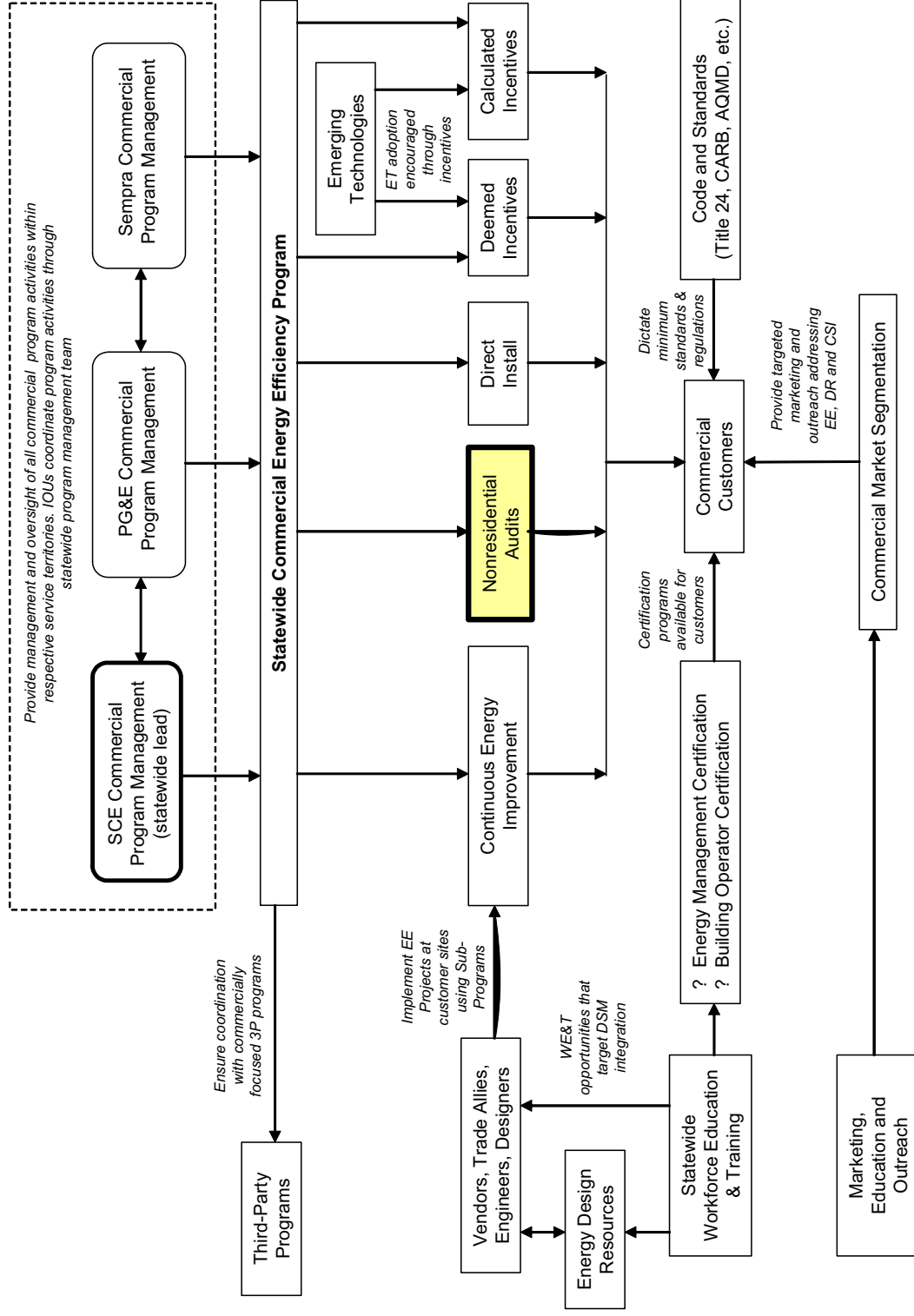
There are no pilots associated with the Non-Residential Audits Sub-Program.

h. EM&V:

The Non-Residential Audits Sub-Program managers will work with SDG&E EM&V group and initiate studies that will help validate saving claims, and identify market potential and program improvements.

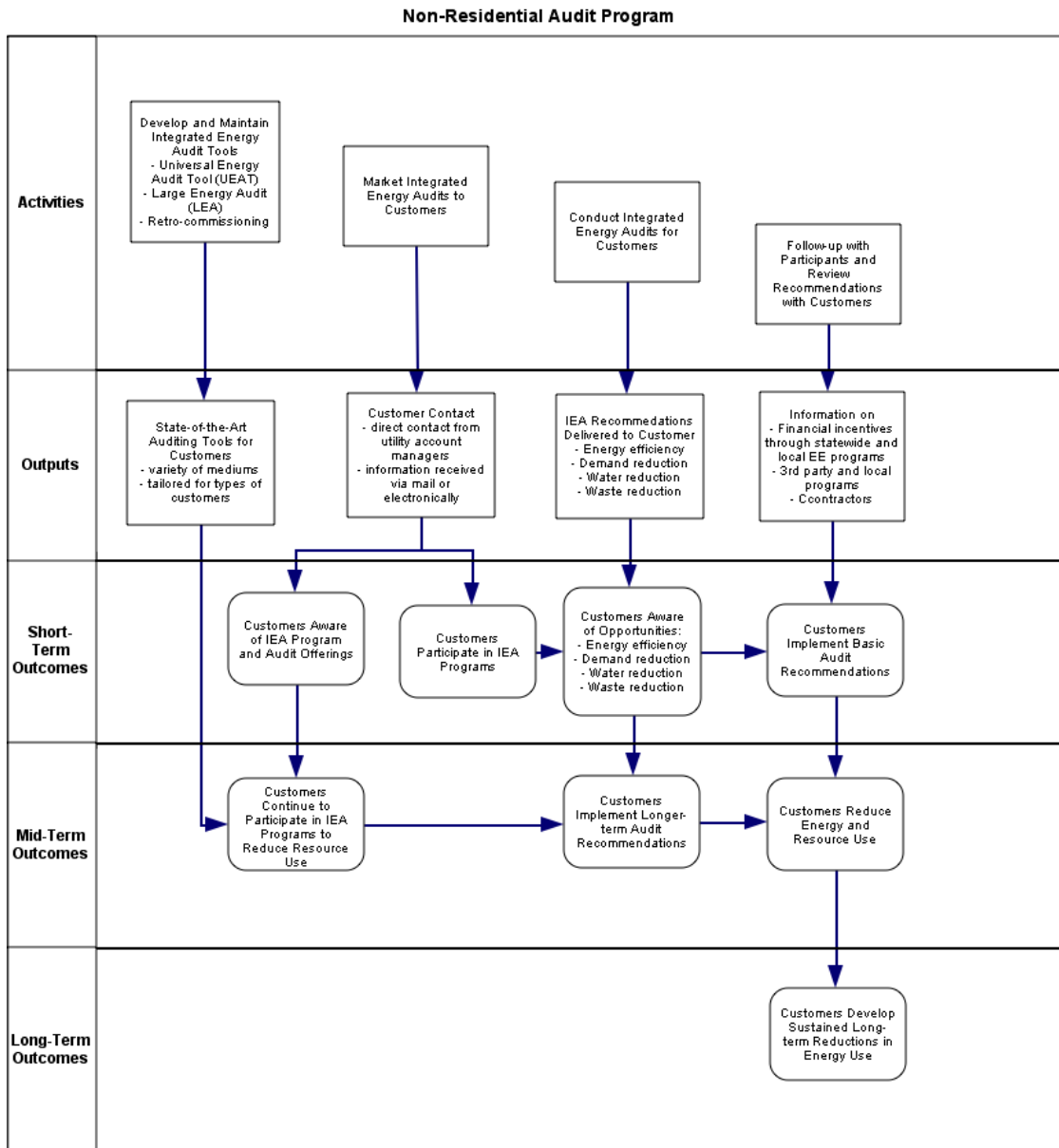
# 2009–2011 Energy Efficiency Programs Statewide Commercial Energy Efficiency Program Program Implementation Plan

7. Diagram of Program



# 2009–2011 Energy Efficiency Programs Statewide Commercial Energy Efficiency Program Program Implementation Plan

## 8. Program Logic Model





**2009–2011 Energy Efficiency Programs  
Statewide Commercial Energy Efficiency Program  
Program Implementation Plan**

1. Program Name: Commercial Direct Install  
Program ID#: TBD  
Program Type: Sub-Program

2. Projected Program Budget Table

**Table 1<sup>1</sup>**

Program #	Main Program Name / Sub-Programs	Total Administrative Cost (Actual)	Total Marketing & Outreach (Actual)	TOTAL Direct Implementation	Integration Budget Allocated to Other Programs (if Applicable)	Total Budget By Program (Actual)
<b>Market Sector Programs</b>						
	Core Program #1					
	Sub-Program #1					
	Sub-Program #2					
	Sub-Program #3					
	Sub-Program #4					
	Etc.					
	<b>TOTAL:</b>					

These budget numbers are presented in Appendix F: Energy Division Tables, Graphs & Pie Charts: Table 7.1 - 2009 - 2011 IOU Strategic Planning Program Budget.

3. Projected Program Gross Impacts Table2 – by calendar year

**Table 2**

Program #	Program Name / Sub-Programs	2009 - 2011	2009 - 2011	2009 - 2011
		Three-Year EE Program Gross kWh Savings	Three-Year EE Program Gross kW Savings	Three-Year EE Program Gross Therm Savings
<b>Market Sector Programs</b>				
	Core Program #1			
	Sub-Program #1			

<sup>1</sup> Definition of Table 1 Column Headings: Total Budget is the sum of all other columns presented here  
Total Administrative Cost includes all Managerial and Clerical Labor, Human Resource Support and Development, Travel and Conference Fees, and General and Administrative Overhead (labor and materials).  
Total Direct Implementation – includes all financial incentives used to promote participation in a program and the cost of all direct labor, installation and service labor, hardware and materials, and rebate processing and inspection used to promote participation in a program.  
Total Marketing & Outreach includes all media buy costs and labor associated with marketing production.  
Integrated Budget Allocated to Other Programs includes budget utilized to coordinate with other EE, DR, or DG programs.

Total Budget is the sum of all other columns presented here  
Definition of Sub-Program: A “sub-program” of a program has a specific title; targets; budget; uses a unique delivery or marketing approach not used across the entire program; and for resource programs, has specific estimated savings and demand impacts.

<sup>2</sup> For all-electric IOUs, the therm column should include interactive effects.

**2009–2011 Energy Efficiency Programs  
Statewide Commercial Energy Efficiency Program  
Program Implementation Plan**

Program #	Program Name / Sub-Programs	2009 - 2011	2009 - 2011	2009 - 2011
		Three-Year EE Program Gross kWh Savings	Three-Year EE Program Gross kW Savings	Three-Year EE Program Gross Therm Savings
	Sub-Program #2			
	Sub-Program #3			
	Sub-Program #4			
	Etc.			
	<b>TOTAL:</b>			

These savings values are presented in Appendix F: Energy Division Tables, Graphs & Pie Charts: Table 7.2 - IOU 2009 - 2011 Program Savings Estimates.

4. Program Description

- a) The Direct Install Sub-Program delivers free energy efficiency hardware retrofits through installation contractors to reduce peak demand and energy savings to commercial customers with monthly demand of less than 100 kW. The program targets very small and small businesses (those with monthly demand of less than 100 kW) in a staged delivery approach that provides program services in specific geographic areas at different times allowing for a more concentrated, directed, and yet comprehensive program.
- b) Direct Install will implement selected measures at no cost to the customer. Eligible measures include:
  - Lighting
  - Air conditioning equipment
  - Refrigeration - Gaskets, auto-closers, and strip closers
  - LED Exit Signs
- d) The sub-program provides a complete turnkey solution for the customer, including equipment purchasing, installation, clean-up and disposal. In addition, information about the installed measures is provided to the customer that explains the energy efficiency benefits they received and proper operation and maintenance practices to ensure sustained performance.

5. Program Rationale and Expected Outcome

- a) Quantitative Baseline and Market Transformation Information:

**Table 3**

	Baseline Metric		
	Metric A	Metric B	Metric C
Overall Program			
Sub Program #1			

**2009–2011 Energy Efficiency Programs  
Statewide Commercial Energy Efficiency Program  
Program Implementation Plan**

	Baseline Metric		
	Metric A	Metric B	Metric C
Sub Program #2			
Sub Program #3			

Refer to the overarching PIP section

b) Market Transformation Information:

**Table 4**

	Internal Market Transformation Planning Estimates		
Market Sector and Segment	2009	2010	2011
Metric A			
Metric B			
Metric C			
Metric D			

Refer to the overarching PIP section

- c) Program Design to Overcome Barriers: Small businesses are a significant source of untapped energy-efficiency potential. The primary barriers to participation include limited capital resources, lack of expertise and understanding of the benefits of energy efficiency, a suspicion of the “free offer” and its legitimacy, and generally higher interest rates for smaller customers.

In addition, the majority of these customers occupy short-term leased facilities. Consequently, there is also a split incentive barrier to adoption of energy efficiency improvements. Split incentives occur when the customer and owner do not own the same equipment they pay bills for (e.g. the landlord owns the HVAC equipment and the customer pays utility bills for it).

While these customers may be eligible for other elements such as the itemized retrofit incentive, the primary barriers beyond some cost reduction to participation by very small and small commercial customers are not addressed by that program. The No-Cost Installation element addresses these barriers by providing all equipment and installation services at no charge to the customer.

Additionally, the Program has team members fluent in the languages spoken and familiar with the cultures in its territory to pro-actively working to bridge cultural and language barriers to understanding the benefits of energy efficiency, overcoming the suspicion of the “free offer” and its legitimacy.

- d) Quantitative Program Targets: The Nonresidential Direct Installation Program plans to complete an estimated 77,000 retrofit installations during the 2009-2011

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

timeframe. This estimate is based on the experience gained during the 2006-2008 Direct Installation Program.

**Table 5**

Program Name	Program Target by 2009	Program Target by 2010	Program Target by 2011
Target #2			
Target #3			
Target #4			

- e) Advancing Strategic Plan goals and objectives: In accordance with the CLTEESP, this sub-program advances comprehensive energy efficiency, including:
- Integrating marketing and outreach to the commercial customer sector
  - Integrating the approach to better maximize savings and minimize lost opportunities
  - Identifying the most promising technologies that can play a role of providing multiple solutions, for energy efficiency.
  - Cross-promoting other energy efficiency (e.g. Workforce, Education & Training) and demand response programs.

6. Program Implementation

The Direct Install Sub-Program will deliver free energy efficiency retrofits to small commercial customers with a monthly demand less than 50 kW. The program is designed to increase the adoption of energy-efficiency measures by small and hard-to-reach commercial customers by offering onsite audits and free installation of low-cost energy efficient equipment. SDG&E will contract with a third-party vendor to deliver program services. To enroll customers in the program, Contractor staff will go door-to-door at areas of high business concentration to provide services on the spot. For chain stores, Contractor will market the program at the corporate level.

The program will offer the following services free of charge to qualifying customers:

- Lighting: Replace existing incandescent or low-efficiency CFLs with high-efficiency lamps.
- HVAC Quality Maintenance: Perform maintenance tune-ups, such as economizer repair, refrigerant charging, filter replacement, and coil cleaning.
- Motors: Install timers to automatically shut off motors during the periods of non-activity.

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

- Refrigeration: Insulate or replace damaged insulation on refrigerant lines serving walk-in and/or reach-in refrigerators, coolers and freezers.
- Water Heating:
  - (i) Insulate or replace damaged insulation on water pipes.
  - (ii) Replace Standard rinse-heads with low-flow rinse- heads. All standard shower heads will be replaced with shower heads with 2.5 gallons per minute (gpm) flow rate or lower.

The Program will also provide technical assistance to small business owners so that they can continue equipment upgrades and maintenance on their own and pursue other appropriate SDG&E's Energy Efficiency and Demand Response programs. Such non-resource services will include:

- Energy Audits
- Facility operators/owners training
- A printout report provided to the customer onsite that describes installed measures and recommends future measures and their associated energy savings.

Further Information

- For information on sub-program design to overcome market barriers, please refer to PIP section 5.c.
- For information on sub-program targets, please refer to PIP section 5.d.
- For information on how the sub-program advances the Strategic Plan, please refer to PIP section 5e.

a) Statewide IOU Coordination:

The Direct Install Sub-Program will follow the process for Statewide IOU Coordination described in Section 6.0.a.

b) Program delivery and coordination

i. Emerging Technologies program

To meet California's future energy efficiency goals, both in terms of overall usage, greenhouse gas reductions, and peak demand usage, new technologies and new applications of technology are needed. The Direct Install will seek support from ETP's incubation and development of new technologies to discover new low cost efficiency measures appropriate for free installation to small business customers. ETP will provide the pipeline of new technologies that Direct Install will require in maintaining a robust selection of low cost/no cost energy savings equipment. The program will look to ETP to provide customers with technology information, validating effectiveness as an unbiased and neutral expert.

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

ii. Codes and Standards program

The Direct Install Sub-Program will rely on Codes and Standards to maintain an updated and relevant list of measures that support savings. Therefore, it can be assured that the measures offered by the program will be installed to meet or exceed minimum Title 24 standards. In addition, as Codes and Standards evolve, the Direct Install Sub-Program will act to align itself with appropriate offerings.

iii. WE&T

In support of Workforce Education and Training (WE&T) efforts, SDG&E's third-party contractor will work with appropriate small businesses (such as retail stores) to assist them in promoting CFL and other efficient lighting products to their customers. Contractor staff will provide all business owners with a walk through audit of energy-efficiency measures, including those that require some capital investment. These one-on-one workforce education and training activities are in line with statewide WE&T efforts.

iv. Program-specific marketing and outreach efforts

The program will be marketed door-to-door using multilingual staff members. Market research has shown that face-to-face interactions at individual facilities are a very effective way of delivering energy efficiency to owners/operators of small businesses. The face-to-face interaction allows business owners to see what is being done to improve energy efficiency. Small business owners more readily accept energy efficiency if they are shown how improving their energy use contributes to improving other facets of their business, such as customer comfort and the employee performance and productivity. For example, in retail stores, proper lighting and space conditioning can actually keep shoppers in the store longer, thereby increasing sales. Similarly, in restaurants it can be shown that energy efficient window measures can allow customers to sit next to windows during the middle of summer or the middle of winter without complaints about being "too hot" or "too cold."

In addition to the door-to-door marketing, a database of eligible businesses within SDG&E's service territory will be compiled using internet yellow pages or Google search results. Program flyers will be mailed out to targeted market sector businesses from the compiled database.

v. Non-energy activities of program

Please refer to Section 6.0.b.v for details.

vi. Non-IOU Programs

Please refer to Section 6.0.b.vi for details.

## **2009–2011 Energy Efficiency Programs Statewide Commercial Energy Efficiency Program Program Implementation Plan**

### vii. CEC work on PIER

As appropriate, the Direct Install Sub-Program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency installation. Operating within the limitations of the program, Direct Install program managers will work with PIER and ETP on researching new technologies for evaluation and testing for application in mainstream projects.

### viii. CEC work on codes and standards

Please refer to Section 6.b.viii.

### ix. Non-utility market initiatives

Please refer to Section 6.0b.ix.

### c) Best Practices:

The Direct Install Sub-Program design incorporates various best practice elements. Specific items include:

- Direct door-to-door marketing approach: This approach has been identified as one of the best practices for marketing energy-efficiency to small, hard-to-reach customers.
- Program Theory and Design: The program has a sound program plan, links its strategic approach to policy objectives and constraints, conducts market research, and maintains program design flexibility to respond to changes in the market and other factors.
- Program Management - Project Management: The program clearly defines program management responsibilities (Contractor is the sole provider) to avoid confusion as to roles and responsibilities and uses well-qualified engineering staff.
- Outreach: The program keeps messaging and participation simple for the customer.
- Customer-Focus: The program maintains a high level of customer service by providing customers with technical assistance, personalized audits, and direct installation of measures at no cost.

### d) Innovation

Innovative aspects of the Direct Install Sub-Program include the face-to-face marketing approach and free installation of energy efficiency measures. In addition, many small businesses are expressing an interest in the adoption of advanced

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

technologies, such as LED lamps, T-12 to T-8 retrofits and demand response enabling technologies. Working with the Emerging Technologies Program, the Direct Install Sub-Program will consider incorporating these types of products and potentially offering customers cost sharing or co-pay opportunities for higher cost measures.

e) Integrated/coordinated Demand Side Management:

The Direct Install Sub-Program is designed for small business customers with monthly demand less than 50kW. Therefore, the potential for demand response and on-site generation is not high for these customers. However, an explicit goal of the program is to provide information about SDG&E's energy efficiency and demand response offerings so that customers can elect to participate if appropriate to their goals and needs.

f) Integration across resource types

Opportunities to integrate program services across resource types (e.g., energy, water, and air quality) will be explored. Examples may include working with local water districts to co-promote appliances and irrigation equipment that saves water and energy and working with Air Quality Management Districts to co-promote boilers and water heating measures that save energy and improve air quality.

g) Pilots

There are no pilots associated with the Direct Install Sub-Program.

h) EM&V

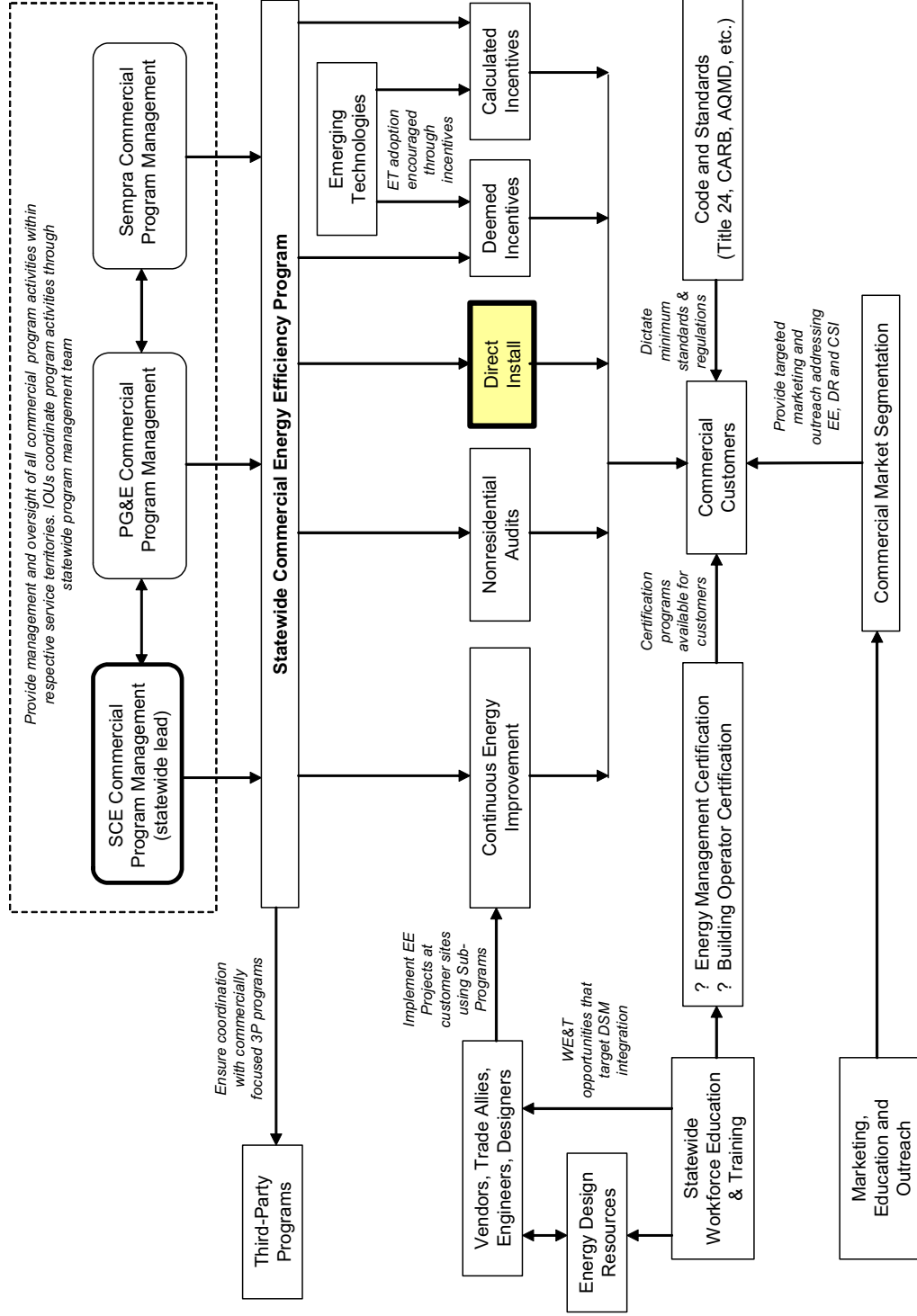
SDG&E is proposing to conduct market assessment/characterizations and process evaluations by market segments. Within each of these evaluations, a portion of the research will be assigned to third party contractors to ensure that the third party programs are being run efficiently and that their integration to the portfolio is effective.

There is no Efficiency Measurement & Verification (EM&V) process specified for the Direct Install Sub-Program. However, SDG&E's third-party contractor will maintain a comprehensive tracking system which will include each measure, installed or recommended, for each facility as well as the anticipated energy savings.



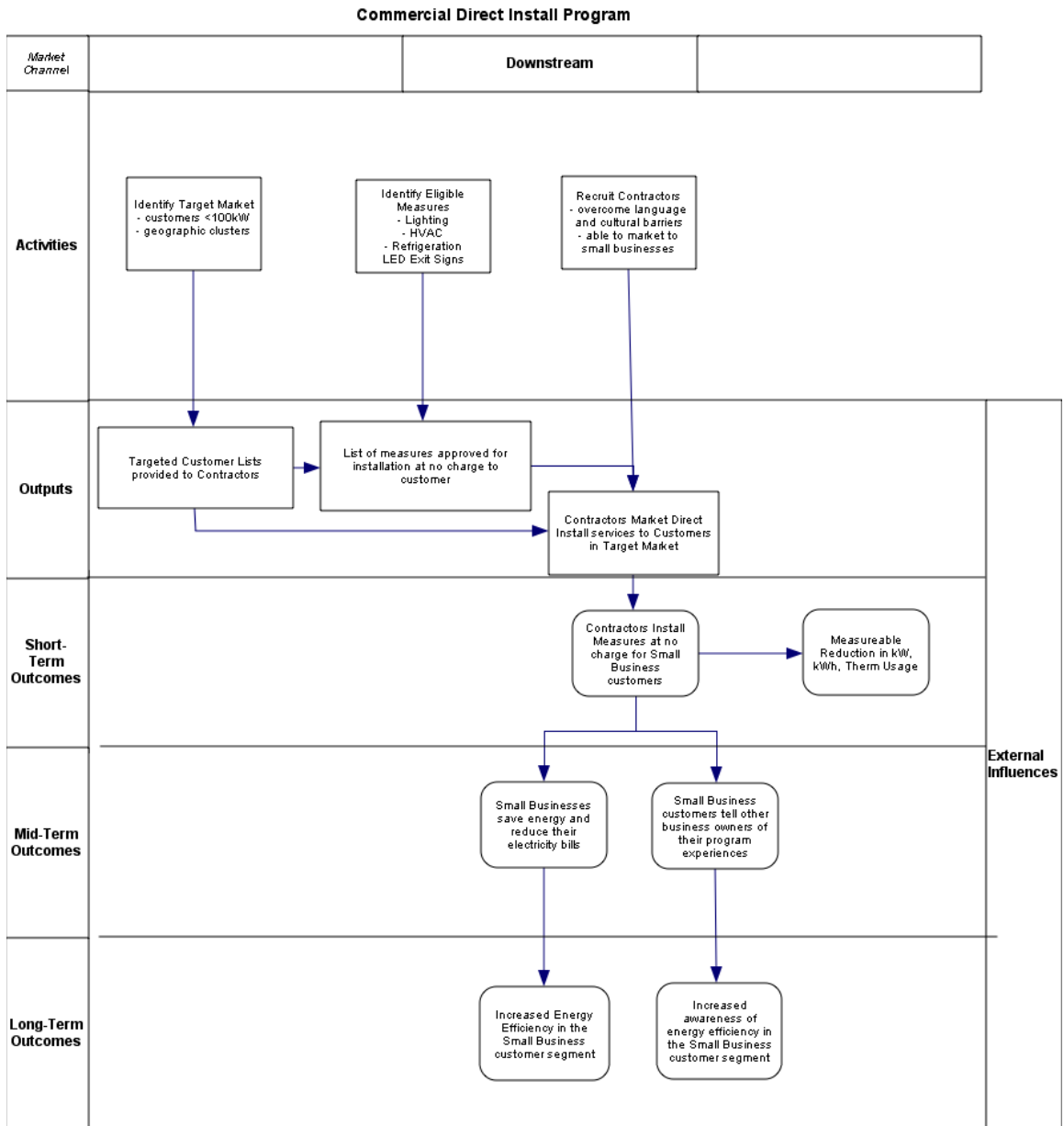
# 2009–2011 Energy Efficiency Programs Statewide Commercial Energy Efficiency Program Program Implementation Plan

7. Diagram of Program:



# 2009–2011 Energy Efficiency Programs Statewide Commercial Energy Efficiency Program Program Implementation Plan

## 8. Program Logic Model:



**2009–2011 Energy Efficiency Programs  
Statewide Commercial Energy Efficiency Program  
Program Implementation Plan**

1. Program Name: Continuous Energy Improvement  
Program ID#: TBD  
Program Type: Sub-Program

2. Projected Program Budget Table

**Table 1<sup>1</sup>**

Program #	Main Program Name / Sub-Programs	Total Administrative Cost (Actual)	Total Marketing & Outreach (Actual)	TOTAL Direct Implementation	Integration Budget Allocated to Other Programs (if Applicable)	Total Budget By Program (Actual)
<b>Market Sector Programs</b>						
	Core Program #1					
	Sub-Program #1					
	Sub-Program #2					
	Sub-Program #3					
	Sub-Program #4					
	Etc.					
	<b>TOTAL:</b>					

These budget numbers are presented in Appendix F: Energy Division Tables, Graphs & Pie Charts: Table 7.1 - 2009 - 2011 IOU Strategic Planning Program Budget.

3. Projected Program Gross Impacts Table<sup>2</sup> – by calendar year

**Table 2**

Program #	Program Name / Sub-Programs	2009 - 2011	2009 - 2011	2009 - 2011
		Three-Year EE Program Gross kWh Savings	Three-Year EE Program Gross kW Savings	Three-Year EE Program Gross Therm Savings
<b>Market Sector Programs</b>				
	Core Program #1			
	Sub-Program #1			

<sup>1</sup> Definition of Table 1 Column Headings: Total Budget is the sum of all other columns presented here  
Total Administrative Cost includes all Managerial and Clerical Labor, Human Resource Support and Development, Travel and Conference Fees, and General and Administrative Overhead (labor and materials).  
Total Direct Implementation – includes all financial incentives used to promote participation in a program and the cost of all direct labor, installation and service labor, hardware and materials, and rebate processing and inspection used to promote participation in a program.  
Total Marketing & Outreach includes all media buy costs and labor associated with marketing production.  
Integrated Budget Allocated to Other Programs includes budget utilized to coordinate with other EE, DR, or DG programs.

Total Budget is the sum of all other columns presented here  
Definition of Sub-Program: A “sub-program” of a program has a specific title; targets; budget; uses a unique delivery or marketing approach not used across the entire program; and for resource programs, has specific estimated savings and demand impacts.

<sup>2</sup> For all-electric IOUs, the therm column should include interactive effects.

**2009–2011 Energy Efficiency Programs  
Statewide Commercial Energy Efficiency Program  
Program Implementation Plan**

Program #	Program Name / Sub-Programs	2009 - 2011	2009 - 2011	2009 - 2011
		Three-Year EE Program Gross kWh Savings	Three-Year EE Program Gross kW Savings	Three-Year EE Program Gross Therm Savings
	Sub-Program #2			
	Sub-Program #3			
	Sub-Program #4			
	Etc.			
	<b>TOTAL:</b>			

These savings values are presented in Appendix F: Energy Division Tables, Graphs & Pie Charts: Table 7.2 - IOU 2009 - 2011 Program Savings Estimates.

4. Program Description

- a) Continuous Energy Improvement (CEI) is a consultative service that is aimed at helping large commercial customers engage in long-term, strategic energy planning. Corporate energy management is not currently part of normal business operations for the majority of utility customers and with current economic pressures forcing customers to reduce costs and focus more on their core business, it is likely to be further marginalized. CEI proposes to reintroduce the importance of energy management by transforming the market (and reducing energy intensity) through a comprehensive approach that addresses both technical and management opportunities and creates sustainable practices through a high-level energy commitment from executive and board-level management. CEI applies the principals of well-known business continuous improvement programs, such as Six Sigma and International Standards Organization (ISO) standards, to facility and plant energy management: (1) Commitment; (2) Assessment; (3) Planning; (4) Implementation; and (5) Evaluation and Modification. At each stage of customer engagement, there are a variety of complementary utility and non-utility products and services that can be customized to fit different customer profiles and optimize the cost effectiveness of the delivered energy management solution.

Commitment

CEI begins with a high-level management commitment to improving energy performance, which increasingly can be combined with other environmental and regulatory commitments that large energy users are developing in response to market and political pressures. A corporate commitment sends the top-down message to employees, partners, shareholders and vendors that energy is a priority issue requiring attention – like safety – and also paves the way for establishing the required company resources required to implement the steps of CEI. These resources can include capital, personnel like energy champions or teams, or technical systems and software required for energy management.

Gaining true customer commitment can take time, but is critical. In implementation, utilities will formalize the Commitment phase with larger or

## **2009–2011 Energy Efficiency Programs Statewide Commercial Energy Efficiency Program Program Implementation Plan**

more intensive customers through a CEI participation agreement, which outlines the utility CEI services being offered as well as minimum customer expectations.

### Assessment

Following Commitment, a comprehensive assessment is critical to identifying not only technical opportunities, but also systemic energy management practices and cultural shifts that can improve overall facility management practices and sustain continuous improvements towards long-term company targets.

There are many tools and resources - utility and non-utility, free and licensed – available to support comprehensive customer energy assessment. They include ENERGY STAR’s Guidelines for Energy Management, customer energy management assessment software products like those developed by Envinta, benchmarking tools, Integrated Energy Audits, and local and third-party programs who can offer specialized technical expertise and assessment.

Based on screening criteria, utilities will offer comprehensive energy assessment services utilizing, but not limited to, vetted sources like those described below, to develop a customer specific strategic energy plan.

- ENERGY STAR’s Guidelines for Energy Management is housed on the ENERGY STAR website and provides step by step guidelines to customers to support CEI in general, and also guides customers to ENERGY STAR’s numerous assessment tools. This option is a low cost resource for smaller and medium customers interested in CEI.
- Energy Management Assessment Tools such as Envinta’s One-To-Five, Achiever, and Challenger software products offer professionally facilitated energy management assessment with company decision makers and explores management practices and company priorities to develop a CEI roadmap for energy goals and actions.
- Integrated Energy Audits provide an inventory of technical facility end-uses and energy efficiency, demand response and self-generation investment opportunities. For a full description, see the Statewide Non-Residential Audits Sub-Program plan.
- Benchmarking can measure energy performance of a company, building, process, or piece of equipment to industry standards or comparable groupings. Benchmarking is a natural first step for the CEI process. Customers with multiple facilities find benchmarking useful to prioritize efficiency projects, track progress toward energy or green house gas (GHG) improvement goals or drive competition among similar benchmarked facilities. Units of measurement vary widely - for commercial buildings, the unit is energy used/square foot for a unit of

## **2009–2011 Energy Efficiency Programs**

### **Statewide Commercial Energy Efficiency Program**

#### **Program Implementation Plan**

time. Benchmarking can also be applied to other resources and environmental issues such as water use, CO<sub>2</sub>, and emissions.

#### Planning

Strategic energy planning involves setting energy goals and action plans around energy efficiency, demand response, and generation as appropriate.

Implementation of the Planning stage of CEI can be undertaken independently by the customer, or with utility support. Planning for larger complex customers will typically involve Account Representatives and/or consultants. As is discussed in the CLTEESP and in the Section 6.e below, strategic planning can also include complementary non-energy considerations as well, such as greenhouse gas (GHG) reductions, water efficiency, and waste-stream minimization, all of which have embedded energy components.

Data and findings from a comprehensive customer Assessment are critical in developing any comprehensive energy plan, including the results from technical audits or assessments, facility benchmarks, energy management assessments, and assessments of company priorities. This information is analyzed and used to develop realistic and achievable company goals and prioritized shorter-term tactics needed to achieve them. Energy plans should be living documents revisited and revised regularly.

Energy goals can vary widely and include elements such as resource utilization (Company X will reduce it's overall energy intensity by 3% over the next 3 years"), carbon reduction goals ("Company X will be carbon neutral by 2012"), or management oriented goals ("Company X will implement energy teams by 2010"). Goals can be internal documents or can be made public through press releases as part of larger sustainability plans, which is increasingly important for large and public companies.

CEI will assist customers in developing and implementing action plans to execute the prioritized near-term activities in support of their company's energy goals, as well as the resources, staff and schedule for tracking. Action plans typically includes activities such as prioritizing process systems or facilities based on benchmarking or company drivers, identifying internal resources required to implement plans, develop project justification and incentive application documentation lists and detailed schedules.

#### Implementation

In the implementation stage, utilities partner with customers to identify technical support and utility and non-utility resources available to support implementation of projects, such as rebates, incentives, third-party and government partnership programs, and state and national resources, including:

- Statewide Deemed rebates;

**2009–2011 Energy Efficiency Programs  
Statewide Commercial Energy Efficiency Program  
Program Implementation Plan**

- Statewide Calculated incentives for new construction/tenant improvement, retrofit and retro-commissioning/repair;
- Third-Party and Government Partnership programs (described in the statewide and local third party filings);
- Non-utility financing options; and
- Owners engineer support

Evaluation and Modification

Like in any continuous improvement program, evaluation is an ongoing process of comparing actual performance against company goals, targets and action plans. It may include repeating the benchmarking and system or facility baseline process annually, assessing advancements in organizational and management practices that facilitate energy management improvements, or evaluating cost savings per unit of product. Regular evaluation will inform changes to goals and action plans moving forward.

- b) CEI does not provide incentives to customers, but ultimately facilitates the customer’s implementation of energy efficiency projects through statewide incentive programs.
- c) CEI is a non-resource program that provides comprehensive strategic energy planning and consulting services for commercial customers. These services include: energy management assessments, energy planning, baselining and benchmarking, project implementation support, customer recognition (e.g. “corporate sustainability awards”), and web-based energy resources.

5. Program Rationale and Expected Outcome

- a) Quantitative Baseline and Market Transformation Information:

**Table 3**

	Baseline Metric		
	Metric A	Metric B	Metric C
Overall Program			
Sub Program #1			
Sub Program #2			
Sub Program #3			

Refer to the overarching PIP section

- b) Market Transformation Information:

**2009–2011 Energy Efficiency Programs  
Statewide Commercial Energy Efficiency Program  
Program Implementation Plan**

**Table 4**

	<b>Internal Market Transformation Planning Estimates</b>		
Market Sector and Segment	2009	2010	2011
Metric A			
Metric B			
Metric C			
Metric D			

Refer to the overarching PIP section

- c) Program Design to Overcome Barriers: CEI is intended to address several market barriers that prevent wider adoption of energy efficiency practices. These barriers include:
- Lack of information – The CEI evaluation and modification process provides data that customers can use to reevaluate their commitment and/or modify their energy goals.
  - Performance uncertainties – Through CEI’s comprehensive baselining and benchmarking assistance, customers will have access to real-time data that demonstrates how their facility is performing relative to their established goals.
  - Organizational customs – The high-level customer commitment that is at the core of CEI increases the likelihood that corporate cultures that prevent successful implementation of comprehensive energy policies will be changed.
- d) Quantitative Program Targets: CEI will achieve the following program targets:

**Table 5**

Program Name	Program Target by 2009	Program Target by 2010	Program Target by 2011

- e) Advancing Strategic Plan goals and objectives: The program will help to achieve the following near-term strategic goals as identified in the Commercial chapter of the CLTEESP:

2-1: State/Local Governments and Major Corporations Commit to Achieve EE Targets – CEI seeks to (1) gain corporate level commitment to energy efficiency as a core business operation; (2) develop corporate energy policies that establish measurable goals; (3) develop a actionable plan to achieve these goals; (4) guide



**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

customers to IOU programs that can help implement cost-effective EE projects; and (5) provide a feedback loop to measure performance. This codified process is designed to support the significantly greater energy efficiency performance desired by the CLTEESP.

2-5: Develop Tools to Reduce Energy in Commercial Buildings – As part of the implementation of CEI, the utilities will partner with energy industry peers, industry associations and DOE/CPUC sponsored labs and consultants, to enhance the use of existing tools, and develop new tools to assist commercial customers initially reduce energy usage at their facilities and then continue to operate their facilities in a efficient and persistent manner. Current tools used for benchmarking tools and resources include those developed by the EPA for Energy Star and by Lawrence Berkeley National Lab with CEC funding:

- Energy Star Portfolio Manager Commercial Benchmarking: Benchmarks customer facility against a national database of similar NAICS codes for an Energy Star score (0-100), kBtu/sq ft-yr, lbs CO<sub>2</sub>/yr.
- Management Standard for Energy SME2000-2008
- LBNL Superior Energy Performance

2-7: Develop Business Models to Deliver Energy Management Solutions – CEI’s fundamental purpose is to achieve corporate level commitments from commercial customers to change their existing business models to consider energy usage and sustainability as a core part of their daily operations. This level of commitment will help achieve greater penetration of energy efficiency in the commercial market sector.

## 6. Program Implementation

Continuous Energy Improvement (CEI) describes a statewide package of products and services aimed at helping customers engage in long-term, strategic energy planning. It proposes to transform the market and reduce energy intensity through a comprehensive approach that includes addressing both technical and management opportunities. A CEI approach applies the principals of well-known business continuous improvement programs, such as Six Sigma and International Standards Organization (ISO) standards, to facility and plant energy management. CEI principles are: Commit, Assess, Plan, Implement, Evaluate, and Modify.

At each stage of customer engagement, there are a variety of utility and non-utility products and services that can be offered to fit different customer profiles and optimize the cost effectiveness of each utility’s portfolios. During implementation, utilities will screen customers for certain CEI services based on factors such as customer energy use, complexity, number of facilities, energy decision making structure, environmental commitment, and demonstrated motivation to take action. Screening criteria and specific product offerings will be utility-appropriate.

## **2009–2011 Energy Efficiency Programs Statewide Commercial Energy Efficiency Program Program Implementation Plan**

CEI begins with a high level management commitment to improving energy performance, which increasingly can be combined with other environmental and regulatory commitments that large energy users are developing in response to market and political pressures. A corporate commitment sends the top-down message to employees, partners, shareholders and vendors that energy is a priority issue requiring attention (akin to safety) and also paves the way for establishing the required company resources required to implement the steps of CEI. These resources can include capital, personnel like energy champions or teams, and technical systems and software required for energy management.

Gaining true customer commitment can take time, but is critical to long-term energy savings. During implementation, utilities will formalize the Commitment phase with larger or more intensive customers through a CEI participation agreement, which outlines the utility CEI services being offered as well as minimum customer expectations.

Following Commitment, a comprehensive assessment is critical to identifying not only technical opportunities, but also systemic energy management practices and cultural shifts that can improve overall facility management practices and sustain continuous improvements towards long-term company targets.

There are many tools and resources - utility and non-utility, free and licensed – available to support comprehensive customer energy assessment. They include ENERGY STAR’s Guidelines for Energy Management, customer energy management assessment software products like those developed by Envinta, benchmarking tools, Integrated Audits, and local and statewide third parties who can offer specialized technical expertise and assessment. Based on screening criteria, utilities will offer comprehensive energy assessment services utilizing, but not limited to the sources described above, to develop a customer specific strategic energy plan:

Benchmarking, which measures the energy performance of a company, building, process or a piece of equipment to industry standards or comparable groupings, is a particularly useful tool to support a CEI process. Customers with multiple facilities can use benchmarking to prioritize efficiency projects, track progress toward energy or green house gas (GHG) improvement goals, or drive competition among similar benchmarked facilities. Benchmarking can also be applied to other resources and environmental issues such as water use, CO<sub>2</sub>, and water/air emissions.

Existing benchmarking tools include those developed by the EPA for ENERGY STAR and by Lawrence Berkeley National Lab with CEC funding. These include tools for Commercial facilities, Cement, Auto Assembly, and an LBNL Winery benchmarking tool. Under development is ENERGY STAR benchmarking tools for Food Processing, Glass Manufacturing, and Pharmaceutical Manufacturing, as well as an LBNL tool for Dairy Processing.

## **2009–2011 Energy Efficiency Programs Statewide Commercial Energy Efficiency Program Program Implementation Plan**

During implementation, the statewide Commercial, Industrial and Agricultural program teams will continue to partner with energy industry peers, industry associations and DOE/CPUC sponsored labs and consultants, to enhance the use of existing tools, and develop new tools for key California industries.

### CEI Planning

Strategic energy planning involves setting energy goals and action plans around energy efficiency, demand response, and generation as appropriate. The CEI Planning stage can be undertaken independently by the customer or with utility support. Planning for larger, complex customers will typically involve Account Representatives and/or consultants. As discussed in the Strategic Plan, strategic planning can also include complementary non-energy considerations, such as greenhouse gas (GHG) reductions, water efficiency, and waste-stream minimization, all of which have embedded energy components.

Data and findings from a comprehensive customer Assessment are critical in developing a comprehensive energy plan. A comprehensive Assessment can include the results from technical audits or assessments, facility benchmarks, energy management assessments, and assessments of company priorities. This information will be analyzed and used to develop realistic and achievable company goals and prioritized shorter-term tactics needed to achieve them. Energy plans should be living documents revisited and revised regularly.

Energy goals can vary widely and include elements such as resource utilization (Company X will reduce its overall energy intensity by 3% over the next 3 years”), carbon reduction goals (“Company X will be carbon neutral by 2012”), or management oriented goals (“Company X will implement energy teams by 2010”). Goals can be internal documents or can be made public through press releases as part of larger sustainability plans, which is increasingly important for large and public companies.

CEI will assist customers in developing and implementing action plans to execute the prioritized near-term activities in support of their company’s energy goals, as well as the resources, staff and schedule for tracking. Action plans typically includes activities such as prioritizing process systems or facilities based on benchmarking or company drivers, identifying internal resources required to implement plans, develop project justification and incentive application documentation lists and detailed schedules.

### CEI Implementation

In the implementation stage, utilities will partner with customers to identify technical support and utility and non-utility resources available to support implementation of projects, such as rebates, incentives, third-party and government partnership programs, and state and national resources. These resources may include:

- Statewide Deemed rebates

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

- Statewide Calculated incentives for new construction/tenant improvement, retrofit and retro-commissioning/repair
- Third Party and Government Partnership programs (described in the statewide and local third party filings)
- Non-utility financing options and owner’s engineer support

CEI Evaluation and Modification

As with any continuous improvement program, evaluation is an ongoing process of assessing actual performance against company goals, targets and action plans. It may include repeating the benchmarking process and system or facility baseline process annually, assessing advancements in organizational and management practices that facilitate energy management improvements, or evaluating cost savings per unit of product. Regular evaluation will inform changes to goals and action plans moving forward. As with other information and education sub-programs, CEI will be primarily delivered by IOU customer energy efficiency staff and contractors, service and sales representatives, website and marketing and outreach efforts. Other channels of delivery may be developed.

CEI will be available to all non-residential customers meeting certain eligibility criteria to justify the cost of the offering. Criteria will be utility-specific and may include customer energy use, complexity, number of facilities, energy decision making structure, environmental commitment or demonstrated motivation. Marketing and outreach plans include training of the IOU in-house staff and customer groups. Collateral materials such as fact sheets, how-to documents, and Power Point slides will be produced and distributed during sales calls, public events or trade shows.

CEI will include the CEC’s PIER and Green Building Initiative programs, DOE’s “ISO plant certification” programs, EPA ENERGY STAR Portfolio Manager benchmarking and other programs, USGBC LEED certification, and other government incentive programs as applicable.

For information on measures offered under this sub-program, please refer to PIP section 4.b.

Further Information

- For information on sub-program design to overcome market barriers, please refer to PIP section 5.c.
- For information on sub-program targets, please refer to PIP section 5.d.
- For information on how the sub-program advances the Strategic Plan, please refer to PIP section 5e.

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

a) Statewide IOU Coordination:

The Statewide IOU Coordination process is described in Section 6.0.a, and will be followed by this sub-program. By following this process, the CEI Sub-Program managers will play a critical role in ensuring unified implementation on a statewide-level over the course of the three year implementation cycle. Sub-program innovations and challenges will also feed productively into the higher-level Steering Committee process, where the IOU lead will act as participant and conduit between Steering Committee members, sub-program managers, and managers of cross-cutting programs.

b) Program Delivery and Coordination

i. Emerging Technologies Program

CEI implementation shall include identification and project development at specific customer sites, which will provide opportunity for Emerging Technologies program participation, demonstrations and incentives.

ii. Codes and Standards Program

CEI implementation shall include information about new Codes and Standards that may affect planning or prioritization of retrofit or new construction projects.

iii. WE&T

CEI implementation will coordinate with Workforce Education and Training efforts by providing CEI process and case study input to “energy engineer” curriculum designers for Community Colleges and Universities.

iv. Program-specific marketing and outreach efforts (budget provided in Table 1)

The CEI Sub-Program will be marketed through Account Executives, as well as through educational, outreach and other marketing activities. Marketing activities will target business customers, ESCOs, trade associations, local business groups and government entities to generate interest and program participation. In addition, direct customer contact by Account Executives, Demand Response Program outreach, phone and email support will be provided.

In 2009-2011, marketing campaigns will provide a wide range of action-oriented solutions targeted to “personas” identified through segmentation research. In addition, marketing efforts will be “bundled”. That is, a menu of demand response, energy efficiency and conservation programs will provide

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

customers a full array of EE and DR options. By providing packaged energy management solutions for each industry segment the IOUs will be better able to communicate with and serve customers.

Marketing efforts will incorporate a variety of marketing tactics and activities to promote the CEI Sub-Program. Education, awareness and outreach efforts will rely on a combination of mass media communication channels and targeted communication channels to ensure that messages reach the intended audiences with enough frequency to motivate attitude and behavior changes. The marketing strategies may include, but are not limited to, a mix of print, radio, TV, direct mail, e-mail, personal contact, trade shows, trade association meetings, customer workshops and seminars, energy related and other community events and partnerships with business and industry organizations, specialized collateral, case studies, website links and information with regular updates, bill inserts, press releases, and newspapers.

The ideal marketing mix will be assessed for maximum awareness and participation. Marketing and outreach coordination will be coordinated among the IOUs utilizing the statewide coordination process described above.

v. Non-energy activities of program

CEI implementation shall include non-resource activities such as recognition awards, local area or sector competitions, awareness campaigns, education about non-energy related LEED points and definitions, use of computerized financial analysis tools and cost estimating and forecasting tools. Please also refer to PIP section 6.0b.v for more details.

vi. Non-IOU Programs

CEI implementation shall include information on non-IOU Programs to expose customers to funding, such as from air or water agencies to support efforts. The CEI Sub-Program managers will scan the programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to share program information and marketing collateral with customers. In the past, each government agency and utility has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type.

In the effort to promote inter-agency cooperation toward achievement of mutual goals, IOUs will seek out managers of applicable resource programs to see if there are opportunities to present utility programs along with non-energy applications. For example, utility program managers will contact the local water districts to share marketing collateral, attend trade shows, and co-release notices, for programs with interactive water and energy effects. Similarly, with ARB and Air Quality Management Districts, IOUs will offer customers CEI

**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

Sub-Program incentives for energy efficient equipment that may also reduce air emissions.

vii. CEC work on PIER

CEI implementation will include information on the CEC's work on PIER to expose customers to demonstration or research projects and funding.

viii. CEC work on codes and standards

Please refer to PIP section 6.0b.viii.

ix. Non-utility market initiatives

Non-utility market initiatives such as education about Federal Tax incentives for energy efficiency investments are an example of a non-utility information and guidance that CEI sub program will provide to customers.

c) Best Practices:

The CEI approach applies the principals of well-known business continuous improvement programs, such as Lean Six Sigma and ISO standards, to facility and plant energy management. The CEI principles are: Commit, Assess, Plan, Implement, Evaluate, and Modify. This approach can now be successfully implemented given the three year program cycle, which allows longer term and deeper project development engagements with customers.

d) Innovation:

Continuous Energy Improvement is a new way of packaging energy efficiency, demand response and self-generation products and services and is aimed at helping customers engage in long-term, strategic energy planning. CEI proposes to transform the market and reduce energy intensity through a comprehensive approach that includes addressing both technical and management opportunities.

e) Integrated/coordinated Demand Side Management:

CEI includes project analysis and implementation support of recommendations of Integrated Audits, which provide customers with an inventory of facility end-use breakdown of energy efficiency, demand response and self-generation investment opportunities. Over the last few years, traditional DSM programs have learned that successful customer participation in one program leads to a likelihood of repeat participation in the same program. Additionally, this successful participation makes these customers likely candidates for other similarly related types of programs. While a successful program experience leads to repeat participation, there has been difficulty in cross pollinating similarly related types of programs with these

## **2009–2011 Energy Efficiency Programs Statewide Commercial Energy Efficiency Program Program Implementation Plan**

candidates due to program-specific silos. To overcome the historic silos of DSM, the CEI Sub-Program will leverage lesson's learned from IDSM efforts by offering comprehensive, coordinated marketing and program delivery.

A primary issue when integrating energy efficiency and demand response programs is that the two programs are at financial odds with one another, as both programs often reduce the potential for each other's financial incentives. For example, energy efficiency may reduce the overall baseline by which the demand response program's incentives are based upon. Since benefits from long term energy savings derived from technological measures outweigh the temporary demand reduction benefits derived from behavioral actions, the CEI Sub-Program will offer additional incentives for energy efficiency measures that enable demand response when customers enroll, or are already enrolled, in demand response programs. In so doing, the program seeks to maximize the potential for both types of programs.

A secondary issue when integrating energy efficiency and demand response programs is that communications of both types of DSM program are often non-coordinated, since energy efficiency is typically technology based and demand response is often focused on behavior. Also, demand response efforts often happen prior to the summer "event season" and wane throughout the remainder of the year. To overcome these differences, the Program will offer integrated and coordinated year-round marketing through consolidates applications, collateral, web sites, and events, where applicable.

Through bundling program elements and offering one program application, customers will have the opportunity to enroll in demand response programs in addition to energy efficiency programs.

To support the integration of energy efficiency and demand response programs, the Program will focus on several tactics:

- Promotion and incentives of demand response enabling energy efficiency measures to ensure that energy efficiency is completed first to maximize potentials.
- Integrated and coordinated year-round marketing (e.g. Applications, collateral, web sites, and events).
- Linking of program eligibility requirements (e.g. Customer size).
- Provide unified technical assistance through enhanced EE/DR Audits through the TA Program to allow for cross-harvesting opportunities.
- Integrated presence on utility websites.
- Regular coordination meetings between energy efficiency and demand response program management.



**2009–2011 Energy Efficiency Programs**  
**Statewide Commercial Energy Efficiency Program**  
**Program Implementation Plan**

During the current cycle, funding for energy efficiency and demand response must remain non-commingled; therefore payments will be split between the two programs as appropriate.

f) Integration across resource types (energy, water, air quality, etc.):

CEI implementation shall include information on non-IOU programs to expose customers to funding, such as from air or water agencies to support efforts. IOU CEI Sub-Program managers will review the programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to share program information, marketing collateral and financial incentive analysis with customers. In the past, each government agency and utility has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type. For customers who are regulated by or interested in more than one resource issue, CEI will inform customer about the mutual benefit of combining complementary resource programs.

g) Pilots:

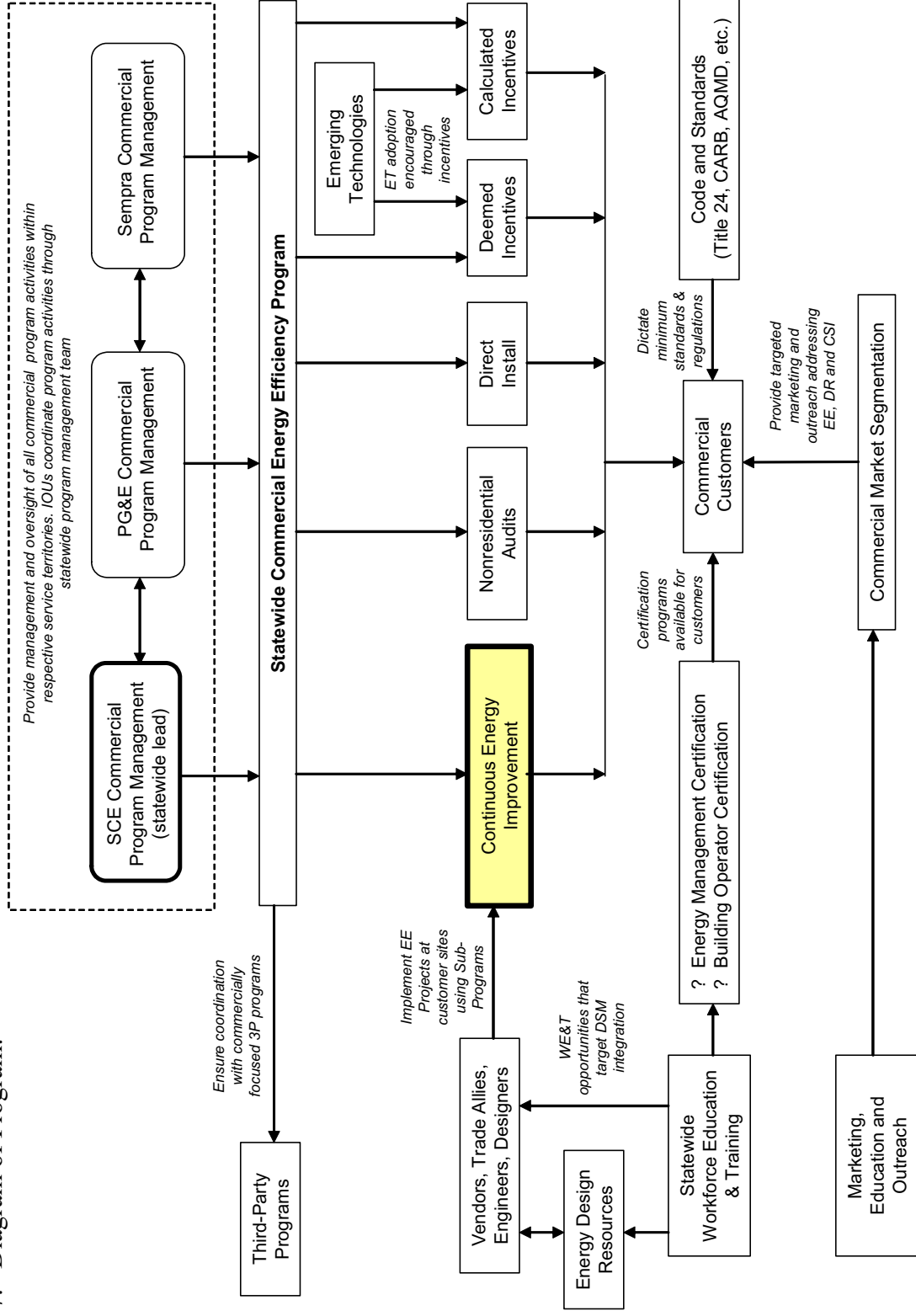
SDG&E will consider pilot concepts associated with CEI, which may include on-bill financing (OBF) support, collaborations with DOE co-funding and other innovations to motivate energy efficiency measure implementation.

h) EM&V:

As a non-resource program, EM&V is not applicable to this sub-program at this time.

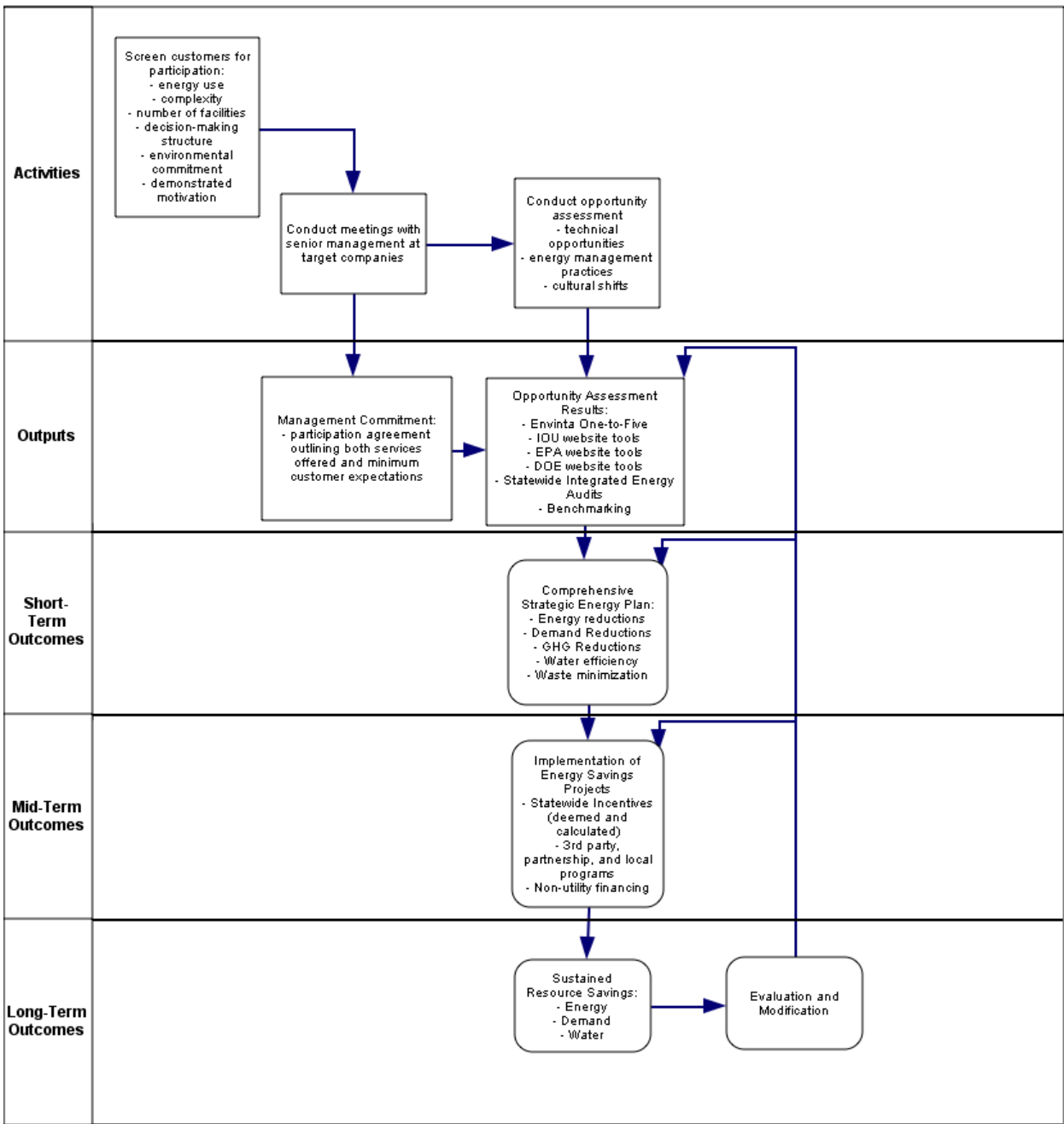
# 2009–2011 Energy Efficiency Programs Statewide Commercial Energy Efficiency Program Program Implementation Plan

7. Diagram of Program:



8. Program Logic Model:

**Continuous Energy Improvement Program**



2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

- 1) Program Name: Statewide Industrial Program  
Program ID #: TBD  
Program Type: This is a statewide, core program.
- 2) Projected Program Budget Table

**Table 1**

Program #	Main Program Name / Sub-Programs	Total Administrative Cost (Actual)	Total Marketing & Outreach (Actual)	TOTAL Direct Implementation	Integration Budget Allocated to Other Programs (if Applicable)	Total Budget By Program (Actual)
<b>Market Sector Programs</b>						
	<b>SW Industrial</b>					
	SW-IndA - Calculated	\$ 934,065.71	\$ 420,363.90	\$ 4,483,127	\$ -	\$ 5,837,557
	SW-IndB - Deemed	\$ 646,819.72	\$ 785,489.40	\$ 2,985,721	\$ -	\$ 4,418,030
	SW-IndC - Nonresidential Audits	\$ 290,327.92	\$ 346,815.00	\$ 170,375	\$ -	\$ 807,517
	SW-IndD - Continuous Energy Improvement	\$ 115,176.46	\$ 265,500.86	\$ 219,875	\$ -	\$ 600,552
	<b>TOTAL:</b>	<b>\$ 1,986,390</b>	<b>\$ 1,818,169</b>	<b>\$ 7,859,097</b>	<b>\$ -</b>	<b>\$ 11,663,656</b>

These budget numbers are presented in Appendix F: Energy Division Tables, Graphs & Pie Charts: Table 7.1 - 2009 - 2011 IOU Strategic Planning Program Budget.

- 3) Projected Program Gross Impacts Table

**Table 2**

Program #	Program Name Sub-Programs	2009 - 2011	2009 - 2011	2009 - 2011
		Three-Year EE Program Gross kWh Savings	Three-Year EE Program Gross kW Savings	Three-Year EE Program Gross Therm Savings
<b>Market Sector Programs</b>				
	<b>SW Industrial</b>			
	SW-IndA - Calculated	6,194,000	516	2,977,604
	SW-IndB - Deemed	19,210,187	2,704	307,892
	SW-IndC - Nonresidential Audits			
	SW-IndD - Continuous Energy Improvement			
	<b>TOTAL:</b>	<b>25,404,187</b>	<b>3,220</b>	<b>3,285,496</b>

These savings values are presented in Appendix F: Energy Division Tables, Graphs & Pie Charts: Table 7.2 - IOU 2009 - 2011 Program Savings Estimates.

- 4) Program Description
  - a) Describe Program

California's industrial sector is a major consumer of energy resources, as shown in the table below, provided by the California Long-Term Energy Efficiency Strategic Plan (Strategic Plan). The numbers clearly indicate a significant opportunity for energy efficiency. However, the challenges to implementing energy efficiency are numerous.

2009 – 2011 Energy Efficiency Programs  
 SW Industrial EE  
 Program Implementation Plan

<b>Contribution of the Industrial Sector</b>	<b>(% of total in CA)</b>
Electricity use	16
Natural gas use	33
Energy use	22
End-se CO <sub>2</sub>	20

The Industrial Sector shows high diversity across customer type, company and facility size, and operation. Customer types include printing plants, plastic injection molding facilities, component fabrication plants, lumber and paper mills, cement plants and quarries, metals processing plants, petroleum refineries, chemical industries, and assembly plants to name a few. While these customers often share an emphasis on process technologies and systems, implementation strategies vary based on end-use requirements. One-size-fits-all solutions are rarely optimal.

Further, industries operating in California are typically overseen by government agencies concerned with reducing environmental impacts (e.g., wastewater, air emissions, energy consumption, and solid waste) and conserving water and other resources. Compliance with multiple regulations can create competing objectives, which may have the effect of lowering energy efficiency on the priority list.

To address these and other challenges, the Investor Owned Utilities' (IOUs') sponsored Statewide Industrial Program offers California's industrial segment a statewide-consistent suite of products and services designed to meet customer needs, overcome market barriers to optimized energy management, enhance adoption of integrated demand-side management (IDSM) practices, and advance the industry toward achieving the goals of the Strategic Plan. The Program overcomes barriers through strategies that provide an integrated solution to the customer; create heightened awareness through education and outreach; and foster continuous energy improvement (CEI). The Program also promotes use of commonly accepted standards, such as those established by the International Organization for Standardization (ISO) or the US Department of Energy (DOE), to document a facility's attainment of high resource management levels. Once achieved, the Program will offer branding and certification assistance to garner market recognition for their accomplishment. In addition, the Program will support training to create a highly skilled energy efficiency workforce that is accessible to industry.

The four statewide Industrial sub-programs —Non-Residential Audits, Calculated, Deemed, and Continuous Energy Improvement—comprise the core product and service offerings for the Industrial market. Each utility will also offer local program elements that complement and enhance these core offerings in their region. As described below, as well as in complete detail in the Sub-Program descriptions (see PIP sections 6.1 through 6.4), these offerings together are designed not only to overcome the traditional market barriers to energy efficiency, but also to use efficiency to advance demand response (DR)

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

and distributed generation (DG) opportunities (including Solar and renewables) uniquely suited to the Industrial segment.

1. Non-Residential Audits, including basic audits, Integrated Audits, and Retro Commissioning (RCx) Audits, provide an inventory of technical project opportunities and financial analysis information that can populate a customer's short- or long-term energy plan, as well as overcome informational and technical customer barriers. Details distinguishing each non-residential audit offering are provided in PIP section 6.1.
2. The Calculated program offering provides standardized incentives—as well as comprehensive technical and design assistance—for customized and integrated energy efficiency/DR initiatives in new construction, retrofit, and RCx projects. This sub-program overcomes informational, technical, and financial barriers, and because it presents a calculation method that can consider system and resource interactions, it will be the preferred approach for supporting integrated, whole system, and multi-resource management strategies of the Strategic Plan. Details on the Calculated sub-program are provided in PIP section 6.2.
3. The Deemed rebate offering provides utility representatives, equipment vendors, and customers an easy-to-use mechanism to cost-effectively subsidize and encourage adoption of mass market efficiency measures through fixed incentive amounts for installed energy-saving projects. Details on the Deemed sub-program are provided in PIP section 6.3.
4. Continuous Energy Improvement (CEI), a non-resource sub-program, describes a collection of strategic planning tools and resources that lay the groundwork for long-term integrated energy planning and provide a platform for launching other utility and non-utility programs and services. Through analysis, benchmarking, long term goal setting, project implementation support, performance monitoring, and ultimately energy management certification, CEI aims to transform the market away from a “project-to-project” approach and toward a continuous improvement pathway. In support of the Strategic Plan, CEI also sets the stage for integration of non-energy resources, such as greenhouse gas (GHG) reduction, water conservation, and regulatory compliance. Details on the CEI sub-program are provided in PIP section 6.4.

When developing program metrics and targets for the sub-program elements, each utility will consider market potential as available, past program participation rates, market progress, current economic conditions, work-paper and baseline updates, and customer mix and penetration. Statewide coordination and planning will facilitate inter-utility sharing of successes, lessons learned, and best practices in the pursuit of those targets and metrics.

2009 – 2011 Energy Efficiency Programs  
 SW Industrial EE  
 Program Implementation Plan

Statewide coordination and planning between utility program planning staff, utility functional departments, government agencies, and other key partners and stakeholders will also be critical to the advancement of the Strategic Plan. In addition, leveraging national and state initiatives, tools, and resources to manage energy, use and protection of natural resources and environmental impacts will be key to optimizing the potential for California’s industrial segment. As described in PIP section 6.0b, the Statewide Industrial Program includes the staged integration and coordination with existing initiatives and regulations today, and later will drive or support advancements in integrated resource planning, energy management certification, industry benchmarking, workforce education and training, and sharing of industry best practices towards a goal of optimized energy utilization.

Industries are uniquely suited to integrated energy strategies; an integrated approach will be an effective way to help customers meet overall economic and green goals. In alignment with California’s preferred Loading Order (CA Loading Order), however, the utilities will continue to aggressively market and support energy efficiency first as the most cost-effective energy resource through education and training, as well as when pursuing strategic energy planning with customers.

b) List of Measures

The key technology categories addressed through the Statewide Industrial Program are pumping, motors, heat recovery systems, process steam, heating, air compressors, hot water systems, insulation, and lighting. Incentive levels will be aligned with those of the Calculated and Deemed sub-programs.

Statewide incentive levels are provided in the table below. Please refer to the Calculated sub-program in PIP section 6.2 for more details.

<b>Measure Type</b>	<b>Incentive level (kWh/kW)</b>
Lighting	5 cents per kWh + \$100/pk kW
AC & Refrigeration	15 cents per kWh + \$100/ pk kW
Motors and Others	9 cents per kWh + \$100/ pk kW
Gas measures	\$1 per therm

The Deemed sub-program (described in full in PIP section 6.3) offers itemized retrofit measures that have prescribed energy savings and rebate amounts. These measures are categorized under the following end uses:

- Lighting
- Air conditioning
- Food service
- Refrigeration

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

- Industrial
- Motors
- Plug loads

c) List of Non-Incentive Customer Services

Non-incentive customer services offered through the Statewide Industrial Program will include the following:

- Non Residential Audits
  - Basic audits
  - Integrated audits
  - Retro-commissioning audits
- Continuous Energy Improvement (CEI)
  - Energy management assessments
  - Energy planning consulting
  - Energy use baselines establishment
  - Facility/customer benchmarking
  - CEI education and training
  - CEI resources on [www.energydesignresources.com](http://www.energydesignresources.com)
  - Customer recognition
  - Plant certification
- Education and Training
  - System-assessment DOE training
    - Basic, Intermediate and Specialist Training (in support of American National Standards Institute (ANSI) Certification) in industrial pumps, motors, compressed air, and steam
  - Other system-specific training
    - Steam system and process heating seminars
    - Air systems seminars
  - Industry-specific integrated energy management workshops and seminars developed by the Investor Owned Utilities (IOUs) for
    - Control systems
    - Energy Management systems
  - Workforce Training and Education (WE&T)
    - Training to build team of highly skilled personnel to perform plant certification and assessment.

5) Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information



# 2009 – 2011 Energy Efficiency Programs SW Industrial EE Program Implementation Plan

Market transformation (MT) metrics proposed in Tables 3 and 4 are preliminary. The proposed metrics are meant to initiate a collaborative effort to elaborate meaningful metrics that will provide overall indicators of how markets as a whole are evolving. MT metrics should neither be used for short-term analyses nor for specific program analyses. Rather, should focus on broad market segments.

Market transformation is embraced as an ideal end state resulting from the collective efforts of the energy efficiency field, but differing understandings of both the MT process and the successful end state have not yet converged. The CPUC defines the end state of MT as “Long-lasting sustainable changes in the structure or functioning of a market achieved by reducing barriers to the adoption of energy efficiency measures to the point where further publicly-funded intervention is no longer appropriate in that specific market.”<sup>1</sup> The Strategic Plan recognizes that process of transformation is harder to define than its end state, and that new programs are needed to support the continuous transformation of markets around successive generations of new technologies<sup>2</sup>.

Market transformation programs differ from resource acquisition programs on 1) objectives, 2) geographical and 3) temporal dimensions, 4) baselines, 5) performance metrics, 6) program delivery mechanisms, 7) target populations, 8) attribution of causal relationships, and 9) market structures<sup>3</sup>. Markets are social institutions<sup>4</sup>, and transformation requires the coordinated effort of many stakeholders at the national level, directed to not immediate energy savings but rather to intermediary steps such as changing behavior, attitudes, and market supply chains<sup>5</sup> as well as changes to codes and standards. Resource acquisition programs rely upon the use of financial incentives, but concerns have been raised that these incentives distort true market price signals and may directly counter market transformation progress<sup>6</sup>. According to York<sup>7</sup>, “Market transformation is not likely to be achieved without significant, permanent increases in energy prices. From an economic perspective, there are 3 ways to achieve market transformation: (1) fundamental changes in behavior, (2) provide proper price signals, and (3) permanent subsidy.”

The question of what constitutes successful transformation is controversial because of a Catch-22: Market transformation is deemed successful when the changed market is self-sustaining, but that determination cannot be made until after program interventions are ended. Often, however, the need for

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<sup>1</sup> California Public Utilities Commission Decision, D.98-04-063, Appendix A.

<sup>2</sup> California Public Utilities Commission (2008) *California Long Term Energy Efficiency Strategic Plan*, p. 5. Available at <http://www.californiaenergyefficiency.com/docs/EEStrategicPlan.pdf>

<sup>3</sup> Peloza, J., and York, D. (1999). “Market Transformation: A Guide for Program Developers.” Energy Center of Wisconsin. Available at: <http://www.ecw.org/ecwresults/189-1.pdf>

<sup>4</sup> Blumstein, C., Goldstone, S., & Lutzenhiser, L. (2001) “From technology transfer to market transformation”. Proceedings of the European Council for an Energy Efficient Economy Summer Study. Available at [http://www.eceee.org/conference\\_proceedings/eceee/2001/Panel\\_2/p2\\_7/Paper/](http://www.eceee.org/conference_proceedings/eceee/2001/Panel_2/p2_7/Paper/)

<sup>5</sup> Sebold, F. D., Fields, A., Skumatz, L., Feldman, S., Goldberg, M., Keating, K., Peters, J. (2001) *A Framework for Planning and Assessing Publicly Funded Energy Efficiency*. p. 6-4. Available at [www.calmac.org](http://www.calmac.org).

<sup>6</sup> Gibbs, M., and Townsend, J. (2000). The Role of Rebates in Market Transformation: Friend or Foe. In *Proceedings from 2000 Summer Study on Energy Efficiency in Buildings*.

<sup>7</sup> York, D., (1999). “A Discussion and Critique of Market Transformation”, Energy Center of Wisconsin. Available at <http://www.ecw.org/ecwresults/186-1.pdf>.

# 2009 – 2011 Energy Efficiency Programs SW Industrial EE Program Implementation Plan

immediate energy and demand savings or immediate carbon-emissions reductions will mean that program interventions may need to continue, which would interfere with the evaluation of whether MT is self-sustaining. Market transformation success has also been defined in terms of higher sales of efficient measures than would have otherwise occurred against a baseline absent of program interventions. The real world, however, provides no such control condition. Evaluators must estimate these baselines from quantitative factors such as past market sales that may be sparse and/or inaccurate - particularly for new products. Evaluations must also defer to expert judgments on what these baselines may have been as well as on the degree of successful market transformation<sup>8</sup>. Due to the subjective nature of these judgments, it is imperative that baselines as well as milestone MT targets be determined and agreed upon through collaborative discussion by all stakeholders, and these targets may need periodic revision as deemed necessary by changing context.

Market transformation draws heavily upon diffusion of innovation theory<sup>9</sup>, with the state of a market usually characterized by adoption rate plotted against time on the well-known S-shaped diffusion curve. In practice, however, the diffusion curve of products may span decades<sup>10</sup>. Market share tracking studies conducted 3, 5 or even 10 years after the start of an MT program may reveal only small market transformation effects<sup>11</sup>. The ability to make causal connections between these market transformation effects and any particular program's activities fades with time, as markets continually change and other influences come into play.

These challenges mentioned above are in reference to programs that were specifically designed to achieve market transformation; and these challenges are only compounded for programs that were primarily designed to achieve energy and demand savings. However, since the inception of market transformation programs almost two decades ago, many lessons have been learned about what the characteristics of successful MT programs are. First and foremost, they need to be designed specifically to address market transformation. "The main reason that (most) programs do not accomplish lasting market effects is because they are not designed specifically to address this goal (often because of regulatory policy directions given to program designers.)<sup>12</sup>" The Strategic Plan recognizes that regulatory policies are not yet in place to support the success of market transformation efforts<sup>13</sup>, but also reflects the CPUC's directive to design energy efficiency programs that can lay the groundwork for either market transformation success or for codes and standards changes.

Above all else, the hallmark of a successful market transformation program is in the coordination of efforts across many stakeholders. The most successful MT programs have involved multiple

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<sup>8</sup> Nadel, S., Thorne, J., Sachs, H., Prindle, B., and Elliot, R.N. (2003). "Market Transformation: Substantial Progress from a Decade of Work." American Council for an Energy-Efficient Economy, Report Number A036. Available at: <http://www.aceee.org/pubs/a036full.pdf>

<sup>9</sup> Rogers (1995) Diffusion of Innovations, 5<sup>th</sup> Ed.

<sup>10</sup> Example in bottom chart of this graphic from NYTimes:  
<http://www.nytimes.com/imagepages/2008/02/10/opinion/10op.graphic.ready.html>

<sup>11</sup> Sebold et al (2001) p. 6-5,

<sup>12</sup> Peters, J.S., Mast,B., Ignelzi, P., Megdal, L.M. (1998). *Market Effects Summary Study Final Report: Volume 1.* Available at <http://calmac.org/publications/19981215CAD0001ME.PDF>.

<sup>13</sup> CPUC (2008) Strategic Plan, p. 5.

# 2009 – 2011 Energy Efficiency Programs

## SW Industrial EE

### Program Implementation Plan

organizations, providing overlapping market interventions<sup>14</sup>. The Strategic Plan calls for coordination and collaboration throughout, and in that spirit the utilities look forward to working with the CPUC and all stakeholders to help achieve market transformation while meeting all the immediate energy, demand, and environmental needs. Drawing upon lessons learned from past MT efforts, the Energy Center of Wisconsin's guide for MT program developers<sup>15</sup> suggests that the first step is not to set end-point definitions, progress metrics or goals. Rather, the first steps include forming a collaborative of key participants. As the Strategic Plan suggests, these may include municipal utilities, local governments, industry and business leaders, and consumers. Then, with the collective expertise of the collaborative, we can define markets, characterize markets, measure baselines with better access to historical data, and define objectives, design strategies and tactics, implement and then evaluate programs. The collaborative will also provide insights that will set our collective expectations for the size of market effects we can expect, relative to the amount of resources we can devote to MT. No one organization in the collaborative will have all the requisite information and expertise for this huge effort. This truly needs to be a collaborative approach from the start.

The metrics and baselines described below in Tables 3 and 4 are presented for the purposes of starting the much-needed discussion between all key participants. These are suggestions, intended to allow key participants to pilot-test processes for establishing baseline metrics, tracking market transformation progress, and for refining evaluation tools. Early trial of these evaluation metrics will reveal any gaps in data tracking so that we may refine our processes before full-scale market transformation evaluations take place.

The set of metrics we selected is intentionally a small set, for several reasons. First, as mentioned, the full set of metrics and baselines need to be selected by key participants. Second, we anticipate that market share data for many mid- and low-impact measures will be too sparse to show MT effects and not cost-effective to analyze. Third, we selected core measures and metrics that would both be indicative of overall portfolio efforts. These measures are also likely to be offered on a broad level by other utilities, providing a greater base of sales and customer data that could be analyzed for far-reaching MT effects.

The Statewide Industrial Program is proposing two measure-based market transformation metrics:  
The ratio of high efficiency motors sold over base case  
The ration of high efficiency boilers to the base case

These metrics are important indicators of overall market changes because both motors and boilers are ubiquitous throughout the range of diverse process industries. Tracking their overall efficiency would therefore provide a view into the entire market; seeing improvement in their efficiency overall would reflect positively on the industrial market as a whole.

Evaluators could gather baseline for the ratio of high efficiency motors sold over the base case by examining distributor sales in late 2009 or early 2010. Evaluators could go back to these data at prescribed intervals to determine whether the trend moves upward over time. Baseline data on boiler efficiency could be obtained by an industry survey in late 2009 and 2010; a follow-up survey could track changes over time.

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<sup>14</sup> Nadel, Thorne, Saches, Prindle & Elliot (2003).

<sup>15</sup> Pelozza & York, (1999).

# 2009 – 2011 Energy Efficiency Programs SW Industrial EE Program Implementation Plan

As market transformation is more than just market share of measures, the suggested metrics also include attitudinal and behavioral metrics.

Attitudinal change is an important part of any market transformation effort. This change may be tracked with a battery of questions that probes customer attitudes, knowledge and awareness (AKA) of energy efficiency. In order to gauge an attitudinal based metric for this sector a battery of questions probing AKA among customers would have to be created and used to scale AKA. Examples of AKA would include knowledge of energy efficiency lighting and other specific measures. Evaluators could also draw from customer surveys used in past program evaluation studies to determine whether any response patterns would be a useful indicator of market transformation, moving forward. The dimensions of any scale need to be selected by the MT collaborative. The baseline response pattern to the AKA scale would need to be established early during the program cycle. Customers could be surveyed on an annual basis and changes in their AKA tracked along the scale. Responses of customers for a particular sub-program could be pulled out for separate analysis, as needed.

In addition, behavioral change is an important part of any market transformation effort. This change may be tracked with a battery of questions that probes customer past behavior and intentions about energy efficiency. In order to gauge a behavioral based metric for this sector a battery of questions about energy efficient behaviors could be used to create a scale of Energy Behavior. Evaluators could also draw questions about specific behaviors from customer surveys used in past program evaluation studies to determine whether any response patterns would be a useful indicator of market transformation, moving forward. The dimensions of any scale need to be selected by the MT collaborative. The behaviors that could be probed include maintenance behaviors to keep EE measures operating correctly, and behaviors that maximize energy efficiency of existing equipment. Customers could be surveyed early in the program cycle and their responses on the scale could serve as the baseline for subsequent behavioral change. Customers could be probed annually and their Energy Behavior change measured along the scale. Responses of customers for a particular sub-program could be pulled out for separate analysis, as needed.

Therefore, for the Industrial sector, the approach to quantitative baseline and market transformation information is as follows:

Table 3

Metric A	Metric B	Metric C	Metric D
The ratio of high efficiency motors sold over base case	The ratio of high efficiency boiler sold over base case	Change in AKA of sector toward EE based on a survey of audit participants "What EE practices have you built into your business model when considering capital improvements?"	Change in behavior of sector based on a scale developed to measure EE behaviors in businesses

## b) Market Transformation Information

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

As stated above, market transformation draws heavily upon diffusion of innovation theory, with the state of a market characterized by adoption rate plotted against time on the well-known S-shaped diffusion curve. In practice, however, the diffusion curve of products may span decades. Market share tracking studies conducted 3, 5 or even 10 years after the start of an MT program may reveal only small market transformation effects. Therefore it is problematic, if not impractical, to offer internal annual milestones towards market transformation sectors and specific program activities.

As a consequence, it is not appropriate to offer more than broad and general projections. Any targets provided in the following table are nothing more than best guesstimates, and are subject to the effects of many factors and market forces outside the control of program implementers.

Table 4

Industrial Sector Internal Market Transformation Planning Estimates			
	2009	2010	2011
Metric A	Upward moving average over time	Upward moving average over time	Upward moving average over time
Metric B	Upward moving average over time	Upward moving average over time	Upward moving average over time
Metric C	Upward moving average over time	Upward moving average over time	Upward moving average over time
Metric D	Upward moving average over time	Upward moving average over time	Upward moving average over time

c) Program Design to Overcome Barriers

The institutional and behavioral barriers that prevent the industrial sector from achieving its full technical or economic potential in energy efficiency include the following:

- Lack of awareness of energy efficiency opportunities
- Difficulty in accessing industry specific technical assistance
- Unavailability of plant personnel trained in energy use management
- Prioritization of production over energy management
- Aversion to the risk of investing in new technologies and processes with unknown impacts to industrial output or quality
- Limited capital and labor resources for assessing and implementing energy efficiency projects

Further, the industrial sector faces an array of barriers common to all nonresidential customers. They include the following:

- A high percentage of building developers, owners, managers, and contractors build or retrofit to, but usually not above, current standards (Title 24). Likewise, architects and engineering (A&E) firms tend to specify known and familiar equipment and designs.

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

- Because viable high efficiency emerging technologies are unknown to facility owners and system designers, these technologies are slow to penetrate the market, causing lost energy efficiency opportunities.
- Insufficient access to information about operating best practices; energy efficiency opportunities, and impacts of an energy efficiency project on emissions, resource consumption, or waste discharge streams; difficulty in obtaining technical assistance; and inadequate availability of qualified industry specialists can all impede adoption of energy efficiency.

The Calculated sub-program, as detailed in PIP section 6.2, includes numerous features designed to overcome these barriers:

Integrated Demand Side Management Approach

The Statewide Industrial Program offers California's industrial segment a statewide suite of products and services to overcome market barriers to optimize energy management and meet the goals of the Strategic Plan. It overcomes multiple barriers identified above through the implementation of strategies that provide an integrated solution to the customer, offer education and outreach to create awareness, and promote continuous energy efficiency improvement. The Program also enables a facility to attain resource management levels that exceed industry standards and gain them market and world wide recognition.

CEI Program Offering

CEI offerings help customers implement energy efficiency measures that have been identified through energy efficiency audits or in-depth facility/process assessments. Such assessment may be jointly provided by the IOUs and the U.S. Department of Energy (DOE) or American National Standards Institute (ANSI). It focuses on improving production and optimizing energy efficiency and provides integrated resource management solutions including greenhouse gas (GHG) reduction. This approach overcomes such barriers as lack of awareness of energy efficiency opportunities and provides a highly skilled workforce of energy efficiency, process optimization, and resource management.

Marketing and Outreach

To increase awareness of the Statewide Industrial Program, a statewide centralized clearinghouse will be developed to give customers access to information on operating best practices in energy efficiency, industry relevant technical assistance, baselines, case studies, tools and computer based training. This clearinghouse will be housed at the Energy Design Resources website and will address the issue of availability of information and qualified industry specialists to fully assess a building, system or process and help customers understand how energy efficiency can impact their emissions, resource consumption or waste discharge streams. It helps alleviate the problem often run into by non-residential customers of getting incorrect or out-of-date information from some local

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

networks. It will also enable design engineers to specify energy efficient measures to exceed industry accepted baseline standards when constructing new or retrofitting existing buildings or systems, instead of being limited to only what they know or what they are familiar with.

The Statewide Industrial Program information and services will also be delivered through account representatives, utility call center hotlines, local government partnerships, third parties, and utility internet sites. Utilities will market programs at industry events, such as the Plant Engineering Expo, through industry organizations, such as the California Manufacturing Association, and the Building Owners and Managers Association (BOMA); and through advertising in industry and trade publications. Other avenues to reach out to customers and identify energy efficiency opportunities include non-resource programs that provide Education and Outreach, Workforce Education and Training, or through IOU Emerging Technologies Programs.

Education and Training

Highly skilled Energy Management Professionals may conduct technical training and seminars to educate the public as well as develop a highly trained energy efficiency workforce that is accessible to industry.

Emerging Technologies (ET)

In collaboration with ET and the California Energy Commission (CEC), ET may conduct studies, pilots, and demonstrations to prove the viability of promising emerging technologies and lower the risk of investment which in turn will speed up market penetration. The Statewide Industrial Program will incorporate such promising technologies as appropriate.

Financial Assistance

Rebates and incentives, when properly priced and based on energy savings quantified through technical assessments or basic audits, can help customers overcome internal financial hurdles. Skilled energy efficiency personnel may also assist customers and provide additional information about other opportunities for project assistance, such as State or Federal funds available for energy efficiency projects, tax incentives or other local sources of project funding.

d) Quantitative Program Targets

**Table 5**

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

SW Industrial Sector Program	Program Target by 2009	Program Target by 2010	Program Target by 2011
Calculated	Kw, kwh, therms		
Deemed			
Audits			
CEI			

e) Advancing Strategic Plan goals and objectives

In support of the Strategic Plan, the goals for the Statewide Industrial Program are as follows:

*Goal 1: Support California Industry’s adoption of energy efficiency by integrating energy efficiency savings with achievement of GHG goals and other resource goals.*

To address this goal, the adopted strategy is to develop an interagency framework that could combine energy efficiency incentives to achieve measured performance improvements in resource management, including water, air quality, GHG emissions, and energy efficiency. This first goal focuses on developing a minimum regulatory energy efficiency requirement for individual company or industrial sub-sectors as a whole. One example could be to integrate the 2006 California Assembly Bill 32 (AB32) requirements to allow industries to use energy efficiency to meet or exceed regulatory requirements for GHG emission reductions. An IOU – California Air Resources Board (CARB) AB32 team will be formed to study the feasibility of implementing negotiated agreements between agencies. Along the same lines, the IOUs are also undertaking a pilot program with the food processing industry, under the Agriculture Program.

*Goal 2: Build market value and demand for continuous improvement in industrial efficiency through branding and certification.*

This second goal focuses on companies that want to exceed a minimum regulatory requirement by actively managing their energy use over time. To this end, this Program offers CEI options that include participation in a recognized national effort to certify industrial facilities for energy efficiency. Industries will then be able to reach their GHG emission reductions targets via a supported, structured program based on best practices and develop worldwide recognition for their efforts through third-party certification, such as DOE’s State Energy Program (SEP), based on proven best practices. The IOUs will be partnering with DOE’s Industrial Technologies Program or Environmental Protection Agency (EPA) Technologies program, for example, to gain access to highly skilled professionals in energy management systems.

*Goal 3: Provide centralized technical and public policy guidance for California industrial energy and resource efficiency.*



2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

The Program will provide a clearinghouse of technical knowledge and information so that industry personnel can access information on emerging technology and industry specific research. The clearinghouse will leverage extensive knowledge on energy efficiency developed by other organizations like DOE and EPA. In alignment with the Strategic Plan, the statewide team will be developing this clearinghouse on the Energy Design Resources website which is an existing statewide website under development.

6.0) Program Implementation – Overview

a) Statewide IOU Coordination

The Statewide Industrial Program will coordinate to ensure the Program is continuously updated and enhanced throughout the three-year implementation cycle. This effort will include coordination of crosscutting program elements described in PIP section 6.0b, including Emerging Technologies, Codes and Standards, Workforce Education and Training, Marketing and Outreach, and Non-IOU programs and market initiatives. Each designated IOU program lead will be responsible for representing key updates from each crosscutting program element in order to discuss opportunities for statewide program enhancements, modifications and further coordination as needed. IOU leads will then be responsible for incorporating program modifications at the IOU level to support statewide consistency when appropriate. Such items will be tracked in the meeting minutes to facilitate a record of statewide initiatives.

In addition, the four Industrial sub-programs will be coordinated on a statewide level to unify the implementation of program aspects such as Program name, Program delivery mechanisms, Incentive levels, Marketing and outreach plans, and IOU program interactions. (For a detailed description of each of these program aspects, please refer to the Industrial Sub-Program descriptions in PIP sections 6.1 through 6.4). The two Statewide IOU Coordination processes (one for the broad programmatic level and one designed for the sub-program level) will interact with and support one another. These coordination efforts will be described below, focusing on how the IOUs will work together to effect the continuous improvement of the Statewide Industrial Program.

The Statewide IOU Coordination process for the Statewide Industrial Program will be as follows:

- Designate an IOU Program “Lead” – The coordination process will begin with each IOU designating a Statewide Industrial Program “lead”. The IOU lead will represent one Industrial sub-program, investigating new innovations, special accomplishments, and challenges experienced by sub-program managers in all IOUs. Where such innovations or challenges show potential for impacting the Statewide Industrial Program across multiple sub-programs or the statewide program as a whole, the IOU lead will present such information to a quarterly Steering Committee meeting.

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

- Establish protocols for Steering Committee Meetings – The IOUs will coordinate to establish protocols on scheduling meetings, agenda setting, interstate travel, meeting minutes and tracking of action items identified.
- Hold Periodic Steering Committee Meetings – The Industrial Steering Committee will comprise all designated IOU leads (including at least one lead for each of the four sub-programs), and possibly other contributing stakeholders identified by the IOUs. At the periodically Steering Committee meetings, individual innovations, challenges, and accomplishments experienced in one IOU or by one sub-program will be transmitted to all IOUs. The Steering Committee will evaluate these individual IOU and sub-program experiences, hear ideas for course corrections and overcoming challenges, replicate successful innovations for consistency statewide, resolve differences in implementation to stay unified, and measure the Industrial program’s progress against statewide metrics and goals.
- Adopt Program Enhancements - Once the Steering Committee agrees that a particular implementation policy or innovation has merit on a statewide level, each IOU lead will distribute the information to their sub-program managers for adoption and integration. Therefore, the IOU lead will act as a conduit, feeding sub-program information up to the statewide Steering Committee and distributing measures for adoption back to the sub-program managers. This feedback loop will assure consistency and unity in programmatic improvements across the IOUs. In some cases, it may be necessary to invite the sub-program managers to the Steering Committee meeting to get their feedback and ensure they receive the same message.
- Evaluate Program Enhancements Against Statewide Targets – To complete the adaptive management loop, the Steering Committee will track the Program’s accomplishment of statewide targets and goals to ensure that adopted program enhancements are generating their intended results. The Steering Committee will determine whether further course corrections are needed, and if so, rely on the above coordination process to generate the improvements necessary to stay on track.

The high-level focus of this statewide coordination effort will enable the capture of new innovations and opportunities for program improvement, correct program weaknesses that reveal themselves during implementation, and ensure achievement of statewide targets across IOU service territories. Therefore, statewide focus on program unity and continuous program improvement over the course of the three year implementation cycle will be assured. The details of actual implementation of these coordination activities are to be determined by the IOU’s industrial program managers.

b) Program delivery and coordination

i. Emerging Technologies program

The long-term Energy Efficiency (EE) vision of California can only be attained

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

through the long-term and continuous development, verification, and acceptance of new technologies into the market. The achievement of long-term goals requires new technology as well as information, training, and market development to maximize the EE benefits of cutting-edge technologies. In recognition of the importance of emerging technologies, the Program is poised to adopt the efficiency potential of new technologies through its programs. In addition, portfolio staff actively works to incorporate promising emerging technologies and Public Interest Energy Research (PIER) projects.

ii. Codes and Standards program

The Program will rely on the Codes and Standards program to maintain an updated and relevant list of measures that will support savings. As Codes and Standards impact measures, the Program will act to align itself with appropriate offerings. Programs will include new offerings that will allow flexibility in adapting to changes in codes and standards, market trends, and technologies. Planned enhancements to Title 24 will be reflected in incentive levels and eligible measures and services. As the market moves toward “low energy” or “zero net energy” buildings, specific changes to each element of the bundling will be made to ensure the latest cost effective technologies/services (e.g., Light Emitting Diodes (LEDs)) made available as these technologies transition from 1) Research and Development (R&D) to 2) Emerging Technologies to 3) Incubation and finally to 4) Mainstream.

iii. WE&T efforts

Workforce Training and Education (WE&T) efforts support the education and training of a robust network of industry trade allies, vendors, engineers, design teams and others who can support the market transformation strategies of the Strategic Plan. In the Industrial Programs, WE&T efforts will focus in the near term on supporting national ANSI Energy Management Certification development efforts, as outlined in the Strategic Plan. Programs will closely coordinate with key stakeholders to ensure that California is poised to adopt this national standard and be a leader in this effort. Specifically, prerequisite trainings will be offered in DOE systems trainings to lay the groundwork for certification level trainings. These education and training takes place through utilities energy centers and technology centers.

iv. Program-specific marketing and outreach efforts (budget provided in Table 1)

To reach out to the diverse customers segments, utilities will continue to foster strategic partnerships with industry and community groups, as well as trade professional associations, to engage in a multi-faceted approach to marketing energy efficiency practices and programs to targeted users. Specific efforts will include:

- Participation in trade association meetings to market the industrial program.

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

- Close partnerships with key industry associations, and participation in their annual conferences, with an effort to develop conference speaking engagements.
- Targeted integrated education and training to specific market sectors to support peer-to-peer interactions and industry advancement.
- Ads and articles, with program information and case studies, in trade magazines.
- Targeted customer efforts through utility account representatives, program engineers, third parties, and government partnerships.
- Phone and web-based customer support and outreach.
- Development of coordinated industrial resources into a centralized “one stop shopping” clearinghouse.
- Development of marketing collateral that drives customers to account representatives and websites for additional support.

The utilities will raise awareness of EE programs available using a number of strategies, including:

- Utility representatives will make a regular and consistent customer calling effort to key customers within this sector.
- Utility representatives, Energy Efficiency program management representatives, and field engineers will be available to provide additional expertise.

Additional market outreach initiatives for the Industrial Sector will include:

- Participation and membership in one or two key trade associations affiliated with each high priority sub-segment within the Industrial Sector.
- Attendance at key trade shows within the Industrial Sector.
- Utility-sponsored training events at the utilities Customer Training Centers and other convenient locations within the utilities service territory.
- Hosting of utility-sponsored Webinars that provide sub-segment training and program adoption.
- Development of case studies, web pages, and marketing material that provide an overview of the utilities’ Energy Efficiency programs.

To further ensure that utilities are using the optimal delivery channels to reach customers, the IOUs will segment customers based upon their individual characteristics and energy needs. The IOUs’ efforts to collect this customer data will guide the development and implementation of their IDSM marketing and outreach activities.

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

Customer segmentation will help the utilities develop an understanding of customers' needs and respond accordingly with products and services that customers want. The segmentation analysis looks at what the customer requires and how the customer is engaged with each IOU. This foundational segmentation will evolve with incremental insight into customer mindsets, behaviors, responses and motivations to achieve the most effective level of energy use. Based upon this evolving segmentation, the utilities will be able to identify what integrated product offerings are specific to individual customer needs, and offer those products through the most relevant channels.

Based on the segmentation analysis, the utilities will be able to focus on providing consistent marketing and overall messaging focused on the customers' business/personal goals; Unique needs; and environmental/global climate change goals.

v. Non-energy activities of program

The Program provides a significant challenge to integrating DSM initiatives to non-energy activities due to the general industry structure, the nature of market sector resource use, limited resource savings potential with smaller businesses, and limits to small business owner and operator bandwidth. Therefore, integrated audits that look across the various EE program offerings, as well as complementary options available through other entities (e.g., water agencies) will be used to identify the opportunities to be recommended to the specific commercial customer.

The ongoing Water Efficiency Pilot Program that was approved in 2008 and implemented in 2009 will provide potential opportunities to reduce water use and the potential for associated Energy Efficiency savings. Since some customers within the program sectors are major water users, this sector is well positioned to realize linked water/electricity benefits through the Water Efficiency Pilot Programs.

vi. Non-IOU Programs

A variety of programs under consideration will be coordinated and leveraged to support program objectives. These efforts include:

- Connecting customers with The Climate Registry.
- AB32 support through CO<sub>2</sub> tracking in program resources.
- Regulatory program coordination, including EPA air quality standards, water quality standards, and new refrigerant regulations.
- Non-utility financing resources, including from water utilities, industry and private banking, state and federal incentives, funds, grants, and loan products to support energy and other resource management objectives.
- Water/Energy efforts within California.
- ANSI standards (please refer to PIP section 6.4).

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

- ISO international energy management standards (please refer to PIP section 6.4)

The Program will continue to engage with Air Quality Management Districts, CEC, CARB, DOE, water agencies, and other government agencies responsible for regulating the various aspects and operations of customer facilities participating in the Program.

vii. CEC work on PIER

The Program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies and Public Interest Energy Research (PIER) projects. The Program will work with PIER on researching new technologies for evaluation and testing for application in mainstream projects.

viii. CEC work on codes and standards

See Section 6.b.ii.

ix. Non-utility market initiatives

The Program will support, educate customers, and/or enforce such initiatives as AB32, renewable resources, ANSI certification, facility benchmarking, Continuous Energy Improvement, California Green Building Initiative, and other initiatives as directed. The IOUs will remain engaged in these efforts and work to influence the development of increasingly higher standards.

c) Best Practices

The Statewide Industrial Program reflects the best and most successful components of each utility's prior industrial program offerings. The Program also introduces new elements from other utilities and national efforts as well. Best practices include:

- Continuous Energy Improvement: This approach proposes to transform the market and reduce energy intensity through addressing technical and management opportunities.
- Technical Assistance: Recognizing the need for personalized assistance for customers, the IOUs will offer a full-service approach including audits/pump tests to design and technical assistance, presentation of recommendations, resources to develop a long term plan, project management assistance, and financial incentives.
- Vendor Partnerships: This strategy will be coupled with vendor support and educational workshops and classes to provide the full breath of support customers may need to influence their decision to implement energy efficient equipment and practices.

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

- Statewide Coordination: In order to take advantage of the statewide implementation of the Program, the IOU program representatives will meet on a quarterly basis to improve program operations by sharing successes and areas of operational concerns.
- Leveraging Industry-Specific Resources: The IOUs will make full use of resources available, such as industry trade and professional associations.

d) Innovation

The IOU innovative program approach focuses on energy efficiency savings through not just hardware installation but also documented permanent changes in operations. Further, it covers all energy resources including energy efficiency, demand response, energy storage, combined heat and power, distributed generation, renewables, and emerging technologies. The products and services are bundled in an integrated fashion to serve the customer's need and are geared towards a value creation solution that helps customer to realize that they can run their operations efficiently and also meet their business and regulatory objectives. This approach brings to market a more customer-centric energy solution that takes into account their short- and long-term energy usage management and planning and helps overcome some of the barriers to making energy efficiency a priority. It also helps industrial customers identify, develop and document energy efficiency improvements and their economic benefits.

With the introduction of the new CEI product and services, the customer now plays a more active role in managing their energy usage and GHG reduction. Bundling the program offerings (calculated, deemed, audits, and CEI) makes it easier for customers to participate in a one-stop shop program. An integrated offerings approach will also garner significant gains in energy efficiency and make the goals envisioned in California's long term energy efficiency strategic plan a reality. This approach will also enable industry to integrate AB32 requirements such that industrial facilities can use energy efficiency to meet and exceed regulatory requirements for GHG emissions and can also aid in water conservation, waste disposal and improved air quality. An additional benefit is the Program's focus on a more holistic approach in managing all energy resources utilization which includes energy efficiency, demand response, energy storage, combined heat and power, distributed generation, renewable resources and emerging technologies.

Finally, the development of a statewide centralized technical resource on the Energy Design Resources website will enable customers to seek energy efficiency information and best practices to manage their energy resource. It will provide a resource otherwise unavailable due to business resource limitations. This web based technical resource will also contain tools to help customers calculate their energy savings and it may offer web based training in energy efficiency and energy management. It would also link the customer to industry sites that may offer industry specific information (e.g., the latest trends in industry for energy efficiency).

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

Some of the outcomes that are projected for this innovative program approach are listed below:

- Application process is improved for statewide consistency, making it easier for customers to participate in the Program.
- IOUs establish a stronger presence with trade associations and community groups enabling a deeper understanding of customer needs and how energy efficiency can be a part of their solution to their primary concerns. This will enable a deeper and more effective penetration of energy efficiency solutions to a broader base of customers.
- Integrated Energy Efficiency Audits are offered to provide targeted customers with a holistic approach to maximizing energy efficiency investment and maximizing GHG reductions.
- IOU assistance makes customers aware of renewable energy opportunities, with emphasis on the California Solar Initiative, Renewable Generation, and other incentives, grants and rebates.
- Web-based services, including energy efficiency information, training, and modeling tools, are available to help customers with retrofit or new construction projects, via a new enhanced “Energy Design Resources” website.
- Training is designed to strategically target internal personnel, vendors and trade associations, and customers, which will create a synergistic effort that will overcome many informational and transactional barriers.
- Seminars are offered to train customers on how to identify energy efficiency opportunities at their facility/in their process. Classroom software tool training is available on modeling and quantifying savings opportunities. Utilities may also provide a Personal Data Assistants (PDA) energy efficiency tool or tools from the statewide utility tool lending library that customers can use at their sites.
- Energy measuring and benchmarking assistance/services are offered to customers so they can see how their facility/process measures up to “best in class” systems utilizing tools such as the U.S. EPA’s Portfolio Manager.
- Information on “green” energy opportunities is provided when doing basic audits or in-depth assessments. Education and training on renewable energy opportunities are available on the EDR website.
- Assistance is offered to help customers quantify the carbon emissions savings that EE audits identify.
- A web link will be developed between customers and the Climate Registry to document a plant’s carbon footprint.
- Trained personnel help identify, assess and make available to customers an integrated assessment tool and train customers on the use of the tool to empower customers to identify the best EE opportunities at their facilities.

e) Integrated/coordinated Demand Side Management



2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

Integrating the portfolio of utility offerings to include energy efficiency, demand response and distributed generation—as well as other resources, such as air and water as they connect to energy—supports not only cost effectiveness of the portfolio and the CA Loading Order, but also the needs and wants of customers, who are interested in energy solutions that meet their business needs. On a broader scale, IDSM also includes the integration of Third-Party programs and Local Government Partnerships (LGP) delivery channel with the statewide industrial program.

Customers prefer a single utility point of contact who knows all of their options, and benefit from a single, coordinated planning process that helps them prioritize integrated investment decisions based on their unique needs. To that end, the statewide utilities have made substantial progress in advancing integrated solutions, which are incorporated in the Industrial Program. Efforts will include:

**Marketing:** In marketing integration, the IOUs will place major emphasis on getting the right message to the right customer at the right time. Advanced customer segmentation is being used to develop detailed integrated marketing and outreach plans which outline multiple tactics, delivery channels and key messages to target to specific customers based on their specific needs. The account representatives, who serve as the key customer point of contact, will be trained to ensure consistent delivery of portfolio offerings.

**Education and training:** Workshops organized around a customer segment will provide an ideal situation to integrate customer energy solutions. Building on past successes, the utilities will offer workshops that provide opportunities cross-sell solutions and share key information from other utility departments. As appropriate, Workforce Education and Training will also cover integrated energy and system solutions, which will be increasingly important as Critical Peak Pricing matures.

**Integrated Audits:** These will combine funds and resources of energy efficiency and demand response programs to provide integrated recommendations to customers that emphasize energy management in proper sequence, as supports the CA Loading Order, which calls for permanent reductions through energy efficiency before implementing demand response. Incentives from both programs can help reduce payback cost and support advanced energy management decisions. Demand response opportunities will be targeted in larger facilities, particularly as part of monitoring-based retro-commissioning efforts, where automated controls to facilitate demand response efforts would be installed. Finally, Integrated Audits will support distributed generation programs, as these programs require that customers receive an energy audit before being eligible to receive solar incentives.

**Emerging Technologies and CEC-PIER:** Program collaboration with Emerging Technologies and CEC is expected to include pilot projects and market acceleration

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

assistance for market-ready products in the general categories of day lighting, lighting, HVAC, controls, and building envelope improvements.

Evaluation of traditional DSM programs has shown that successful customer participation in one program often leads to repeat participation in the same program or similar programs. Nonetheless, cross-marketing DSM programs with these customers remain a challenge due to program-specific silos. The Program will reach across silos and leverage lessons learned from past program experience by offering a comprehensive, coordinated marketing and program delivery.

A primary issue when integrating energy efficiency and demand response programs is that these two efforts are at odds with each other, as both programs reduce the potential for each other's financial incentives to the customer. For example, energy efficiency may reduce the overall baseline that serves as the basis for the demand response program's incentives. Also, benefits from long-term energy savings derived from technological measures often outweigh the temporary demand reduction benefits derived from behavioral actions. To overcome this barrier and maximize the potential of both programs, additional incentives will be paid for energy efficiency measures that enable demand response.

A secondary issue when integrating energy efficiency and demand response programs is that communication messages for both types of DSM program are often not coordinated, since energy efficiency is typically technology based and demand response is often focused on behavior. Also, demand response efforts often happen prior to the summer "event season" and wane throughout the remainder of the year. To overcome these differences, the Program will offer integrated and coordinated year-round marketing through consolidated applications, collateral, web sites, and events, where applicable. Through bundling program elements and offering one program application, customers will have the opportunity to enroll in demand response, as well as energy efficiency, programs.

In summary, the Program seeks to overcome the many issues raised by integration of energy efficiency and demand response by focusing on several tactics:

- Promotion and incentivizing of demand response enabling energy efficiency measures to ensure that energy efficiency is completed first to maximize potentials.
- Integrated and coordinated year-round marketing (e.g. Applications, collateral, web sites, and events)
- Linking of program eligibility requirements (e.g., Customer size)
- Provision of unified technical assistance through enhanced EE/DR Audits through the TA Program to allow for cross-harvesting opportunities.
- Integrated presence on utility websites.

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

- Regular coordination meetings between energy efficiency and demand response program management.

During the 2009-2011 cycle, funding for energy efficiency and demand response must remain non-commingled; therefore payments will be split between the two programs as appropriate.

f) Integration across resource types

The Industrial Program will coordinate with resource agencies to support mutually advantageous program designs, customer incentives, marketing opportunities, and implementation opportunities. Utilities will continue to offer targeted trainings to customers who share common regulatory challenges in an effort to educate customers on new regulatory requirements for their business operation, and the most energy-efficient options to consider for compliance. Future workshops may look at wastewater treatment options, steam system upgrades, and energy efficiency to meet AB32 industrial targets.

Utilities will pursue opportunities to partner with water agencies to offer joint energy and water conservation incentives to support projects that would reduce both resources. Partnering with other agencies, such as water districts, will help reduce administrative cost and has a greater societal impact. Currently the utilities are participating in the California Public Utility Commission (CPUC) water/energy pilots with several water agencies. The results from this pilot may foster deeper partnerships between the utilities.

Where applicable, the Program will integrate topics such as GHG reduction and water conservation into targeted customer workshops, and marketing and communications, building on a strong track record from the past program cycle. Marketing and communications material will include savings opportunities and messaging.

g) Pilots

The Statewide Industrial Program will coordinate on a statewide level to ensure the Program is continuously updated and enhanced throughout the three year implementation cycle. Pilots may be developed at that time in response to customer's needs or to further advance the goals of the Strategic Plan. The water energy pilot mentioned in this PIP is ongoing and was approved in 2008.

h) EM&V

The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2009-2011 after the program implementation plans are filed. This will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

evaluation and other program-specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

6.1) Subprogram Implementation - Nonresidential Energy Audits

The Nonresidential Energy Audits sub-program features basic audits, integrated audits and Retro-commissioning (RCx) audits. Audits are technical surveys of energy utilization that occurs throughout a customer's facility. They provide a system view of equipment and processes that consume energy. In this holistic system view, four discrete components of the Strategic Plan (including Energy Conservations, Energy Efficiency, Demand Reduction and Self Generation) are evaluated in various combinations. Each combination will be reviewed for their societal benefits, logical order, and customer benefits, and then presented to the customer in the recommendations section of the final audit report.

As described below, the Nonresidential Energy Audits sub-program will offer basic, integrated and RCx audits during the 2009-11 program cycle.

Basic Audits

The following three types of basic audits will be offered:

- Focused – This on-site audit will be equipment focused. The report will provide a written summary of existing equipment, proposed equipment, and a description of the value of proposed equipment in terms of calculated energy savings. The report will also refer customers to appropriate EE programs such as the Deemed and Calculated offerings.
- Walk-through – This on-site audit will be systems focused. The report will provide written recommendations on a standardized form that has one or more single line recommendations. Customers will be informed of savings potential and referred to appropriate EE programs.
- Remote – This type of audit will offer the same customer benefits as the on-site audits, but differs in that it is a web-based service appropriate for small to medium-sized nonresidential customers.

Integrated Audits

Integrated audits will be offered to nonresidential customers that require in-depth and detailed information. These audits usually involve complex processes with an operational assessment that includes customized energy savings calculations. In addition, Integrated Audits will provide targeted customers with integrated solutions in efficiency, DR, and DG, and will, in some cases, advise customers on other sustainability practices such as water conservation opportunities and CO2 reduction potential.

Retro-commissioning Audits

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

The Nonresidential Energy Audits sub-program will house the audits portion of the Retro-commissioning (RCx) program offering, while the Calculated sub-program will house the incentives portion of RCx. RCx is a systematic process to identify and correct operational problems or inherent repair and maintenance deficiencies that lead to excessive energy use. Unlike retrofits, which focus on equipment replacement, or Operation and Maintenance (O&M), which focuses on routine maintenance, RCx focuses on identifying and correcting problems that may not be readily identified by a standard energy audit. Operations and Maintenance items with an effective useful life greater than three years will also be identified through this assessment. Furthermore, opportunities often exist to optimize existing systems to operate more efficiently than originally designed with minimal new capital outlay. The RCx program will incorporate initial feedback from the 2006-2008 program cycle by expanding its reach into the Agriculture and Industrial sectors. Finally, the IOUs will improve existing tools and practices for building retro-commissioning to reduce energy consumption in commercial buildings per the Strategic Plan.

RCx will be offered as a bundle of products and services. RCx providers will perform several tasks to identify measures. These tasks include, but are not limited to:

- Conduct an initial benchmark
- Collect data to quantify the owner's operational requirements
- Perform detailed on-site audits to evaluate operational deficiencies and/or operational optimization opportunities inclusive of improved and enhanced preventive maintenance and repair programs
- Define measures, quantifying implementation costs and savings
- Assist customers with measure implementation
- Verify completion of measures
- Provide post installation documentation and training as well as other persistence techniques
- Conduct a post-project benchmark

The Nonresidential Energy Audits sub-program will offer Integrated Demand Side Management (IDSM) solutions to SDG&E customers to optimize energy consumption in California and deliver significant environmental benefits. Audit reports will offer an array of no-cost, low-cost and capital-intensive actions to provide customers with an array of choices on how to invest in energy efficiency, demand response and distributed generation. The Program will integrate demand side energy management opportunities to ensure that the customer has the information available to make a cost-effective, productive decision that meets his/her business requirements and goals.

The sub-program will also help customers overcome first-cost barriers that typically prevent customers from implementing IDSM measures by guiding customers to relevant

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

IOU incentive and/or finance programs. Benefits from non-IOU programs, such as those offered by water agencies and Air Quality Management Districts, may be presented as well. Both basic and integrated audits will calculate energy savings. SDG&E will also support the customer in determining subsequent cost savings and Return on Investment – an important component that affects customer’s profitability.

To support the core utility programs, Nonresidential Energy Audits will provide Savings Calculation Assistance (SCA), targeted to specific end uses and systems, to support nonresidential retrofit applications. SCA will be provided by SDG&E engineers or contracted energy engineering firms and will help customers submit accurate, technically complete nonresidential retrofit applications. This assistance will speed the process and reduce expensive, time consuming rework later in the process.

For medium to large-sized customers, SDG&E may provide walk through audit services using SDG&E contractors, third-parties, and other representatives depending on the complexity of the facility and the estimated savings potential. Less complex facilities may benefit from online audit tools.

Through the Statewide IOU Coordination process, IOUs will consider additional customer recognition options for customers who utilize audit results to move forward with energy efficiency, demand response and distributed generation measures. Such options may include, but not be limited to, co-payments, rewards, case studies, or additional incentives.

For information on measures and incentive levels offered under this sub-program, please refer to PIP section 4.b.

For the information requested in Table 4, please refer to explanation provided under PIP section 5.b.

For information on sub-program design to overcome market barriers, please refer to PIP section 5.c.

For information on sub-program targets, please refer to PIP section 5.d.

For information on how the sub-program advances the Strategic Plan, please refer to PIP section 5.e.

a. Statewide IOU Coordination:

The NonResidential Energy Audit sub-program will follow the process for Statewide IOU Coordination described in PIP section 6.0.a. Coordination is anticipated to be rather

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

streamlined, as the Energy Audit has been a statewide program since 2002, and all IOUs use the same types of energy audits for the same type of customer segments.

b. Program delivery and coordination:

i. Emerging Technologies program

Consistent two-way communication between the Emerging Technologies program and the Nonresidential Energy Audits sub-program will accelerate implementation of pilot programs for demonstrating promising new EE technologies and practices. Additionally, Nonresidential Energy Audits will enable auditors to seek potential applications among targeted customer segments so that ET may gauge potential for promising technologies.

ii. Codes and Standards program

As noted in PIP section 6.0.b.ii, the Nonresidential Energy Audits sub-program will work closely with Codes and Standards to recommend appropriate technologies and products to customers.

iii. WE&T efforts

For information on how this sub-program links to WE&T, please refer to PIP section 6.0.b.iii.

iv. Program-specific marketing and outreach efforts (budget provided in Table 1)

A broad range of marketing activities will be used to promote all audit offerings and elevate customer engagement. Marketing plans will incorporate the results of Efficiency Measurement & Verification (EM&V) studies, which specify necessary steps for program enhancement.

Nonresidential Energy Audits will be promoted via direct communication between customers and Account Executives. In addition, IOUs will use traditional advertising activities such as trade publications, utility websites, bill inserts, brochures, and Trade Shows. Marketing activities will be coordinated between IOUs, and the Demand Response and Distributed Generation departments within SDG&E.

v. Non-energy activities of the program

Integrated audits are a key tool for identifying non-energy opportunities for specific customers, as noted in PIP section 6.0.b.v.

vi. Non-IOU Programs

Please refer to PIP section 6.0.b.vi.

vii. CEC work with PIER

Please refer to PIP section 6.0.b.vii.



2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

viii. CEC work on codes and standards  
Please refer to PIP section 6.0.b.viii

ix. Non-utility market initiatives  
Please refer to PIP section 6.0.b.ix.

c. Best Practices:

The Nonresidential Energy Audits sub-program leverages Workforce Education & Training efforts to expand the reach of the audits to external resources such as third-parties, University internship programs, and municipal utilities. In conjunction with the California Center for Sustainable Energy (CCSE), the sub-program will develop a workforce that is trained to identify energy efficiency and demand response opportunities. These best practice efforts have made the IOU audits program successful in the past, as evidenced by the evolution and progression of the private-sector energy services industry.

In addition, the Nonresidential Energy Audits sub-program will improve the adoption rate of energy efficiency and demand side management opportunities recommended by audits. IOUs will provide comprehensive support and establish an extended follow-up plan. For example, customers who complete an online basic audit (using the Utility Energy Audit Tool) will get a printout of recommendations specific to their facility and information on rebates and incentives, which simplify measure adoption. Following on-site audits for large customers, assigned account managers will contact customers to review audit recommendations and present technical and financial assistance to help them implement measures.

d. Innovation:

The discussion below presents the innovative aspects of the Nonresidential Energy Audits sub-program.

Integration with RCx

Energy Efficiency measures recommended in audit reports comprise three categories defined by their relative cost for implementation – no cost, low cost and capital projects. Integrated audits will be a primary source of leads for potential RCx projects, which assist customers with implementation of no cost and low cost EE measures. In return, RCx contractors, as appropriate, will also recommend that customers pursue a full Integrated Audit before embarking on RCx efforts. In the 2009 – 2011 Nonresidential Energy Audits sub-program, cross training and coordination between Integrated Audits and RCx will be increased to encourage optimum effectiveness in achieving an integrated offering.

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

To encourage implementation of energy audit recommendations, SDG&E will also provide information to customers, such as contractor lists, financial resources and technical assistance, to make it easier for customers to take action in response to audit recommendations.

Energy Challenger Audit Tool

To implement the integrated audits for smaller customers, SDG&E has developed a Web-based audit (do-it-yourself or auditor-performed) that includes education on various demand side management solutions as well as greenhouse gas calculations. The Energy Challenger Tool will enable customers to conduct their own energy audits by logging onto the SDG&E Website. It will be the primary tool to provide energy efficiency and greenhouse gas information and analyses to small to medium-sized customers.

Customers will supply account information, zip code or a telephone number, which will calibrate the tool for their specific microclimate. Additional questions, presented through the latest online graphic interface, will provide robust customization of their end energy use (e.g., type of business, type of residential building, hours of operation, number of inhabitants, etc.). Energy Challenger will specifically address potential measures that qualify for rebates and incentives and provide simple payback information.

SDG&E is planning to participate in the development of the Universal Energy Audit Tool (UEAT) with the other IOUs. The UEAT will provide a portfolio of audits that are easily accessible to SDG&E program managers. It will provide them with unified data resources, a central repository of recommendations and algorithms, and an interface to enable customization of energy audit formats to meet specific customer needs.

Historical data from the UEAT, from previous energy audits and efficiency projects implemented at their own facilities, will be accessible to all residential and nonresidential SDG&E customers via Web-based tools.

e. Integrated/coordinated Demand Side Management:

The Nonresidential Energy Audit sub-program is a core strategy of an overall integrated customer approach. It features a technical and comprehensive survey of energy utilization throughout the customer facility, providing a system view of equipment and processes that consume energy. In this holistic system view, four discrete components of the Strategic Plan (Energy Conservation, Energy Efficiency, Demand Reduction and Self Generation) are evaluated concurrently in various combinations. These combinations will be reviewed for their logical order and customer benefits, and then presented to the customer in the recommendations section of the integrated audit's final report.

The audit will be composed of a site survey, plant operating parameters, and customer input to produce a final energy audit report. The report's recommendations will be

## 2009 – 2011 Energy Efficiency Programs SW Industrial EE Program Implementation Plan

optimized to achieve energy savings, reduce environmental impacts and increase productivity and economic viability for the participating customer.

During the integrated audit process, an auditor will analyze and describe multiple energy efficiency, time-of-use management, demand response, and self-generation measures and recommendations. Then, working with the customer, the auditor will optimize a course of action utilizing the SDG&E portfolio to craft an integrated solution that is tailored to the customer's specific business needs and requirements.

The following examples illustrate how the integrated process will be implemented utilizing available programs and services:

- After an Integrated Audit is completed, no-cost/low-cost energy conservation measures may be transferred to the Retro-commissioning program for implementation.
- Capital investment measures selected by a customer will become subject to a more rigorous calculation of energy savings under the Saving Calculation Assistance service. These calculations may accompany a customer application to the Deemed or Calculated sub-program to implement a retrofit project.
- Demand response measures can be evaluated for their applicability to load shifting and demand response events.
- Distributed generation opportunities and benefits will be presented to the customer with particular references to respective incentive programs.

Nonresidential Audits will support the Commercial, Industrial, and Agricultural sectors by developing sector experts among external resources such as third-parties, University internship programs, and municipal utilities, and by offering on-line audit tools. In addition, Integrated Audits will be offered to large customers. To deliver an Integrated Audit, SDG&E Engineers will work with assigned SDG&E customer account representatives and the audited firm project leads. This team will translate sector specific market and technical information into a strategic energy resources plan by incorporating Energy Conservation, Energy Efficiency, Demand Response and Self Generation.

SDG&E will continue to partner with the Local Government Partnerships program by offering Integrated Audits to qualified governmental agencies as it has during the 2006 – 2008 Program. In the future, this effort will increase the number of Regional, County and City aggregated audits to establish a strategic plan for these customers and better integrate DR and Self Generation with Energy Conservation and Energy Efficiency. These customers often have multiple accounts that do not meet the demand threshold for on-site audits on their own, but when aggregated they can constitute one of the largest energy consumers in the area.

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

SDG&E will provide training and guidance to Third Party program vendors to broaden their audit focus beyond their program offering in order to identify potential in other end use systems. In this way SDG&E will minimize inefficient and, to the customer, the hassle of multiple visits. Expanding the scope of Third Party program vendor audits will provide customers with additional opportunities through combinations of equipment upgrades in conjunction with other Third Party programs.

Both basic and integrated audits will refer customers to appropriate Third Party program vendors based on audit report recommendations. The SDG&E Call Center and Account Representatives will provide this service. In addition, the future UEAT (on-line audit tool) will provide potential opportunities via automated selection based on survey input.

f. Integration across resource types (energy, water, air quality, etc):

A comprehensive audit marketing plan will be aligned and coordinated with the marketing plans for each of the resource programs in order to maximize effectiveness, integrate offerings, and, where appropriate, refer customers to relevant DSM programs. SDG&E will also look to partner with interested public and governmental bodies to proactively promote energy efficiency and environmentally responsible actions, in partnership with programs such as the local government partnerships and green communities.

Integrated Audits will serve as the foundation for integrated offerings by providing a truly comprehensive energy assessment to customers, providing them information and recommendations around energy efficiency, distributed-generation, demand response, environmental programs, such as the Cool Planet program, and other relevant programs. SDG&E will provide customers with a complete picture of their energy usage, options for reducing costs and using energy more efficiently, and direct them to programs that meet their needs and situation.

Marketing collateral and messages for energy efficiency will be integrated with other SDG&E programs. Through additional market segmentation and feedback from customers, SDG&E will further adjust approaches based on the varied needs of targeted customers.

Services from the Nonresidential Energy Audit sub-program may also be available to low income energy efficiency and third party program staff and customers.

g. Pilots:

There are no pilots associated with the Nonresidential Energy Audit sub-program.

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

h. EM&V:

The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2009-2011 after the program implementation plans are filed. This will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

6.2) Subprogram Implementation - Calculated

The statewide nonresidential Calculated sub-program will provide customers technical and calculation assistance, as well as incentives based on calculated savings to influence the design and installation of energy efficient equipment and systems in both retrofit and added load applications.

The Calculated approach will be utilized for projects where a rebate is not available through the statewide Deemed program, where project conditions require customized calculations to provide the most accurate savings estimates, or where a project has interactive effects that are best captured through whole building or whole system modeling. Because Calculated savings estimates are based on actual customer operating conditions, pre-inspections (for retrofit projects) and post-inspections are typically required as part of each utility's project documentation.

An important element of the Calculated approach is the design and calculation assistance provided by utilities to influence customers to select the most efficient design and equipment options. For both retrofit and added load projects, the IOUs will work with the customer's project team to evaluate their proposed projects and provide a report recommending efficient design alternatives. The report will detail energy savings, CO<sub>2</sub> reductions, and calculated incentives available for exceeding Title 24 code or industry standard practice baselines, as appropriate. This information will also be available to customers through the Nonresidential Energy Audit sub-program. The combination of technical support and the availability of approved utility incentive funds will be an essential driver to overcome key customer barriers, including lack of technical resources and lack of capital for energy efficiency projects.

Customers and project sponsors (i.e., contractors, design teams, vendors, and Energy Service Companies (ESCOs)) participating in the Calculated approach will have the option to complete their own savings calculations for submittal to the utilities for review and approval. For this purpose, statewide-consistent calculators are publicly available to customers for use if desired. The statewide, utility-created and maintained Standard Performance Contract (SPC) Calculator can be used for retrofits and some new construction applications and is available online and through CDs. For whole building construction projects, utilities accept both Energy Pro, available for license, and the utility-sponsored EQEST, available for free on the statewide Energy Design Resources website ([www.energydesignresources.com](http://www.energydesignresources.com)).

Depending on whether a project is a retrofit or added load project, and on whether Title 24 is triggered for a particular project, different baselines are applied to capture appropriate project savings. For retrofit projects, incentives will be capped at 50% of the total project cost. For added load projects, incentives will be capped at 50% of the incremental project cost.

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

Below is a list of all Calculated measures for all IOUs, grouped by measure category.

#	MeasureName	Per kWh Incentive	Per kW Incentive
1	Air Compressor System Replacement / Upgrade	\$0.09	\$100
2	ASD - HVAC Compressor Motors	\$0.15	\$100
3	ASD - Others	\$0.09	\$100
4	Building Shell Improvements	\$0.09	\$100
5	Carbon Monoxide Sensors	\$0.09	\$100
6	Controls - Non-Lighting	\$0.09	\$100
7	Equipment - Other not specified	\$0.09	\$100
8	Extruder System Replacement / Upgrade	\$0.09	\$100
9	Fan and Pump System Upgrades	\$0.09	\$100
10	Furnace / Energy Efficient	\$0.09	\$100
11	Heat Recovery Equipment (Process)	\$0.09	\$100
12	Heat Recovery Equipment (Space Conditioning)	\$0.15	\$100
13	HVAC - Chiller	\$0.15	\$100
14	HVAC - Complete Subsystem Replacement / Upgrade	\$0.15	\$100
15	HVAC - Heat Pump	\$0.15	\$100
16	HVAC - Other	\$0.09	\$100
17	HVAC - Package Unit	\$0.15	\$100
18	Injection Molding Machine Replacement / Upgrade	\$0.09	\$100
19	Insulation	\$0.09	\$100
20	Lighting	\$0.05	\$100
21	Lighting Controls	\$0.05	\$100
22	Motors Project (HVAC Compressor)	\$0.15	\$100
23	Motors Project (Non-HVAC Compressor)	\$0.09	\$100
24	Precooling Equipment	\$0.15	\$100
25	Process - Chiller	\$0.15	\$100
26	Process - Complete Subsystem Replacement / Upgrade	\$0.15	\$100
27	Professional Wet Cleaning	\$0.09	\$100
28	Pumping System Replacement / Upgrade	\$0.09	\$100
29	Rapid Closing Door	\$0.09	\$100
30	Refrigeration - Complete Subsystem Replacement / Upgrade	\$0.15	\$100
31	Refrigeration - Other	\$0.09	\$100
32	Series to Parallel Street Lighting	\$0.09	\$100
33	Special Window Glazing & Glazing Treatments	\$0.09	\$100
34	Vacuum Systems	\$0.09	\$100
35	Window Replacement	\$0.09	\$100

The statewide Calculated sub-program will offer customers incentives to implement energy efficiency measures that have been identified primarily through standard IOU energy efficiency audits or in-depth facility/process assessments.

Other avenues used to identify energy efficiency opportunities include programs that provide Education and Outreach, Workforce Education and Training, or through IOU Emerging Technologies Programs.

## 2009 – 2011 Energy Efficiency Programs SW Industrial EE Program Implementation Plan

The Calculated sub-program will deliver a consistent, statewide message to nonresidential customers about the benefits, energy savings and GHG reductions that efficient technologies and “best operating practices” offer to customers. This will overcome barriers often run into by nonresidential customers, such as receiving incorrect or out of date information from local networks.

Information about the services offered by the Calculated sub-program will be delivered through Account Representatives, utility Call Centers, Partnerships, Third Parties, and utility Internet sites.

Calculated sub-program information will also be made available through industry events, such as the World Ag Expo, through industry organizations, such as the California League of Food Processors and The Building Owners and Managers Association (BOMA), American Water Works Association (AWWA), Hydraulic Institute, and through advertising in industry and trade publications.

The Calculated sub-program will not only bring IOU incentive information to customers, but in many instances will also provide additional information about other opportunities for project assistance, such as State or Federal funds available for energy efficiency projects, tax incentives, and other local sources of project funding.

The Calculated sub-program will use Retro-commissioning (RCx) as a resource to deliver energy savings. The non-resource portion of RCx is located in the Nonresidential Energy Audits sub-program. However, as RCx provides calculated savings, the resource aspect of this offering will be located in the Calculated sub-program. RCx is a systematic process to identify and correct operational problems or inherent repair and maintenance deficiencies that lead to excessive energy use. Unlike retrofits, which focus on equipment replacement, or O&M, which focuses on routine maintenance, RCx focuses on identifying and correcting problems that may not be readily identified by a standard energy audit. O&M items with an effective useful life greater than three years will also be identified through this assessment. Furthermore, opportunities often exist to optimize existing systems to operate more efficiently than originally designed with minimal new capital outlay. Finally, the IOUs will coordinate with the Society of Building Science Educators to improve existing tools and practices for building retrocommissioning so that deep energy savings can be realized in commercial buildings per the Strategic Plan.

RCx will be offered as a bundle of products and services. RCx providers will perform several tasks to identify measures. These tasks include, but are not limited to:

- Conduct an initial benchmark
- Collect data to quantify the owner’s operational requirements
- Perform detailed on-site audits to evaluate operational deficiencies and/or operational optimization opportunities inclusive of improved and enhanced preventive maintenance and repair programs



2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

- Define measures, quantify savings
- Assist customers with measure implementation
- Verify completion of measures
- Provide post installation documentation and training as well as other persistence techniques
- Conduct post-project benchmark

For the information requested in Table 4, please refer to explanation provided under PIP section 5.b.

For information on sub-program design to overcome market barriers, please refer to PIP section 5.c.

For information on sub-program targets, please refer to PIP section 5.d.

For information on how the sub-program advances the Strategic Plan, please refer to PIP section 5e.

a) Statewide IOU Coordination:

The Calculated sub-program will follow the process for Statewide IOU Coordination described in PIP section 6.0.a.

b) Program delivery and coordination:

i. Emerging Technologies program

The long-term EE vision of California can only be attained through the long-term and continuous development, verification, and acceptance of new technologies into the market. The achievement of long-term goals requires new technology as well as information, training and market development to maximize the EE benefits of cutting edge technologies. In recognition of the importance of emerging technologies, the Program is poised to adopt the efficiency potential of new technologies through its programs. In addition, portfolio staff will actively work to incorporate promising emerging technologies and PIER projects.

ii. Codes and Standards program

The Calculated sub-program will rely on the Codes and Standards program to maintain an updated and relevant list of measures that will support savings. As Codes and Standards impact measures, the Program will act to align itself with appropriate offerings. Programs will include new offerings that will allow flexibility in adapting to changes in codes and standards, market trends, and technologies. Planned enhancements to Title 24 will be reflected in incentive levels and eligible measures and services. As the market moves toward “low energy” or “zero net energy” buildings,

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

specific changes to each element of the bundling will be made to ensure the latest cost effective technologies/services (e.g., LEDs) are made available as these technologies transition from 1) R&D to 2) Emerging technologies to 3) Incubation and finally to 4) Mainstream.

iii. WE&T

WE&T is a portfolio of education and training programs that showcase energy efficient equipment found on the list of measures offered by the Calculated sub-program. The education and training will take place through energy centers, technology test centers, and education and training program offerings. In addition to providing the education and training, the classes also address how customers can enroll and participate in relevant energy efficiency program offerings. An Energy Efficiency representative will be present at these training events to provide detailed information on the program-specific attributes.

iv. Program-specific marketing and outreach efforts (budget provided in Table 1)

The Calculated sub-program will be marketed through IOU Account Executives, as well as through educational, outreach and other marketing activities. Marketing activities will target business customers, ESCOs, trade associations, local business groups and government entities to generate interest and program participation. In addition, direct customer contact by Account Executives, Demand Response Program outreach, phone and email support will be provided.

Marketing campaigns will provide a wide range of action-oriented solutions targeted to “personas” identified through segmentation research. In addition, marketing efforts will be “bundled”. That is, a menu of demand response, energy efficiency and conservation programs will provide customers a full array of EE and DR options. By providing packaged energy management solutions for each industry segment SDG&E will be better able to communicate with and serve customers.

Marketing efforts will incorporate a variety of marketing tactics/activities to promote the Calculated sub-program. Education, awareness and outreach efforts will rely on a combination of mass media communication channels and targeted communication channels to ensure the messages reach the intended audiences with enough frequency to motivate attitude and behavior changes. The marketing strategies may include, but are not limited to, a mix of print, radio, TV, direct mail, e-mail, personal contact, trade shows, trade association meetings, customer workshops and seminars, energy related and other community events and partnerships with business and industry organizations, specialized collateral, case studies, website links and information with regular updates, bill inserts, press releases, and newspapers.

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

The ideal marketing mix will be assessed for maximum awareness and participation. Marketing and outreach coordination will be coordinated among the IOUs utilizing the statewide coordination process described in Section 6.0a.

v. Non-energy activities of program

The Calculated sub-program will provide design and calculation assistance prior to implementation to help the customer plan energy efficiency measure installation. Therefore, design assistance, in the form of integrated audits that look across the various EE program offerings, as well as incentive and resource programs available through other entities (e.g. water agencies) will be used to identify the opportunities to be recommended to the non-residential customer.

In addition, the Water Efficiency Pilot Program will provide potential opportunities to reduce water use and achieve associated Energy Efficiency savings. Since some customers within the program sectors are major water users, the utilities will be well positioned to assist customers in realizing linked water/energy benefits as a result of the Water Efficiency Pilot Program.

vi. Non-IOU Programs

The Calculated sub-program will continue to engage with Air Quality Management Districts, CEC, CARB, DOE, water agencies, and other government agencies responsible for regulating the various aspects and operations of customer facilities participating in the Program.

vii. CEC work on PIER

The Calculated sub-program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies and PIER projects. The Program will work with PIER on researching new technologies for evaluation and testing for application in mainstream projects.

viii. CEC work on codes and standards

Please refer to PIP section 6.b.ii.

ix. Non-utility market initiatives

Through pre-installation design and technical assistance, the Calculated sub-program will support and provide educational resources on AB32, renewable resources, ANSI certification, facility benchmarking, Continuous Energy Improvement, California Green Building Initiative, and other initiatives as directed. The IOUs will remain engaged in these efforts and work to influence the development of increasingly higher standards.

c) Best Practices:

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

The Calculated sub-program approach constitutes “best practice” by:

- Providing cost-effective energy efficiency.
  - The Program will reimburse up to 50% of the energy efficiency project cost.
- Energy savings are based on actual facility operations, process measurement, and accepted engineering protocols for calculating energy savings.
- Energy savings are measured and verified post-installation.
- The Program is customer-focused. The incentive options offered have seen high participation due to the Program’s flexibility in customizing appropriate energy efficiency solutions for a diverse range of customers.
- Avoids lost opportunities by utilizing a comprehensive approach.
- Produces both short and long term energy savings.
- Produces co-branding opportunities supporting the reduction of greenhouse gases.
  - The Program will be co-branded with SDG&E’s “Cool Planet Project”, a program that rewards participating customers with an annual membership to The Climate Registry and cost-assistance to verify and report annual greenhouse gas emissions.
- Provides an application process that is both easy and friendly.

d) Innovation:

Innovative aspects of the Program are aimed at improving major program performance indicators such as accuracy of energy saving calculations, higher realization rates, overcoming energy efficiency barriers, reducing application processing time and administrative costs, and integrating energy management.

For the new program cycle, IOUs will implement a new incentive structure that emphasizes peak demand reduction, addresses the current economic downturn and will better motivate customers to participate in energy efficiency incentive programs. During the 2009-2011 program cycle, the new incentive structure will be periodically evaluated so that necessary changes can be made in order to enhance program benefits and performance.

IOUs will continue working collaboratively on modifications to program Policies and Procedures to address ongoing changes in customer expectations, market conditions and program flexibility. Such changes have been and will be targeting ease of program understanding and participation, measures eligibility, increase of customer economical benefits, and policy restrictions that will be identified as barriers to participation. IOUs are implementing such a process based on market studies conducted on the subject. Among modifications that would be potentially discussed and implemented are incentive caps, redesign of measure/equipment early retirement according to the CPUC concept and other.

IOUs are planning to elaborate on and utilize the well-received Savings By Design (SBD) simplified tool and extend it to energy efficiency retrofit projects. Such tools substantially

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

reduce application processing and review time, and minimize number of hand-offs, while not sacrificing accuracy of energy saving calculations.

IOUs are planning to consolidate various calculating software such as SPC Software, Engage and other measure-specific calculating tools to standardize calculating methodology. This will ensure that calculations will be more uniform and consistent among all stakeholders. This will not limit the use of nationally recognized standard DOE toolsets for certain measures.

IOUs are also planning to continue and expand the Retro-commissioning (RCx) program in multiple target markets. Retro-commissioning is a systematic process for optimizing an existing building or system's performance by identifying operational deficiencies and making necessary adjustments to correct the system. Measures may involve resetting, repair or replacement of existing system controls and components, and in general are low-cost projects with simple payback periods of less than four years.

After an energy audit is complete and applicable no-cost/low-cost measures identified, the scope of work will be handed-off to an RCx implementer who, in-turn, will follow RCx program protocols, execute the scope of work (measure implementation, M&V plan, incentive payment for energy savings, etc.) and report final results to the core program office.

e) Integrated/coordinated Demand Side Management:

Where possible, IOUs will use an integrated approach to addressing DSM opportunities. Innovative integrative aspects include merging energy efficiency and demand response analysis and converting recommendations to projects under the Calculated sub-program. In addition, the Program will process and review energy efficiency and demand response measures in a single application. Providing analytical information about applicable distributed generation solutions will maximize customer adoption rates for the most cost-effective energy management opportunities.

f) Integration across resource types:

Please refer to PIP section 6.0f.

g) Pilots:

There are no Pilots associated with the Calculated sub-program.

h) EM&V:

The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2009-2011 after the program implementation plans are filed.

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

This will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

6.3) Subprogram Implementation - Deemed

The Deemed sub-program, commonly referred to as Express Efficiency, will pay rebates for the installation of new energy efficient equipment. Itemized retrofit measures have prescribed energy savings and incentive amounts. These measures are categorized under the following end uses:

- Lighting
- Air conditioning
- Food service
- Refrigeration
- Industrial Process
- Motors
- Plug loads
- High-Efficiency Water Heating
- Greenhouse Curtains and Infrared Films
- Pipe and Tank Insulation
- Steam Traps

The Deemed sub-program will address key market factors that contribute to higher energy costs for California businesses. Providing a menu of prescribed common measures simplifies the process of reviewing project proposals and provides a "per-widget" rebate that reduces the cost of retrofitting outdated and inefficient equipment. This element makes it attractive for customers to spend money up front in order to achieve lower energy costs in the long run.

Using itemized energy efficiency measures is intended to overcome barriers that prevent many customers from adopting energy efficiency alternatives. The barriers will be addressed by itemizing common energy efficiency measures and rebates, stimulating the supply of high efficiency equipment and products (through higher demand), and offering rebates that help offset higher start up and down payment expenses for energy efficient retrofits.

Furthermore, to ensure equity to all customer segments, this Program will continue to offer statewide-consistent, cost-offsetting itemized rebates to help customers with the cost of installing new energy efficient equipment.

The Deemed sub-program will be implemented and coordinated through the same processes used in the Calculated sub-program. The Deemed sub-program will include the following two elements:

- Existing itemized retrofit (e.g. Express Efficiency)
- Other itemized measures as relevant.

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

Applicants who wish to participate in the itemized retrofit element will be allowed to reserve funds for their projects. Reservations will be taken via phone, fax, internet, or mail. SDG&E will maintain an online reservation system for the convenience of applicants. Although reservations are not required, SDG&E recommends that customers reserve funds. At the time that they make a reservation, the applicant will be notified if a pre-inspection is required. Pre-inspection is not required unless there is prior participation at the proposed project location for the same measures being reserved. Projects with prior participation are subject to mandatory pre- and post-inspection. If an applicant does not reserve funds and submits an application that raises the issue of prior participation, the applicant is responsible for clearly demonstrating that the requirements in the terms and conditions were met before a rebate will be paid.

Incentives and savings payouts will be based upon deemed measures in the DEER database or through SDG&E's work papers.

The Deemed sub-program will be part of the integrated strategy to promote energy efficiency to nonresidential customers. The Statewide Deemed Team will hold regular conference calls and in-person meetings to share successes challenges, and best practices in delivering energy efficiency via deemed rebates. As described in PIP section 6.0a, the Deemed IOU Lead will participate in periodic Steering Committee meetings for the Agriculture, Industrial, and Commercial sectors to share successes, challenges, and best practices in delivering energy efficiency to each market sector and associated sub-segments.

Customers can enroll in the Deemed sub-program via paper or online application. Measures will be the same across IOUs and incentive levels will also be aligned, unless markets in the individual IOUs require adjustments based on research, communication with industry, and/or changes in the economic landscape.

The Deemed sub-program will work with the other sub-programs to design customer facing marketing materials that integrate EE offerings into a complete energy savings package that is focused on individual market segments.

Where appropriate, IOUs will coordinate with Publicly Owned Utilities (POUs) to extend customer reach and more deeply penetrate each customer segment and technology market. Each IOU will also coordinate internally with Government Partnership Programs to maximize the effectiveness of program offerings and minimize overlap and confusion.

For information on measures and incentive levels offered under this sub-program, please refer to PIP section 4.b.

For the information requested in Table 4, please refer to explanation provided under PIP section 5.b.



2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

For information on sub-program design to overcome market barriers, please refer to PIP section 5.c.

For information on sub-program targets, please refer to PIP section 5.d.

For information on how the sub-program advances the Strategic Plan, please refer to PIP section 5.e.

a) Statewide IOU Coordination:

Consistent statewide specifications and rebate values make it easier for national chains and manufacturers to understand and support IOU rebate programs. Statewide coordination also includes regular meetings to share industry contacts, marketing strategies and lessons learned. Coordinated statewide participation at relevant industry events has reduced costs through sharing.

Please refer to PIP section 6.0.a for more details on statewide coordination, which will be followed for this sub-program.

b) Program delivery and coordination:

i. Emerging Technologies program

To meet California's future energy efficiency goals, both in terms of overall usage, greenhouse gas reductions, and peak demand usage, new technologies and new applications of technology are needed. The Deemed sub-program will seek support from ETP's incubation and development of new technologies to meet the needs of the marketplace. ETP provides the pipeline of new technologies that Deemed looks to incorporate to maintain a robust selection of energy savings equipment. The Program will look to ETP to provide customers with technology information, validating effectiveness as an unbiased and neutral expert.

ii. Codes and Standards program

The Deemed sub-program will rely on Codes and Standards to maintain an updated and relevant list of measures that support savings. As Codes and Standards impact measures, the Deemed program will act to align itself with appropriate offerings.

iii. WE&T

WE&T is a portfolio of training and information programs that showcase energy efficient equipment found on the list of measures offered in the Deemed sub-program. Dissemination of information takes place through energy centers, technology test centers, and information and training program offerings. During classes, time is dedicated to energy efficiency programs and how customers can participate. In 2009-

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

2011, an Energy Efficiency representative will be available to deliver EE program messages and answer questions.

iv. Program-specific marketing and outreach efforts (budget provided in Table 1)

The following will be used as marketing and outreach channels:

- Non-contracted vendors are a key delivery channel for the Deemed sub-program; therefore, marketing will emphasize building awareness with more vendors in the territory. Training vendors on how to participate effectively in the Program will also be a focus in the new program cycle.
- Community Based Organizations (CBOs), Faith Based Organizations (FBOs), and Non-Profit Organizations, who have unique access and membership, are expected to be emphasized as a delivery channel.
- Trade associations and industry networks.
- Unique channels that offer complementary value propositions from the customers' perspective (e.g. energy, water, materials management, recyclables, corporate citizenry, etc.).

v. Non-energy activities of program

Please refer to PIP section 6.0b.v for details.

vi. Non-IOU Programs

The Deemed sub-program will continue to engage with Air Quality Management Districts, CEC, CARB, DOE, water agencies, and other government agencies responsible for regulating the various aspects and operations of customer facilities participating in the Program.

vii. CEC work on PIER

The Deemed sub-program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies and PIER projects. The Program will work with PIER on researching new technologies for evaluation and testing for application in mainstream projects.

viii. CEC work on codes and standards

Please refer to PIP section 6.0b.viii.

ix. Non-utility market initiatives

Please refer to PIP section 6.0b.ix.

c) Best Practices:

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

To maximize program effectiveness, best practices in Program Design and Implementation will be employed and shared among IOUs.

Best practices in Program Design include:

- Regular communication among IOUs to ensure consistent program design.
- Identification of qualifying products simply and effectively (Examples; ENERGY STAR®, CEE, FSTC website).
- Seeks input from industry in the development of new measures.
- Rewards customers that continually improve energy efficiency by offering rebates that lower the cost of leading edge technologies.
- Achieves market transformation by generating business for upstream manufacturers that develop highly efficient products.

Best practices in Program Implementation include:

- Strives to simplify messaging and participation for the customer (ie, “look for the ENERGY STAR label”, “purchase from a qualifying products list”, etc.)
- Understands the key motivators that drive an industry and uses that information to market the Program.
- Consistent statewide specifications and rebate values make it easier for national chains and manufacturers to understand and support IOU rebate programs.
- Statewide coordination also includes regular meetings to share industry contacts, marketing strategies and lessons learned. Coordinated statewide participation at relevant industry events has reduced costs through sharing.

d) Innovation:

An innovative program aspect is that SDG&E is considering streamlining Deemed program applications to allow nonresidential customers to apply for and receive rebates online.

e) Integrated/coordinated Demand Side Management:

Where possible, IOUs will use an integrated approach to address DSM opportunities. Innovative integrative aspects include merging energy efficiency and demand response offerings in the Deemed program application. Providing analytical information about applicable distributed generation solutions will maximize customer adoption rates for the most cost-effective energy management opportunities.

f) Integration across resource types:

Integration across resource types (e.g., energy, water, and air quality) will be explored. Examples include working with Water Agencies to co-promote appliances that save water and energy and working with Air Quality Management Districts to co-promote Boilers and Water Heating measures that save energy and improve air quality.

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

g) Pilots:

There are no Pilots associated with the Deemed sub-program.

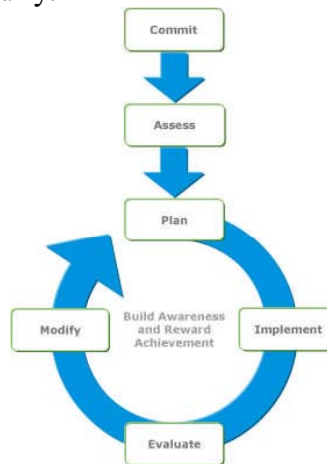
h) EM&V:

The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2009-2011 after the program implementation plans are filed. This will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

6.4) Subprogram Implementation - Continuous Energy Improvement (CEI)

Continuous Energy Improvement (CEI) describes a statewide package of products and services aimed at helping customers engage in long-term, strategic energy planning. It proposes to transform the market and reduce energy intensity through a comprehensive approach that includes addressing both technical and management opportunities. A CEI approach applies the principals of well-known business continuous improvement programs, such as Six Sigma and International Standards Organization (ISO) standards, to facility and plant energy management. CEI principles are: Commit, Assess, Plan, Implement, Evaluate, and Modify.



At each stage of customer engagement, there are a variety of utility and non-utility products and services that can be offered to fit different customer profiles and optimize the cost effectiveness of each utility's portfolios.

During implementation, utilities will screen customers for certain CEI services based on factors such as customer energy use, complexity, number of facilities, energy decision making structure, environmental commitment, and demonstrated motivation to take action. Screening criteria and specific product offerings will be utility-appropriate.

CEI begins with a high level management commitment to improving energy performance, which increasingly can be combined with other environmental and regulatory commitments that large energy users are developing in response to market and political pressures. A corporate commitment sends the top-down message to employees, partners, shareholders and vendors that energy is a priority issue requiring attention (akin to safety) and also paves the way for establishing the required company resources needed to implement the steps of CEI. These resources can include capital, personnel like energy champions or teams, and technical systems and software required for energy management.

## 2009 – 2011 Energy Efficiency Programs SW Industrial EE Program Implementation Plan

Gaining true customer commitment can take time, but is critical to long-term energy savings. During implementation, utilities will formalize the Commitment phase with larger or more intensive customers through a CEI participation agreement, which outlines the utility CEI services being offered as well as minimum customer expectations.

Following Commitment, a comprehensive assessment is critical to identifying not only technical opportunities, but also systemic energy management practices and cultural shifts that can improve overall facility management practices and sustain continuous improvements towards long-term company targets.

There are many tools and resources - utility and non-utility, free and licensed – available to support comprehensive customer energy assessment. They include ENERGY STAR's Guidelines for Energy Management, customer energy management assessment software products like those developed by Envinta, benchmarking tools, Integrated Audits, and local and statewide third parties who can offer specialized technical expertise and assessment. Based on screening criteria, utilities will offer comprehensive energy assessment services utilizing, but not limited to the sources described above, to develop a customer specific strategic energy plan.

Benchmarking measures energy performance of a company, building, process, or piece of equipment to industry standards or comparable groupings. Benchmarking is a particularly useful tool to support a CEI process. Customers with multiple facilities can use benchmarking to prioritize efficiency projects, track progress toward energy or green house gas (GHG) improvement goals, or drive competition among similar benchmarked facilities. Benchmarking can also be applied to other resources and environmental issues such as water use, CO<sub>2</sub>, and water/air emissions.

Existing benchmarking tools include those developed by the EPA for Energy Star and by Lawrence Berkeley National Lab with CEC funding. These include tools for Commercial facilities, Cement, Auto Assembly, and an LBNL Winery benchmarking tool. Under development are Energy Star benchmarking tools for Food Processing, Glass Manufacturing, and Pharmaceutical Manufacturing, as well as an LBNL tool for Dairy Processing.

During implementation, the statewide Commercial, Industrial and Agricultural program teams will continue to partner with energy industry peers, industry associations and DOE/CPUC sponsored labs and consultants, to enhance the use of existing tools, and develop new tools for key California industries.

### CEI Planning

Strategic energy planning involves setting energy goals and action plans around energy efficiency, demand response, and generation as appropriate. The CEI Planning stage can be undertaken independently by the customer or with utility support. Planning for larger,

## 2009 – 2011 Energy Efficiency Programs SW Industrial EE Program Implementation Plan

complex customers will typically involve Account Representatives and/or consultants. As discussed in the Strategic Plan, strategic planning can also include complementary non-energy considerations, such as greenhouse gas reductions, water efficiency, and waste-stream minimization, all of which have embedded energy components.

Data and findings from a comprehensive customer Assessment are critical in developing a comprehensive energy plan. A comprehensive Assessment can include the results from technical audits or assessments, facility benchmarks, energy management assessments, and assessments of company priorities. This information will be analyzed and used to develop realistic and achievable company goals and prioritized shorter-term tactics needed to achieve them. Energy plans should be living documents to be revisited regularly.

Energy goals can vary widely and include elements such as resource utilization (Company X will reduce its overall energy intensity by 3% over the next 3 years”), carbon reduction goals (“Company X will be carbon neutral by 2012”), or management oriented goals (“Company X will implement energy teams by 2010”). Goals can be internal documents or can be made public through press releases as part of larger sustainability plans, which is increasingly important for large and public companies.

CEI will assist customers in developing and implementing action plans to execute the prioritized near-term activities in support of their company’s energy goals, as well as the resources, staff and schedule for tracking. Action plans typically includes activities such as prioritizing process systems or facilities based on benchmarking or company drivers, identifying internal resources required to implement plans, develop project justification and incentive application documentation lists and detailed schedules.

### CEI Implementation

In the implementation stage, utilities will partner with customers to identify technical support and utility and non-utility resources available to support implementation of projects, such as rebates, incentives, third party and government partnership programs, and state and national resources. These resources may include:

- Statewide Deemed rebates
- Statewide Calculated incentives for new construction/tenant improvement, retrofit and retro-commissioning/repair
- Third Party and Government Partnership programs (described in the statewide and local third party filings)
- Non-utility financing options and owner’s engineer support

### CEI Evaluation and Modification

Like in any continuous improvement program, evaluation is an ongoing process of assessing actual performance against company goals, targets and action plans. It may

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

include repeating the benchmarking process and system or facility baseline process annually, assessing advancements in organizational and management practices that facilitate energy management improvements, or evaluating cost savings per unit of product. Regular evaluation will inform changes to goals and action plans moving forward. As with other information and education sub-programs, CEI will be primarily delivered by IOU customer energy efficiency staff and contractors, service and sales representatives, website and marketing and outreach efforts. Other channels of delivery may be developed.

CEI will be available to all nonresidential customers meeting certain eligibility criteria to justify the cost of the offering. Criteria will be utility-specific and may include customer energy use, complexity, number of facilities, energy decision making structure, environmental commitment or demonstrated motivation. Marketing and outreach plans include training of the IOU in-house staff and customer groups. Collateral materials such as fact sheets, how-to documents, and Power Point slides will be produced and distributed during sales calls, public events or trade shows.

CEI will include the CEC's PIER and Green Building Initiative programs, DOE's "ISO plant certification" programs, EPA ENERGY STAR Portfolio Manager benchmarking and other programs, USGBC LEED certification, and other government incentive programs as applicable.

For information on measures offered under this sub-program, please refer to PIP section 4.b.

For the information requested in Table 4, please refer to explanation provided under PIP section 5.b.

For information on sub-program design to overcome market barriers, please refer to PIP section 5.c.

For information on sub-program targets, please refer to PIP section 5.d.

For information on how the sub-program advances the Strategic Plan, please refer to PIP section 5.e.

a) Statewide IOU Coordination:

The Statewide IOU Coordination process is described in Section 6.0.a, and will be followed by this sub-program. By following this process, the CEI sub-program managers will play a critical role in ensuring unified implementation on a statewide-level over the course of the three year implementation cycle. Sub-program innovations and challenges will also feed productively into the higher-level Steering Committee process, where the IOU lead will act as



2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

participant and conduit between Steering Committee members, sub-program managers, and managers of cross-cutting programs.

b) Program Delivery and Coordination

i. Emerging Technologies Program

CEI implementation shall include identification and project development at specific customer sites, which will provide opportunity for Emerging Technologies program participation, demonstrations and incentives.

ii. Codes and Standards Program

CEI implementation shall include information about new Codes and Standards that may affect planning or prioritization of retrofit or new construction projects.

iii. WE&T

CEI implementation will coordinate with Workforce Education and Training efforts by providing CEI process and case study input to “energy engineer” curriculum designers for Community Colleges and Universities.

iv. Program-specific marketing and outreach efforts (budget provided in Table 1)

The CEI sub-program will be marketed through Account Executives, as well as through educational, outreach and other marketing activities. Marketing activities will target business customers, ESCOs, trade associations, local business groups and government entities to generate interest and program participation. In addition, direct customer contact by Account Executives, Demand Response Program outreach, phone and email support will be provided.

In 2009-2011, Marketing campaigns will provide a wide range of action-oriented solutions targeted to “personas” identified through segmentation research. In addition, marketing efforts will be “bundled”. That is, a menu of demand response, energy efficiency and conservation programs will provide customers a full array of EE and DR options. By providing packaged energy management solutions for each industry segment the IOUs will be better able to communicate with and serve customers.

Marketing efforts will incorporate a variety of marketing tactics and activities to promote the CEI sub-program. Education, awareness and outreach efforts will rely on a combination of mass media communication channels and targeted communication channels to ensure that messages reach the intended audiences with enough frequency to motivate attitude and behavior changes. The marketing strategies may include, but are not limited to, a mix of print, radio, TV, direct mail, e-mail, personal contact, trade shows, trade association meetings, customer workshops and seminars, energy related and other community events and partnerships with business and industry organizations,

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

specialized collateral, case studies, website links and information with regular updates, bill inserts, press releases, and newspapers.

The ideal marketing mix will be assessed for maximum awareness and participation. Marketing and outreach coordination will be coordinated among the IOUs utilizing the statewide coordination process described above.

v. Non-energy activities of program

CEI implementation shall include non-resource activities such as recognition awards, local area or sector competitions, awareness campaigns, education about non-energy related LEED points and definitions, use of computerized financial analysis tools and cost estimating and forecasting tools. Please also refer to PIP section 6.0b.v for more details.

vi. Non-IOU Programs

CEI implementation shall include information on Non-IOU Programs to expose customers to funding, such as from air or water agencies to support efforts. The CEI sub-program managers will scan the programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to share program information and marketing collateral with customers. In the past, each government agency and utility has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type.

In the effort to promote inter-agency cooperation toward achievement of mutual goals, IOUs will seek out managers of applicable resource programs to see if there are opportunities to present utility programs along with non-energy applications. For example, utility program managers will contact the local water districts to share marketing collateral, attend trade shows, co-release notices, for programs with interactive water and energy effects. Similarly, with ARB and Air Quality Management Districts, IOUs will offer customers CEI sub-program incentives for energy efficient equipment that may also reduce air emissions.

vii. CEC work on PIER

CEI implementation will include information on the CEC's work on PIER to expose customers to demonstration or research projects and funding.

viii. CEC work on codes and standards

Please refer to PIP section 6.0b.viii.

ix. Non-utility market initiatives

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

Non-utility market initiatives such as education about Federal Tax incentives for energy efficiency investments is an example of a non-utility information and guidance that CEI sub program will provide to customers.

c) Best Practices:

The CEI approach applies the principals of well-known business continuous improvement programs, such as Lean Six Sigma and ISO standards, to facility and plant energy management. The CEI principles are: Commit, Assess, Plan, Implement, Evaluate, and Modify. This approach can now be successfully implemented given the three-year program cycle, which allows longer term and deeper project development engagements with customers.

d) Innovation:

Continuous Energy Improvement is a new way of packaging energy efficiency, demand response and self-generation products and services and is aimed at helping customers engage in long-term, strategic energy planning. CEI proposes to transform the market and reduce energy intensity through a comprehensive approach that includes addressing both technical and management opportunities.

e) Integrated/coordinated Demand Side Management:

CEI includes project analysis and implementation support of recommendations of Integrated Audits, which provide customers with an inventory of facility end-use breakdown of energy efficiency, demand response and self-generation investment opportunities. Over the last few years, traditional DSM programs have learned that successful customer participation in one program leads to a likelihood of repeat participation in the same program. Additionally, this successful participation makes these customers likely candidates for other similarly related types of programs. While a successful program experience leads to repeat participation, there has been difficulty in cross pollinating similarly related types of programs with these candidates due to program-specific silos. To overcome the historic siloing of DSM, the CEI sub-program will leverage lesson's learned from IDSM efforts by offering comprehensive, coordinated marketing and program delivery.

A primary issue when integrating energy efficiency and demand response programs is that the two programs are at financial odds with one another, as both programs often reduce the potential for each other's financial incentives. For example, energy efficiency may reduce the overall baseline by which the demand response program's incentives are based upon. Since benefits from long term energy savings derived from technological measures outweigh the temporary demand reduction benefits derived from behavioral actions, the CEI sub-program will offer additional incentives for energy efficiency measures that enable demand response

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

when customers enroll, or are already enrolled, in demand response programs. In so doing, the Program seeks to maximize the potential for both types of programs.

A secondary issue when integrating energy efficiency and demand response programs is that communications of both types of DSM program are often non-coordinated, since energy efficiency is typically technology based and demand response is often focused on behavior. Also, demand response efforts often happen prior to the summer “event season” and wane throughout the remainder of the year. To overcome these differences, the Program will offer integrated and coordinated year-round marketing through consolidates applications, collateral, web sites, and events, where applicable.

Through bundling program elements and offering one program application, customers will have the opportunity to enroll in demand response programs in addition to energy efficiency programs.

To support the integration of energy efficiency and demand response programs, the Program will focus on several tactics:

- Promotion and incentivizing of demand response enabling energy efficiency measures to ensure that energy efficiency is completed first to maximize potentials.
- Integrated and coordinated year-round marketing (e.g. Applications, collateral, web sites, and events).
- Linking of program eligibility requirements (e.g. Customer size).
- Provide unified technical assistance through enhanced EE/DR Audits through the TA Program to allow for cross-harvesting opportunities.
- Integrated presence on utility websites.
- Regular coordination meetings between energy efficiency and demand response program management.

During the current cycle, funding for energy efficiency and demand response must remain non-commingled; therefore payments will be split between the two programs as appropriate.

f) Integration across resource types (energy, water, air quality, etc.):

CEI implementation shall include information on Non-IOU programs to expose customers to funding, such as from air or water agencies to support efforts. IOU CEI sub-program managers will scan the programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to share program information, marketing collateral and financial incentive analysis with customers. In the past, each government agency and utility has operated natural resource and energy programs

2009 – 2011 Energy Efficiency Programs  
SW Industrial EE  
Program Implementation Plan

independently, missing opportunities to serve customers who must manage more than one resource type. For customers who are regulated by or interested in more than one resource issue, CEI will inform customer about the mutual benefit of combining complementary resource programs.

g) Pilots:

SDG&E will consider pilot concepts associated with CEI, which may include on-bill financing (OBF) support, collaborations with DOE co-funding and other innovations to motivate energy efficiency measure implementation.

h) EM&V:

As a non-resource program, EM&V is not applicable to this sub-program at this time.

2009 – 2011 Energy Efficiency Programs  
 SW Industrial EE  
 Program Implementation Plan

Appendix A  
 Summary Table  
 California Energy Efficiency Long Term Strategic Plan – Industrial

Ref #	Strategies	Strategic Plan Goal	Statewide Utility Strategy	Testimony Reference Page	
Goal 1: Integration with Other Resource Strategies					
1-1	Support CA industry's adoption of EE by integrating EE savings with achievement of GHG goals and other resource goals	Develop coordinated energy and resource management program for CA's industrial sector, to enhance use of energy efficiency	Establish CARB AB 32 Industry Team	As appropriate, initiate or participate in interagency task force to explore key opportunities to coordinate CA's regulatory, energy and water rules, programs, and incentive mechanisms.	
		Study feasibility of implementing negotiated agreements	Work with CARB interagency team to explore the applicability of negotiated agreements for CA's marketplace, as well as voluntary certification programs such as the ANSI plant certification program that will be piloted in CA		

2009 – 2011 Energy Efficiency Programs  
 SW Industrial EE  
 Program Implementation Plan

		<p>Undertake pilot program with food processing sector</p>	<p>Utilize the food processing pilot to explore how a Continuous Energy Improvement approach (voluntary top down corporate commitment, 360 degree assessment and benchmarking, resource utilization reduction goal setting, and metrics and tracking...) can be integrated with air, water, GHG, and other resource management goals to improve uptake and cost effectiveness.</p>
<p><b>Goal 2: Certification Program for Continuous Improvement</b></p>			
<p>2-1</p>	<p>Participate in DOE/EPA's national Plant Energy Efficiency Certification Program (E<sup>2</sup>).</p>	<p>Participate in planning process.</p>	<p>Actively coordinate with the national efforts and teams developing the tools, metrics and methodologies for ANSI plant certification. Coordinate with the CEC to plan a sequence of WET classes to support a workforce that can support this certification program as defined. (see 2.3)</p>

2009 – 2011 Energy Efficiency Programs  
 SW Industrial EE  
 Program Implementation Plan

2-2		Implement certification	Plan pilot and recruit host sites (8-10 facilities).	Utilize newly developed tools and templates for CEI to refine pilot design, budget, timelines, partners, and outcomes with other IOUs, the CEC, DOE, SEPP ANSI and ISO. Select candidates in industrial, FP, wine segment and initiate pilot. If available, Test monitoring	
2-3		Develop and implement workforce training program (integrated with national training effort).	<p>Implement and analyze pilots.          Adopt the national curriculum for certification.</p> <p>Consider curriculum enhancements for awareness- level training on integrating energy efficiency into the workplace and developing a new curriculum to fast track for future energy management professionals</p> <p>Begin pilot courses with key industry segments.</p>	<p>Closely coordinate with SEP to ensure agreement on certification requirements</p> <p>Coordinate with SEP in development of curriculum. When available, integrate into training courses in CA. Coordinate with CEC to lay the groundwork for DOE industrial training sequences required for certification</p>	



2009 – 2011 Energy Efficiency Programs  
 SW Industrial EE  
 Program Implementation Plan

2-4		Create tracking and scoring systems to measure resource efficiency improvements.	Develop systems. Implement on test basis.	As part of the CEI toolkit, Plant Certification pilot in industry and FP, and through the ET work on Enterprise Energy Management, develop tools and resources to facilitate industry's tracking and management of energy and other resources	
2-5		Implement ME&O program to educate industry and consumers	Form industrial collaboration mechanisms.		
<b>Goal 3: Single Clearinghouse</b>					
3-1		Compile technical and resource management regulatory materials into centralized assistance repository	Inventory existing sources for technical and regulatory assistance for industrial energy efficiency and other environmental resource targets.	Establish a statewide team to identify and compile industrial and agricultural program information, technical resources, ET research and studies, and best practices for clearinghouse, on energy and other resource programs. Include	

2009 – 2011 Energy Efficiency Programs  
 SW Industrial EE  
 Program Implementation Plan

			<p>Identify and incorporate priority energy and other data</p> <p>Develop clearinghouse or integration system.</p>	<p>financing programs.</p>	
<p>3-2</p>		<p>Conduct statewide marketing and education effort to create demand for Industrial Information clearinghouse.</p>		<p>Utilize the Energy Design Resources statewide funded website to expand content to include industrial and Agriculture content, including emerging technologies and industry specific research. Link users to other non-CA resources and websites where they are comprehensive.</p>	

## 2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan

- 1) Program Name: Statewide Agriculture Program  
 Program ID#: TBD  
 Program Type: This is a statewide, core program.

### 2) Projected Program Budget Table

**Table 1<sup>1</sup>**

Program #	Main Program Name / Sub-Programs	Total Administrative Cost (Actual)	Total Marketing & Outreach (Actual)	TOTAL Direct Implementation	Integration Budget Allocated to Other Programs (if Applicable)	Total Budget By Program (Actual)
<b>Market Sector Programs</b>						
	<b>SW Agricultural</b>					
	SW-AgA - Calculated	441,439	114,645	259,724	0	815,807
	SW-AgB - Deemed	349,869	392,745	1131028.35	0	1,873,642
	SW-AgC - Nonresidential Audits	40,718	228,000	117,618	0	386,336
	SW-AgD - Pump Test & Repair	101,906	30,004	202,745	0	334,655
	SW-AgE - Continuous Energy Improvement	39,818	177,000	150,618	0	367,436
	<b>TOTAL:</b>	\$ 973,750	\$ 942,394	\$ 1,861,733	\$ -	\$ 3,777,877

These budget numbers are presented in Appendix F: Energy Division Tables, Graphs & Pie Charts: Table 7.1 - 2009 - 2011 IOU Strategic Planning Program Budget.

### 3) Projected Program Gross Impacts Table<sup>2</sup>

**Table 2**

Program #	Program Name Sub- Programs	2009 - 2011	2009 - 2011	2009 - 2011
		Three-Year EE Program Gross kWh Savings	Three-Year EE Program Gross kW Savings	Three-Year EE Program Gross Therm Savings
<b>Market Sector Programs</b>				
	<b>SW Agricultural</b>			
	SW-AgA - Calculated			
	SW-AgB - Deemed	0	0	1,190,380
	SW-AgC - Nonresidential Audits			
	SW-AgD - Pump Test & Repair			
	SW-AgE - Continuous Energy Improvement			
	<b>TOTAL:</b>	0	0	1,190,380

<sup>1</sup> Definition of Table 1 Column Headings: **Total Budget** is the sum of all other columns presented here  
**Total Administrative Cost** includes all Managerial and Clerical Labor, Human Resource Support and Development, Travel and Conference Fees, and General and Administrative Overhead (labor and materials).  
**Total Direct Implementation** – includes all financial incentives used to promote participation in a program and the cost of all direct labor, installation and service labor, hardware and materials, and rebate processing and inspection used to promote participation in a program.  
**Total Marketing & Outreach** includes all media buy costs and labor associated with marketing production.  
**Integrated Budget Allocated to Other Programs** includes budget utilized to coordinate with other EE, DR, or DG programs.  
**Total Budget** is the sum of all other columns presented here  
 Definition of Sub-Program: A “sub-program” of a program has a specific title; targets; budget; uses a unique delivery or marketing approach not used across the entire program; and for resource programs, has specific estimated savings and demand impacts.

<sup>2</sup> For all-electric IOUs, the therm column should include interactive effects.

## 2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan

These savings values are presented in Appendix F: Energy Division Tables, Graphs & Pie Charts: Table 7.2 - IOU 2009 - 2011 Program Savings Estimates.

### 4) Program Description<sup>3</sup>

#### a) Describe program

The Statewide Agriculture Program offers California's diverse agricultural customers a statewide-consistent suite of products and services to overcome the market barriers to optimized energy management. The program targets integrated energy management solutions, including energy efficiency, demand response, and distributed generation, through strategic energy planning support, technical support services, such as facility audits, pump tests, calculation and design assistance, and financial support through rebates and incentives. The Program adopts and supports the strategies and actions of the Agriculture and Industrial chapters of the California Long-Term Energy Efficiency Strategic Plan (Strategic Plan).

Targeted end-users include agricultural growers (crops, fruits, vegetable, and nuts), greenhouses, post-harvest processors (ginners, nut hullers, and associated refrigerated warehouses), and dairies. Food processors targeted through each utility's program efforts may also include fruit and vegetable processors (canners, dryers, and freezers), prepared food manufacturers, wineries, and water distribution customers. As described in the market characterization summary below, market sub-segments in this Program vary widely and require targeted strategies.

#### Market Characterization

Irrigated Agriculture: According to the California Energy Commission (CEC), agriculture consumes approximately 7 percent<sup>4</sup> of total statewide electricity, consisting primarily of a broad mix of smaller accounts. Irrigated agriculture represents an estimated 80 percent of this electricity and demand; Energy is predominately used to lift, move, and pressurize irrigation water. Increased reliance on ground water is increasing energy intensity, giving high priority to improving the current average pumping efficiency from 53 percent towards the technical potential for 68 -70 percent through optimizing pump operation. Increasing pressures from international competition, land and water use policy decisions, labor force uncertainties, and consolidation of smaller family farms into larger agribusiness enterprises make this segment increasingly receptive to new technologies and practices balanced by financial concerns from risks of crop failure.

Greenhouses: This specialty segment is in transition from the cut flowers industry to ornamental plants and vegetable transplants. Increased mechanization in this segment,

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<sup>3</sup> To be provided for overall program (explaining how sub-programs form a coherent plan) and for each sub-program.

<sup>4</sup> 1980-2005 California Electricity Consumption by Sector - California Energy Commission, [http://www.energy.ca.gov/electricity/consumption\\_by\\_sector.html](http://www.energy.ca.gov/electricity/consumption_by_sector.html)

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

and consolidation, presents opportunities for energy efficiency. Top opportunities for energy savings are in boiler improvements, building envelope improvements, and temperature control enhancements such as heat curtains.

Dairies and Confined Animal Feeding Operations: California's more than 1,900 dairies are primarily located in Tulare, Fresno, Kern, Merced, Stanislaus, and San Joaquin counties. Dairy farms are consolidating, with larger farms facing increased regulatory challenges related to air and water quality, creating opportunities for the adoption of new technologies and practices. Energy efficiency opportunities are focused in refrigeration, ventilation, and waste handling. Benchmarking will be developed as a key foundational activity to drive customer awareness and continuous energy improvement. Improved dairy waste management offers significant potential for distributed generation, as well as potential reduction of air and water quality problems, and the capture and sale of greenhouse gas credits. Like dairies, feedlots and poultry operations for meat and egg production face recent food safety and regulatory attention that may make them more receptive to new technologies and practices for improved efficiencies and waste to energy opportunities. Animal waste streams within this segment offer biogas development potential.

Post-Harvest Processing Facilities: Post-harvest facilities associated with or near agricultural growing facilities are used to process, package and store agricultural commodities, such as cotton ginners, nut harvesters and bag-houses, and fruit and vegetable packing plants. Their operations are typically seasonal, driven by harvest schedules. Nut hullers are a growing market due to new more productive strains of almonds. Key technical opportunities in this segment include industrial refrigeration improvements and process improvements.

Food Processing, General: Food Processing includes breweries, meat and poultry processing, dairy processors (e.g., creameries), canned, dried or frozen fruits and vegetables, grain products, baked goods, sugar and confectionary products, oils, snack manufacturing, soft drink manufacturers, and seafood processing. The market is characterized by a small number of large users representing a disproportionate percentage of the energy consumed, offering an ideal opportunity for delivering a large customer strategy. The segment has high energy-intensity in relation to profit margins and is highly seasonal, with the majority of natural gas and over half of the electricity used during the peak summer season. Increased global competition and environmental regulations like AB32 position this market for reductions in energy, water, emissions, greenhouse gasses, and raw materials. An integrated resource management strategy, focusing on long-term continuous improvements, is expected to improve energy efficiency performance in the segment. The majority of the energy savings potential comes from process system improvements such as in refrigeration, boilers and steam systems, compressed air, and motors. Distributed generation and demand response opportunities include using waste heat/steam for production processes such as pasteurization, cooking and heating.

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

Food Processing, Wineries: California's more than 2000 wineries produce 90 percent of all US wine. The segment is comprised of a small number of very large wineries and conglomerates, and a large number of small and medium facilities. This environmentally progressive segment of tightly knit and organized peer-to-peer networks has established environmental programs and web-based environmental benchmarking tools, and has launched a winery carbon calculator to support energy efficiency. The wine segment offers a model for other agricultural segments to follow. These efforts have been led by the California Sustainable Winegrowing Alliance (CSWA), who is eager to continue working with interested IOUs on outreach, education and training, benchmarking, and dispersion of best practices in resource management including energy, water, air and GHGs. Energy savings potential is predominantly in refrigeration, pumping, and water heating and treatment. The wine segment's demand peaks in summer and fall, related to refrigeration during crush, making refrigeration improvements especially attractive. Emerging technologies uptake has been strong.

Food Processing, Refrigerated Warehouses: Refrigerated warehouses are highly specialized, energy-intensive, technology-oriented facilities focused on staying competitive with operators in nearby markets. They are comprised of, or associated with, wholesale facilities, public and private refrigerated warehouses, food and beverage processors, and perishable product cooling and packaging operations. As they handle a wide variety of seasonal products, loads can vary dramatically between facilities. Significant energy savings opportunities exist in facility retrofits and retro-commissioning and improved new facility design, as captured in the Agricultural Strategic Plan. Activities identified in the Agricultural Strategic Plan include expanded education and training and best practices dissemination directed at facilities designers and operators, the refinement of the DOE-2R energy modeling tool utilizing national funding and support, and incorporating codes and standards. The ability to float refrigeration loads through peak periods with controls software has shown great initial success in the 2006-2008 program cycle for demand response.

To address the potential in these markets, the Statewide Agriculture Program includes five core Statewide Sub-Programs:

1. Non-Residential Audits
2. Calculated support services and incentives
3. Deemed Rebates
4. Continuous Energy Improvement
5. Pump Test and Repair

Each utility also offers local program elements, further described in Section 6, that complement and enhance this core offering to account for regional and market segment differences. As described below and throughout the filing, together these offerings are designed to not only overcome the traditional market barriers to energy efficiency, but also use efficiency to advance demand response, distributed generation, and integrated

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

resource management opportunities uniquely suited to the Agricultural and related food processing segments.

1. Non-Residential Audits, including basic audits, Integrated Audits, and Retro-Commissioning (RCx) audits, provide an inventory of technical project opportunities and financial analysis information that can be used to support a customer's short- or long-term energy plan, and overcome both informational and technical customer barriers. Details distinguishing each non-residential audit offering are provided in section 6.1 below.
2. The Calculated program offering provides standardized incentives for customized and integrated energy efficiency/DR projects in new construction, retrofit, and RCx projects, and offers comprehensive technical and design assistance for each. It overcomes information, technical, and financial barriers. As a more customized calculation method that can consider system and resource interactions, it will also be the preferred approach for supporting the integrated, whole system, and multi-resource management strategies of the Strategic Plan. Details on the Calculated Sub-Program are provided in section 6.2 below.
3. The Deemed rebate offering provides utility representatives, equipment vendors, and customers an easy-to-use mechanism to cost-effectively subsidize and encourage adoption of mass market efficiency measures through fixed incentive amounts per unit/measure for energy saved/projects installed. While Deemed rebates lend themselves well to penetrating the small and medium customer market, they are also a cost effective and efficient way to process large customer projects targeted through large customer strategies. Details on the Deemed Sub-Program are provided in section 6.3 below.
4. Continuous Energy Improvement (CEI), a non-resource sub-program, describes a collection of strategic planning tools and resources that lay the groundwork for long-term integrated energy planning and serve as a launching platform for other utility and non-utility programs and services. Through analysis, benchmarking, long-term goal setting, project implementation support, performance monitoring, and potentially access to energy management certification offered through evolving Department of Energy (DOE) and International Organization for Standardization (ISO) efforts, CEI aims to transform the market from a "project-to-project" approach toward a continuous improvement pathway. In support of the Strategic Plan, the CEI approach also sets the stage for non-energy resource integration, such as greenhouse gas (GHG) reduction, water conservation strategies, and regulatory compliance. Details on the Continuous Energy Improvement Sub-Program are provided in section 6.4 below.
5. Pump Test and Repair: Because pumps account for an estimated 80 percent of the electric load in California's agricultural segment, the Pump Test and Repair Sub-Program aims to overcome key informational, technical, and financial barriers to pump optimization by offering pump tests, repair incentives, and targeted education, training and technical support for customers and pump companies.

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

Each IOU's database of pump test results will be used in the near-term to target pumps in need of repair as a means to capture savings. However in the mid-term, this pump performance data aggregated at the statewide level will contribute to the development of metrics and targets for pump improvements, in support of the pumping focus in the Agricultural Strategic Plan.

When developing program metrics and targets for each sub-program element, each utility will consider, as available, market potential, past program participation rates, current economic conditions, work-paper and baseline updates, and regional customer mix. As discussed at length in the Agricultural Strategic Planning process, there is relatively little statewide market data on the Agriculture segment, which will be addressed through the statewide market characterization effort described in the Agricultural Strategic Plan. The results of this market characterization will provide key baseline data to support robust metrics and segment targets towards market transformation. Through this effort and others, the IOUs will assist the CPUC in collecting data in pursuit of meaningful metrics.

Furthermore, as there are varying levels of utility experience in delivering market-segment based programs, the IOUs will utilize the Statewide IOU Coordination process for the Statewide Agriculture Program, described in detail in Section 6.0, to share successes, lessons learned, and best practices in the pursuit of optimized program strategies, program targets and metrics.

Statewide coordination and planning between utility program planning staff, utility functional departments, government agencies, and other key partners and stakeholders will also be critical to the advancement of the Strategic Plan. Leveraging national and state initiatives, tools, and resources to manage energy and resources—including greenhouse gasses, air quality, and water—is a critical path to optimizing the potential for California's agricultural and food processing segments. As described in full in PIP section 6.0f and 6.0g, the Statewide Agriculture Program design includes staged integration and coordination with existing non-utility programs, initiatives, and regulations today—and later will coordinate with and support advancements in integrated resource planning, energy management certification offered through the DOE, industry benchmarking, workforce education and training, and sharing of industry best practices.

IOU program experience from 2006-2008 indicated that Agriculture and Food Processing markets are well suited to integrated energy strategies including demand response and demand side generation. As described in Sections 6.1, 6.2 and 6.4, Non-Residential Audits, the Calculated Sub-Program and the Continuous Energy Improvement Sub-Programs all support proper integration of energy efficiency with demand response. And, as described in 6.0e, detailed customer segmentation and the development of new tools and marketing resources underway will support increased integration in 2009-2011.

For distributed generation, the Statewide Agriculture Program will support appropriate integrated marketing opportunities for distributed generation from biogas, biomass, solar, fuel cells, and wind, as well as ag-based community-scale generation projects. These



## 2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan

efforts support customer needs and wants, state renewable energy targets (through newly available small generator Power Purchase Agreement contracts), AB32 greenhouse gas reduction targets, and emerging carbon markets and offset programs (such as the Chicago Climate Exchange or PG&E’s Climate Smart program). Consistent with California’s preferred loading order, however, the utilities will continue to aggressively market and support energy efficiency first, as California’s most cost-effective energy resource, while also being mindful of the customer’s ultimate interests and goals.

Marketing and sales strategies, as described in full in section 6.0.b.iv, will be coordinated as appropriate statewide, and will include a variety of strategies and approaches to address the varied needs and customer profiles found in the diverse market segments. Mass market approaches – from industry partnerships, to integrated deemed measure media campaigns, to the design of the Pump Test and Repair Sub-Program – are designed to deliver volume and reach small and medium customers while minimizing program costs. Large customer strategies, such as Non-Residential Integrated Audits and Strategic Planning support, will be delivered through IOU Account Representatives, consultants, and third parties, and will focus on optimizing integration, delivering comprehensive savings, and supporting continuous energy improvement practices.

b) List of measures

Technologies addressed through this program effort are varied, and include pumping, refrigeration, process loads, process heating, and lighting. Incentive levels will be those offered through Calculated and Deemed Sub-Programs, described in full in section 6.2 and 6.3. In brief, Statewide incentive levels for the Calculated Sub-Program are as follows:

Measure Type	Incentive level (kWh/kW)
Lighting	5 cents per kWh + \$100/pk kW
AC and refrigeration	15 cents per kWh + \$100/ pk kW
Motors and others	9 cents per kWh + \$100/ pk kW
Gas measures	\$1.00 per therm

The Deemed Sub-Program offers itemized retrofit measures with prescribed energy savings and incentive amounts. These measures are categorized under the following end uses:

- Lighting
- Air conditioning
- Food service
- Refrigeration
- Industrial
- Motors
- Plug loads

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

The Statewide IOUs will also explore the development of a statewide consistent Deemed measure catalog that includes measures specific to the Agriculture and Food Processing end-users.

c) List non-incentive customer services

The Statewide Agriculture Program will include a wide variety of non-incentive program services intended to support customer strategic planning, educate and train customers and the workforce about energy efficiency, and provide customized technical and project support. As described in PIP Section 6.0a, the Program will coordinate with the crosscutting programs to deliver and optimize these non-incentive program services. The service list includes:

- Non-Residential Audits
  - Basic audits
  - Integrated audits
  - RCx audits
- Continuous Energy Improvement (CEI)
  - Energy management assessments
  - Energy planning
  - Baseline and benchmarking
  - Project implementation support
  - Customer recognition
  - Resources on Energy Design Resources website
- Customer Education and Training
  - DOE Basic, Intermediate and Specialist Training on industrial pumps, motors, compressed air, and steam
  - Other industrial process systems training
  - Ag pumping efficiency seminars
  - Workshops merging regulatory compliance with energy efficiency opportunities, (such as with NOX compliance and boiler retrofits)
  - Integrated industry-focused workshops, such as for wineries, dairies, greenhouses, and food processors
- Workforce Education and Training
  - Utilities will coordinate with the Statewide WE&T crosscutting program element to provide training in support of the Superior Energy Performance (SEP) ANSI and ISO energy management Certification, per the Strategic Plan.
  - Title 24 Training, such as for refrigerated warehouses
  - Industrial refrigeration best practices (for designers), in support of the Strategic Plan focus on refrigeration
- Pump tests and technical support
- Design assistance and calculation support

# 2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan

## 5) Program Rationale and Expected Outcome<sup>5</sup>

### a) Quantitative Baseline and Market Transformation Information

Market Transformation (MT) metrics proposed in Tables 3 and 4 are preliminary. The proposed metrics are meant to initiate a collaborative effort to elaborate meaningful metrics that will provide overall indicators of how markets as a whole are evolving. MT metrics should neither be used for short-term analyses nor for specific program analyses. Rather, should focus on broad market segments.

Market transformation is embraced as an ideal end state resulting from the collective efforts of the energy efficiency field, but differing understandings of both the MT process and the successful end state have not yet converged. The CPUC defines the end state of MT as “Long-lasting sustainable changes in the structure or functioning of a market achieved by reducing barriers to the adoption of energy efficiency measures to the point where further publicly-funded intervention is no longer appropriate in that specific market.”<sup>6</sup> The Strategic Plan recognizes that process of transformation is harder to define than its end state, and that new programs are needed to support the continuous transformation of markets around successive generations of new technologies<sup>7</sup>.

Market transformation programs differ from resource acquisition programs on 1) objectives, 2) geographical and 3) temporal dimensions, 4) baselines, 5) performance metrics, 6) program delivery mechanisms, 7) target populations, 8) attribution of causal relationships, and 9) market structures<sup>8</sup>. Markets are social institutions<sup>9</sup>, and transformation requires the coordinated effort of many stakeholders at the national level, directed to not immediate energy savings but rather to intermediary steps such as changing behavior, attitudes, and market supply chains<sup>10</sup> as well as changes to codes and standards. Resource acquisition programs rely upon the use of financial incentives, but concerns have been raised that these incentives distort true market price signals and may directly counter market transformation progress<sup>11</sup>. According to York<sup>12</sup>, “Market transformation is not likely to be achieved without significant, permanent increases in energy prices. From an economic perspective, there are 3 ways to achieve market transformation: (1) fundamental changes in behavior, (2) provide proper price signals, and (3) permanent subsidy.”

The question of what constitutes successful transformation is controversial because of a Catch-22: Market transformation is deemed successful when the changed market is self-sustaining, but that determination cannot be made until after program interventions are ended. Often, however, the need for immediate energy and demand savings or immediate carbon-emissions reductions will mean that program interventions may need to continue, which would interfere with the evaluation of whether MT is self-sustaining. Market transformation success has also been defined in terms of higher sales of efficient measures than would have otherwise occurred against a baseline absent of program interventions. The real world, however, provides no such control condition. Evaluators must estimate these baselines from quantitative factors such as past market sales that may be sparse and/or inaccurate -

<sup>5</sup> To be provided for each program and sub-program in PIP.

<sup>6</sup> California Public Utilities Commission Decision, D.98-04-063, Appendix A.

<sup>7</sup> California Public Utilities Commission (2008) *California Long Term Energy Efficiency Strategic Plan*, p. 5. Available at <http://www.californiaenergyefficiency.com/docs/EEStrategicPlan.pdf>

<sup>8</sup> Pelozo, J., and York, D. (1999). “Market Transformation: A Guide for Program Developers.” Energy Center of Wisconsin. Available at: <http://www.ecw.org/ecwresults/189-1.pdf>

<sup>9</sup> Blumstein, C., Goldstone, S., & Lutzenhiser, L. (2001) “From technology transfer to market transformation”. Proceedings of the European Council for an Energy Efficient Economy Summer Study. Available at [http://www.ecee.org/conference\\_proceedings/ecee/2001/Panel\\_2/p2\\_7/Paper/](http://www.ecee.org/conference_proceedings/ecee/2001/Panel_2/p2_7/Paper/)

<sup>10</sup> Sebold, F. D., Fields, A., Skumatz, L., Feldman, S., Goldberg, M., Keating, K., Peters, J. (2001) *A Framework for Planning and Assessing Publicly Funded Energy Efficiency*. p. 6-4. Available at [www.calmac.org](http://www.calmac.org).

<sup>11</sup> Gibbs, M., and Townsend, J. (2000). The Role of Rebates in Market Transformation: Friend or Foe. In *Proceedings from 2000 Summer Study on Energy Efficiency in Buildings*.

<sup>12</sup> York, D., (1999). “A Discussion and Critique of Market Transformation”, Energy Center of Wisconsin. Available at <http://www.ecw.org/ecwresults/186-1.pdf>.

## 2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan

particularly for new products. Evaluations must also defer to expert judgments on what these baselines may have been as well as on the degree of successful market transformation<sup>13</sup>. Due to the subjective nature of these judgments, it is imperative that baselines as well as milestone MT targets be determined and agreed upon through collaborative discussion by all stakeholders, and these targets may need periodic revision as deemed necessary by changing context.

Market transformation draws heavily upon diffusion of innovation theory<sup>14</sup>, with the state of a market usually characterized by adoption rate plotted against time on the well-known S-shaped diffusion curve. In practice, however, the diffusion curve of products may span decades<sup>15</sup>. Market share tracking studies conducted 3, 5 or even 10 years after the start of an MT program may reveal only small market transformation effects<sup>16</sup>. The ability to make causal connections between these market transformation effects and any particular program's activities fades with time, as markets continually change and other influences come into play.

These challenges mentioned above are in reference to programs that were specifically designed to achieve market transformation; and these challenges are only compounded for programs that were primarily designed to achieve energy and demand savings. However, since the inception of market transformation programs almost two decades ago, many lessons have been learned about what the characteristics of successful MT programs are. First and foremost, they need to be designed specifically to address market transformation. "The main reason that (most) programs do not accomplish lasting market effects is because they are not designed specifically to address this goal (often because of regulatory policy directions given to program designers.)<sup>17</sup>" The Strategic Plan recognizes that regulatory policies are not yet in place to support the success of market transformation efforts<sup>18</sup>, but also reflects the CPUC's directive to design energy efficiency programs that can lay the groundwork for either market transformation success or for codes and standards changes.

Above all else, the hallmark of a successful market transformation program is in the coordination of efforts across many stakeholders. The most successful MT programs have involved multiple organizations, providing overlapping market interventions<sup>19</sup>. The Strategic Plan calls for coordination and collaboration throughout, and in that spirit the utilities look forward to working with the CPUC and all stakeholders to help achieve market transformation while meeting all the immediate energy, demand, and environmental needs. Drawing upon lessons learned from past MT efforts, the Energy Center of Wisconsin's guide for MT program developers<sup>20</sup> suggests that the first step is not to set end-point definitions, progress metrics or goals. Rather, the first steps include forming a collaborative of key participants. As the Strategic Plan suggests, these may include municipal utilities, local governments, industry and business leaders, and consumers. Then, with the collective expertise of the collaborative, we can define markets, characterize markets, measure baselines with better access to historical data, and define objectives, design strategies and tactics, implement and then evaluate programs. The collaborative will also provide insights that will set our collective expectations for the size of market effects we can expect, relative to the amount of resources we can devote to MT. No one organization in the collaborative will have all the requisite information and expertise for this huge effort. This truly needs to be a collaborative approach from the start.

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<sup>13</sup> Nadel, S., Thorne, J., Sachs, H., Prindle, B., and Elliot, R.N. (2003). "Market Transformation: Substantial Progress from a Decade of Work." American Council for an Energy-Efficient Economy, Report Number A036. Available at: <http://www.aceee.org/pubs/a036full.pdf>

<sup>14</sup> Rogers (1995) Diffusion of Innovations, 5<sup>th</sup> Ed.

<sup>15</sup> Example in bottom chart of this graphic from NYTimes:

<http://www.nytimes.com/imagepages/2008/02/10/opinion/10op.graphic.ready.html>

<sup>16</sup> Sebold et al (2001) p. 6-5,

<sup>17</sup> Peters, J.S., Mast,B., Ignelzi, P., Megdal, L.M. (1998). *Market Effects Summary Study Final Report: Volume 1.* Available at <http://calmac.org/publications/19981215CAD0001ME.PDF>.

<sup>18</sup> CPUC (2008) Strategic Plan, p. 5.

<sup>19</sup> Nadel, Thorne, Saches, Prindle & Elliot (2003).

<sup>20</sup> Pelozo & York, (1999).

## 2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan

The metrics and baselines described below in Tables 3 and 4 are presented for the purposes of starting the much-needed discussion between all key participants. These are suggestions, intended to allow key participants to pilot-test processes for establishing baseline metrics, tracking market transformation progress, and for refining evaluation tools. Early trial of these evaluation metrics will reveal any gaps in data tracking so that we may refine our processes before full-scale market transformation evaluations take place.

The set of metrics we selected is intentionally a small set, for several reasons. First, as mentioned, the full set of metrics and baselines need to be selected by key participants. Second, we anticipate that market share data for many mid- and low-impact measures will be too sparse to show MT effects and not cost-effective to analyze. Third, we selected core measures and metrics that would both be indicative of overall portfolio efforts. These measures are also likely to be offered on a broad level by other utilities, providing a greater base of sales and customer data that could be analyzed for far-reaching MT effects.

The improvement in agricultural pump efficiency measured in terms of overall pumping efficiency (OPE) is proposed as a market transformation metric for the agricultural sectors. OPE captures the efficiency of the pumping system. It does not address the design and operation system that is being supplied by the pump. The IOUs will continue data on OPE in the statewide pump test program. The below chart, whose exact origin is unknown but has been used in both PG&E and SCE literature since the 1990s, suggests, for a particular pump size, what level of efficiency can be considered low, fair, good, or excellent.

This table provides an example basis for creating OPE metrics for pumps of varying sizes; the number and motor hp listed are not necessarily being put forward as metrics. Other available databases also contain information on OPE. Evaluators could analyze these data sources to create baseline OPE metrics and revisit the database periodically to identify changes over time.

<b>OVERALL PLANT EFFICIENCY RANGES WIRE TO WATER</b>					
<b>Motor HP</b>	<b>Low</b>	<b>Fair</b>	<b>Good</b>	<b>Excellent</b>	<b>Booster</b>
3 – 5	41.9 or less	42 – 49.9	50 – 54.9	55 or above	55
7.5 – 10	44.9 or less	45 – 52.9	53 – 57.9	58 or above	58/60
15 – 30	47.9 or less	48 – 55.9	56 – 60.9	61 or above	60/65
40 – 60	52.9 or less	53 – 59.9	60 – 64.9	65 or above	65/70
75 – up	55.9 or less	56 – 62.9	63 – 68.9	69 or above	70 /72

\*Submersible Well Less an additional 3%

As market transformation is more than just market share of measures, the suggested metrics also include attitudinal and behavioral metrics.

Attitudinal change is an important part of any market transformation effort. This change may be tracked with a battery of questions that probes customer attitudes, knowledge and awareness (AKA) of energy efficiency. In order to gauge an attitudinal based metric for this sector a battery of questions probing AKA among customers would have to be created and used to scale AKA. Examples of AKA would include knowledge of energy efficiency lighting and other specific measures. Evaluators could also draw from customer surveys used in past program evaluation studies to determine whether any response patterns would be a useful indicator of market transformation, moving forward. The dimensions of any scale need to be selected by the MT collaborative. The baseline response pattern to the AKA scale would need to be established early during the program cycle. Customers could be surveyed on an annual basis

## 2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan

and changes in their AKA tracked along the scale. Responses of customers for a particular sub-program could be pulled out for separate analysis, as needed.

In addition, behavioral change is an important part of any market transformation effort. This change may be tracked with a battery of questions that probes customer past behavior and intentions about energy efficiency. In order to gauge a behavioral based metric for this sector a battery of questions about energy efficient behaviors could be used to create a scale of Energy Behavior. Evaluators could also draw questions about specific behaviors from customer surveys used in past program evaluation studies to determine whether any response patterns would be a useful indicator of market transformation, moving forward. The dimensions of any scale need to be selected by the MT collaborative. The behaviors that could be probed include maintenance behaviors to keep EE measures operating correctly, and behaviors that maximize energy efficiency of existing equipment. Customers could be surveyed early in the program cycle and their responses on the scale could serve as the baseline for subsequent behavioral change. Customers could be probed annually and their Energy Behavior change measured along the scale. Responses of customers for a particular sub-program could be pulled out for separate analysis, as needed.

Therefore, for the Agricultural sector, the following approach to quantitative baseline and market transformation information is as follows.

Table 3

Agricultural Sector Baseline Metrics		
Metric A	Metric B	Metric C
Agricultural pump efficiency measured in terms of overall pumping efficiency	Change in AKA of sector toward EE based on a survey of audit participants "What EE practices have you built into your business model when considering capital improvements?"	Change in behavior of sector based on a scale developed to measure (EE/green) behaviors in businesses

### b) Market Transformation Information

As stated above, market transformation draws heavily upon diffusion of innovation theory, with the state of a market characterized by adoption rate plotted against time on the well-known S-shaped diffusion curve. In practice, however, the diffusion curve of products may span decades. Market share tracking studies conducted 3, 5 or even 10 years after the start of an MT program may reveal only small market transformation effects. Therefore it is problematic, if not impractical, to offer internal annual milestones towards market transformation sectors and specific program activities.

As a consequence, it is not appropriate to offer more than broad and general projections. Any targets provided in the following table are nothing more than best guesstimates, and are subject to the effects of many factors and market forces outside the control of program implementers.

Table 4

Agricultural Sector Internal Market Transformation Planning Estimates			
	2009	2010	2011
Metric A	Upward moving average over time	Upward moving average over time	Upward moving average over time
Metric B	Upward moving average over time	Upward moving average over time	Upward moving average over time

**2009–2011 Energy Efficiency Programs  
Statewide Agriculture Program  
Program Implementation Plan**

Metric C	Upward moving average over time	Upward moving average over time	Upward moving average over time
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c) Program Design to Overcome Barriers

The 2009-11 Statewide Agricultural Program builds on past program successes and best practices to overcome both common and unique barriers to efficiency in the segment, including:

- Agricultural barriers:
  - Ag is a diverse and geographically widespread sector, dependent on regional resources for information, and traditionally resistant to change
  - Capital constraints, combined with variable commodity pricing, limit the availability of funds for investing in projects.
  - Low energy costs relative to other operating expenses reduces the motivation to invest in energy efficiency.
  - Regulatory compliance issues further strain limited internal resources.
  - Lack of awareness of the benefits of energy efficiency, and uncertainty and skepticism over long-term energy and cost savings hinders investment.
  
- Food processing and industrial refrigeration barriers
  - Few firms maintain facility level energy managers, and finding technically qualified staff is an ongoing challenge.
  - Regulatory compliance issues further strain limited internal resources.
  - International competition drives short-term survival attitudes versus a long-term continuous improvement approach.
  - The industrial refrigeration industry lacks design standards and best practices, resulting in substandard design and maintenance.
  - Huge capital outlay requirements in industrial refrigeration can delay or offset efficiency projects.
  - Efficient design alternatives can be lost in low-cost bidding scenarios.
  - Whole system opportunities are missed by individual equipment vendors.
  - Customers are often not aware of systems operating sub-optimally.

The Statewide Agriculture Program considers these unique barriers, among others, in all aspects of program design, including marketing strategies, trade ally outreach plans, and specific mix of services offered.

Marketing and Delivery Channels: To specifically address this highly diverse and dispersed group of agriculture, food processing and related water customers, utilities will continue to foster strategic partnerships with industry and commodity groups, as well as with regional farm and food associations, to engage in a multi-faceted approach to marketing energy efficiency practices and programs to targeted users. Such an approach

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

is recommended by the 2005 ACEEE report *Energy Efficiency Programs in Agriculture; Design, Success, and Lessons Learned*. These strategies leverage both past program successes as well as best practices studies that have confirmed that the targeted market segments rely substantially on local and industry-specific organizations for information and support.

The key food processing industry association partnerships include the Wine Institute's California Sustainable Winegrowers Alliance and the California League of Food Processors, who will be leveraged to reach large and small customers with key messages and emerging technologies information - through association communications, presence at industry conferences and trade shows – and to pursue mutually advantageous benchmarking and pilot opportunities. To reach the more broadly dispersed agricultural segments, the IOUs will coordinate with the state and regional farm bureaus on communicating program offerings in the Ag Alert newsletters, through regional meetings, through market sector workshops and trainings, and through media plans targeting ads and articles in trade publications.

This broad-based marketing will complement the more targeted efforts of utility account representatives who can further promote specific utility programs and resources. Other marketing efforts include both phone and web-based customer support and outreach as well as the promotion of site-based on web-based audits.

In support of the Strategic Plan as discussed in section 5.f, utilities will be inventorying and coordinating all relevant agriculture and food processing technical and programmatic resources into a centralized one-stop shopping clearinghouse on the enhanced statewide Energy Design Resources website. There will be a unique section for agriculture.

Continuous Energy Improvement: The long-term strategic energy planning approach of CEI, especially the emphasis on benchmarking, goal setting, and performance tracking, will help customers overcome short-term attitudes. CEI also fosters integration of non-energy business objectives into energy planning and leveraging of the co-benefits of water conservation, GHG reduction, and other relevant issues. This integration elevates the importance of energy efficiency and improves uptake and market penetration. In addition, top-down corporate attention and tracking of energy performance will positively affect facility staff performance.

Trade Allies/Workforce Education and Training: Customers in the agriculture and food processing markets often treat vendors, designers, and engineers as ad hoc outsourced technical resources and go to them first for everything from new equipment design to emergency equipment repair or replacement. Because these transactions often happen without utility knowledge, it becomes critical to continually inform and equip these vendors about efficiency technologies, practices, programs, and rebates. Vendor Participation Agreements, training, and outreach collaboration allow participating vendors to up-sell customers to efficient options and differentiate themselves on energy



**2009–2011 Energy Efficiency Programs  
Statewide Agriculture Program  
Program Implementation Plan**

efficiency. Utilities gain an additional sales force in the field with customers, minimizing lost opportunities.

Technical Support Services – Audits, Pump Tests, Calculated support: The role of the utility as an unbiased, trusted energy advisor cannot be overstated, both in evaluating proposed vendor projects and in identifying new technical opportunities in retrofit and new construction projects. The combination of technical support and the availability and commitment of approved utility incentive funds – based on a rigorous technical review and followed by an EM&V process – are essential drivers to overcome key customer barriers, including the lack of in-house technical resources and the tendency for efficiency options to get eliminated in low-cost vendor bidding scenarios.

Utility technical resources evaluate customer project opportunities and recommend design alternatives, including energy savings, cost savings, and available rebates and incentives for exceeding program baselines. Moving forward, utilities will also be exploring providing regulatory benefits and opportunities for CO<sub>2</sub> reductions and non-energy benefits, such as production and safety data. The calculated approach provides for a “whole systems” integrated approach (such as incorporating controls and optimization with other systems). This technical data, in conjunction with financial data like payback periods, net present value, and/or ROI, allows facility managers to easily “sell” efficiency projects internally to management. Incentives improve ROI, accelerate project schedules, and can prevent efficiency options from being “value engineered” out at a later time.

Retro-Commissioning (RCx) services, an innovative program offering, help identify sub-optimal systems and improve operating performance. Because RCx focuses on improving existing equipment, rather than installing new equipment, it has an added benefit of allowing many projects to be funded through operating budgets, overcoming a common financial barrier related to capital budget approvals. Incentives sweeten the project opportunity, while RCx also requires a customer to complete any project with less than a one-year payback, improving the uptake of projects.

d) Quantitative Program Targets

**Table 5**

SW Agricultural Sector Program	Program Target by 2009	Program Target by 2010	Program Target by 2011

**2009–2011 Energy Efficiency Programs  
Statewide Agriculture Program  
Program Implementation Plan**

e) Advancing Strategic Plan goals and objectives

The Statewide Agriculture Program teams supported the development of the Strategic Plan, and the 2009-11 program design aggressively supports the goals and strategies within it. Specifically, the following actions will be advanced during the 2009-11 program cycle.

*Goal 1: Energy Efficiency Knowledge Database*

*1.1 Develop knowledge base of efficiency solutions. Conduct an energy use characterization and efficiency potential study for the statewide agricultural market. Include potential for waste streams to offset energy consumption. Study plan (6/2009) and study completed (12/2010).*

Utilities will continue to coordinate with the California Energy Commission (CEC), CPUC, and other resources as necessary to identify a study plan, scope, and deliverables for a statewide agricultural market characterization that considers integrated energy opportunities in the segment. If possible, the plan shall be coordinated with other agricultural characterization plans planned or underway in the state focusing on renewable energy potentials, such as the California Department of Food and Agriculture's strategic plan for agriculture. The IOUs will defer to the CPUC and the CEC to determine the best method and timeline for this study, and will ensure coordination between each IOU's EM&V groups towards study objectives.

Such a marketing characterization will support the development of future program baseline data and metrics to help set targets and show market progress.

The resulting study will be posted on appropriate websites, including the IOU websites and the Energy Design Resources statewide website.

*Collect data on key programs and measures, best practices for energy efficiency in the agricultural sector. Study complete (6/10)*

Towards development of a "one stop shopping" clearinghouse of energy management and related information for the agriculture segment, the utilities will inventory all relevant existing technical information, best practices, continuous energy improvement resources, emerging technologies data, tools, programs, and other information for cleanup and organization on the statewide Energy Design Resources website.

*1.2 Ensure workforce has information and training necessary to apply efficiency solutions. Conduct workforce training needs assessment and next steps (12/2010)  
Develop training curricula and modules identified by needs assessment. (12/2011)*

In support of actions described in PIP section 6.0biii, utilities will assemble technical sub-groups, including utility and industry experts, to focus on the key technical focus areas identified in the Strategic plan: pumping, refrigeration and process heating.

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

Coordinating with Statewide WE&T Program, the Statewide Agriculture Program will develop a scoping document that outlines training objectives and partners. The group will identify priority topics, resource needs and industry partners for key workforce education and training, and will closely coordinate with the national ANSI Superior Energy Performance standards development work towards workforce Certification. Additionally, utilities will offer prerequisite training to support future Department of Energy certification classes.

Workforce training needs assessment will ideally be included in the Agricultural market characterization study, and results will be communicated to the Statewide WE&T team for coordination and development of a detailed WE&T plan and associated curricula. Furthermore, marketing for WE&T will be incorporated into efforts described in PIP section 6biv. Such efforts, pending timely completion of the characterization study, are targeted for completion by the close of the 2009-11 program cycle.

*1.3 Conduct research & development of new technologies and practices for agricultural efficiency. Conduct an Energy Technologies/ RD&D gap analysis. Identify and prioritize needed RD&D/ET projects. (12/2011). Coordinate research activities across government, utilities, agricultural extension and university programs, and equipment manufacturer proprietary efforts.*

As described in PIP section 6.0bi, the IOU's Emerging Technologies teams will continue to closely coordinate with the California Energy Commission, universities, and industry associations to identify key potential areas for emerging technologies development and research needs. For agriculture, these areas include irrigation pumping, refrigeration, and process heating. Utilities will identify the most promising technologies that can play a role of providing multiple solutions, both for energy efficiency and greenhouse gas mitigation as well as water efficiency purposes. New emerging technologies showing potential will be added to the Emerging Technologies roadmap.

*2.1 Set objectives and framework for agriculture to attain multi-resource management goals. Establish a task force to coordinate resource management policies, action goals, and program designs targeting California's agricultural sector. Identify where goal conflicts arise and resolve these conflicts. Assess potential for integrated approaches.*

In support of statewide regulatory coordination, the IOUs are willing and available to coordinate with California Department of Food and Agriculture (CDFA), California Energy Commission (CEC), Environmental Protection Agency (EPA), CA Air Resources Board (CARB), and industry to establish a task force empowered to coordinate strategies and goals, and also assess the potential for integrated approaches, on behalf of their agencies.. In order to facilitate this complex, multi-agency coordination, intervention at the governor's level is likely to be required.

Other efforts planned by the Statewide Agricultural Program, such as the integrated resource management pilot described in Section 6g, will offer California's IOUs and

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

regulatory agencies a case study to support the understanding of on-the-ground integration opportunities.

*2.2 Coordinate technical assistance, funding, and incentive mechanisms. Identify the programs and major funding sources affecting the management of energy, air and water resources, and climate change. Create a collaborative forum to facilitate sharing of information and coordination of programs.*

As the national economy continues to decline, optimizing all available financial resources in support of energy efficiency and other resource optimization will be increasingly important. In support of financial coordination, utilities will work with appropriate agencies and utilities, industry and private banking to assemble a comprehensive list of incentives, resources, funds, grants, loan products, and federal economic stimulus monies to support energy and other resource management objectives, to be made available to customers through the planned information Clearinghouse on Energy Design Resources.

In addition, financial resources will be integrated into Marketing and Outreach, Education and Training, and other program efforts as appropriate.

*3.1 Make information on efficiency solutions readily available to motivate efficiency improvements. Develop benchmarking resources, tools and methods for the agricultural sub-sectors. Design and launch focused program for irrigation efficiency, refrigeration, and process heating*

The IOUs will post all relevant market data, technical information, education and training resources, and benchmarking tools on the planned Energy Design Resources clearinghouse website. This information will cover all relevant technologies in the Agriculture and Food Processing segments, but will have a focus on irrigation efficiency, refrigeration, and process heating. The Continuous Energy Improvement Sub-Program will also support this near-term strategic plan strategy. On benchmarking, the IOUs will continue to work with industry associations (such as the Wine Institute, Almond Board, and Farm Bureau) to prioritize benchmarking needs and to develop tools and methods, as well as to market benchmarking once resources are available.

*3.2 Conduct marketing & outreach to stimulate efficiency actions. Develop ME&O strategy, addressing communication channels, partners, and effective messaging. Begin pilot implementation*

For details on marketing and outreach planned to stimulate efficiency actions, please refer to PIP section 6.0biv.

*3.3 Resolve metrics for embedded energy in water savings. Update evaluation measurement & verification protocols to define energy impacts of water efficiency actions. Design and conduct appropriate water/energy efficiency pilots for agriculture.*

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

In support of the significant efforts underway in California to conserve water resources, and to optimize public funds where energy and water converge, the utilities will work with the CPUC, water resources boards, and others to resolve metrics around embedded energy in water conveyance and treatment. Furthermore, IOUs will explore opportunities for saving energy on-site related to water, such as that in heating, cooling, pumping, and treating water. Lessons learned from current water-energy pilots underway in PG&E's territory will be shared with the other IOUs. The IOUs are willing and available to work with the CPUC to advance these important multi-resource efforts through studies, pilots and partnerships with water agencies as appropriate.

### 6.0) Program Implementation – Overview

#### a) Statewide IOU Coordination:

The utilities will coordinate the Statewide Agriculture Program to ensure that it is continuously updated and enhanced throughout the three-year implementation cycle. This effort will include coordination of crosscutting program elements described in PIP section 6.0b, including Emerging Technologies, Codes and Standards, Workforce Education and Training, Marketing and Outreach, and Non-IOU programs and market initiatives. Each designated IOU program lead will be responsible for representing key updates from each crosscutting program element in order to discuss opportunities for statewide program enhancements, modifications and further coordination as needed. IOU leads will then be responsible for incorporating program modifications at the IOU level to support statewide consistency when appropriate. Such items will be tracked in the meeting minutes to facilitate a record of statewide initiatives.

In addition, the five Agriculture Sub-Programs will be coordinated on a statewide level to unify program features, including name, delivery mechanisms, incentive levels, marketing and outreach, and IOU program interactions. (For a detailed description of each of these program features, please refer to the Agriculture Sub-Program descriptions in Section 6.1 through 6.5 of this document). The two statewide coordination systems (one for the broad programmatic level and one designed for the sub-program level) will interact with and support one another. These coordination efforts will be described below, focusing on how the IOUs will work together to effect the continuous improvement of the Statewide Agriculture Program.

The IOU Coordination process for the Statewide Agriculture Program will be as follows:

- Designate an IOU Program “Lead” – The coordination process will begin with each IOU designating a Statewide Agriculture Program lead. The IOU lead will represent one Agriculture sub-program and liaise with the cross-cutting program element managers, investigating new innovations, special accomplishments, and challenges experienced by sub-program managers in all IOUs. Where such innovations or challenges show potential for impacting the Statewide Agriculture Program across multiple sub-programs or the statewide program as a whole, the

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

IOU lead will present such information to a quarterly Steering Committee meeting.

- Establish protocols for Steering Committee Meetings – The IOUs will coordinate to establish protocols on scheduling meetings, agenda setting, interstate travel, meeting minutes and tracking of action items identified.
- Hold Periodic Steering Committee Meetings – All designated IOU leads (including at least one lead for each of the five sub-programs), and possibly other contributing stakeholders identified by the IOUs will be represented on the Agriculture Steering Committee. At the Steering Committee meeting, individual innovations, challenges, and accomplishments experienced in one IOU or by one sub-program will be transmitted to all IOUs. The Steering Committee will evaluate these individual IOU and sub-program experiences, hear ideas for course corrections and overcoming challenges, replicate successful innovations for consistency statewide, resolve differences in implementation to stay unified, and measure the Agriculture program’s progress against statewide metrics and goals.
- Adopt Program Enhancements – Once the Steering Committee agrees that a particular implementation policy or innovation has merit on a statewide level, each IOU lead will distribute the information to their sub-program managers for adoption and integration. Therefore, the IOU lead will act as a conduit, feeding sub-program information up to the statewide Steering Committee and distributing measures for adoption back to the sub-program managers. This feedback loop will assure consistency and unity in programmatic improvements across the IOUs. In some cases, it may be necessary to invite all sub-program managers to the Steering Committee meeting to get their feedback and ensure they receive the same message.
- Evaluate Program Enhancements Against Statewide Targets – To complete the adaptive management loop, the Steering Committee will track the program’s accomplishment of statewide targets and goals to ensure that adopted program enhancements are generating their intended results. The Steering Committee will determine whether further course corrections are needed, and if so, rely on the above coordination process to generate the improvements necessary to stay on track.

The high-level focus of this statewide coordination effort will enable the capture of new innovations and opportunities for program improvement, correct program weaknesses that reveal themselves during implementation, and ensure achievement of statewide targets across IOU service territories. This will ensure program unity and continuous improvement over the course of the three-year implementation cycle.

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

### b) Program delivery and coordination:

As described in 6.0a, the Statewide Agricultural Program will utilize scheduled Agriculture Steering Committee meetings as a vehicle to coordinate all crosscutting program efforts detailed below in sections 6.0bi through 6.0bix.

#### i. Emerging Technologies (ET) program

The long-term energy efficiency vision of California can only be attained through the continuous development, verification, and acceptance of new technologies into the market. IOU portfolio staff actively works with statewide emerging technologies staff to identify new emerging technologies, support evaluation and demonstration, develop and promote case studies, and market results to applicable customers towards total market penetration and eventual movement into building code. The programs will coordinate specifically with the CEC's Public Interest Energy Research (PIER) program, as well as universities, to feed market-ready and viable technologies into the ET portfolio.

The Agricultural Program is currently working to support a diverse list of emerging technologies including winery electro dialysis, wastewater treatment technologies, forklift battery chargers, dairy refrigeration advancements, industrial refrigeration design enhancements, field pre-cooling advancements, and solar thermal applications.

In addition, the utilities have developed a roadmap (see Appendix 2) for incorporating emerging technologies into the Agriculture Program. This roadmap tracks technologies/tools to be assessed, timeline to deployment, integration, codes and standards actions, expected actions of other players (such as manufacturers and ENERGY STAR) and other related information. The statewide Agriculture Steering Committee will work with statewide ET teams and other partners to transform the document into a statewide plan. The roadmap will be a "living" document, modified on a regular basis to reflect current conditions.

#### ii. Codes and Standards program

Energy efficiency measures are introduced into the market using the following process: 1) R&D, 2) Emerging technologies, 3) Incubation, and 4) Mainstream. The program will rely on Codes and Standards to maintain an updated and relevant list of measures that will support savings. As Codes and Standards impact measures, the program will act to align itself with appropriate offerings. Sub-programs, such as Calculated and Deemed, will include new offerings that will allow flexibility in adapting to changes in codes and standards, market trends, and technologies. Planned enhancements to Title 24 will be reflected in incentive levels and eligible measures and services. Specifically, current work is focusing on transitioning the market to accept new Refrigerated Warehouse code changes, and incorporating best practices and advanced refrigeration practices into that marketing and outreach effort. Towards

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

that end, the Agriculture Program will continue to work closely with crosscutting Codes and Standards team, utilizing the Statewide Agricultural Steering Committee to enhance the coordination effort.

### iii. WE&T Efforts

WE&T efforts support the education and training of a robust network of industry trade allies, vendors, engineers, design teams and others who can support the market transformation strategies of the Strategic Plan, as described in PIP section 5e. In the Agriculture Program, WE&T efforts will include those described in the Non-Incentive services listed PIP section 4c, including training on Title 24 code changes, industrial refrigeration best practices, and ANSI Superior Energy Performance certification. The latter will be contingent on program developments occurring at the national level. In the interim, the Statewide Agriculture Program will support the same superior energy performance concepts and principles through Continuous Energy Improvement workshops available for customers and trade allies. Additionally, DOE process system trainings (highlighting such topics as pumps, motors, steam, and compressed air) will be offered by IOUs statewide to lay the groundwork for certification-level classes once they have been developed nationally and are ready for rollout. The IOUs will coordinate closely with national efforts and have expressed willingness to discuss piloting Certification classes. As a result, California will be poised to adopt this national standard once it is available and be a leader in this effort.

Workforce education and training generally takes place at IOU energy centers and technology test centers. Working with the Statewide WE&T team, the Agriculture program managers will also explore opportunities to provide training at local universities and academic institutions.

### iv. Program-specific marketing and outreach efforts (budget provided in Table 1)

To optimize integrated demand-side management opportunities in market-sector targeted programs, the IOUs are currently engaged in in-depth market segmentation analyses. Results of this work will be shared between the IOUs and incorporated into detailed marketing and sales strategies to ensure the IOUs are optimizing product and service delivery to customers. Starting with this foundational segmentation, the IOUs expect that segment-based marketing will evolve over time as IOUs gain insight into customer mindsets, behaviors, responses and motivations to achieve the most effective level of energy use. Segment-based marketing will give IOUs the advantage of providing consistent marketing that is focused on customers' business and personal goals, unique needs, and specific environmental considerations.

The results of this segment-based marketing planning effort will help define - and refine - successful program outreach efforts that address the diverse agriculture, food processing and related water customers segments. As discussed in the marketing



## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

section of PIP section 5C, Program Design to Overcome Market Barriers, such efforts will be customized to suit the unique needs of each segment and customer profile.

Appropriate to the unique needs of the Agriculture Sector, the IOUs will continue to foster strategic partnerships with industry and commodity groups, as well as regional farm and food associations, to engage in a multi-faceted approach to marketing energy efficiency practices and programs to targeted users.

Specific efforts will include:

- Attendance at Farm Bureau meetings and information in monthly newsletters.
- Close partnerships with key industry associations, and participation in their annual conferences, with an effort to develop conference speaking engagements.
- Presence at technical conferences, targeting customers and trade allies.
- Targeted integrated education and training to specific market sectors to support peer-to-peer interactions and industry advancement.
- Media campaigns focusing on trade magazine ads and articles, discussing IOU program information and case studies.
- Targeted customer efforts through assigned IOU account representatives and program engineers, third parties, and government partnerships.
- Phone and web-based customer support and outreach.
- Development of coordinated statewide Agriculture Sector resources into a centralized “one-stop shopping” clearinghouse, on the Energy Design Resources website.
- Market sector specific collateral that refers customers to account representatives and Websites for additional support.

Such efforts have already shown success in California’s IOU programs and are identified as best practices in ACEEE’s comparative analysis of national agricultural energy efficiency programs.

Where possible and applicable, the IOUs will coordinate statewide in these targeted marketing efforts and partnerships to ensure cost-effectiveness and a consistent approach to customer-facing activities. Cost sharing at industry conferences, co-sponsoring workshops, and identifying opportunities for statewide media campaigns as well as co-development of web-based tools and resources will be pursued.

The Energy Design Resources website will be used as a statewide clearinghouse of best practices, technology information, case studies, updates on upcoming education and training, and to promote new tools and resources available to support the Continuous Energy Improvement approach, such as benchmarking and performance tracking tools.

**2009–2011 Energy Efficiency Programs  
Statewide Agriculture Program  
Program Implementation Plan**

v. Non-energy activities of program

Please refer to Section 6.0f.

vi. Non-IOU Programs

In addition to the efforts described in PIP section 6e and 6f, there are a variety of programs that will be coordinated with and leveraged in support of the Program objectives. They include:

- Connecting customers with The Climate Registry and the CA Climate Action Registry;
- AB32 support through CO2 tracking in program resources;
- Regulatory program coordination and integration, including EPA air quality standards, water quality standards, and new refrigerant regulations;
- Non-utility financing resources, including those from water utilities and industry and private banking, as well as state and federal incentives, funds, grants, and loan products to support energy and other resource management objectives;
- Water/Energy efforts within California;
- ANSI, for the Superior Energy Performance Standard; and,
- ISO international energy management standards.

The program will continue to engage with local Air Quality Management Districts, the California Energy Commission, the California Air Resources Board, the U.S. Department of Energy, local and state water agencies, and other government agencies on programs impacting regulatory compliance, energy, and resource management.

vii. CEC work on PIER

Please refer to section 6.0bi, Emerging Technologies.

viii. CEC work on codes and standards

Please refer to section 6.0b.ii, Codes and Standards.

ix. Non-utility market initiatives:

The Agriculture Program will coordinate with applicable market initiatives to leverage market momentum and areas of mutual advantage. Modeling on the success of the utility partnership with the wine industry's California Sustainable Winegrowers Alliance, the Program will leverage the following efforts:

- The Food Processing Efficiency Alliance;

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

- The Almond industry’s sustainability planning, including energy planning;
- California Sustainable Winegrowers Alliance’s Program initiative;
- ASHRAE/ARI efforts to develop best practices for refrigeration; and
- National dairy sustainability effort.

c) Best Practices:

As described in previous PIP sections, the Agriculture Program reflects the best and most successful components of each utility’s prior agriculture program offerings. The Program also introduces new elements from other utilities and national efforts as well. Best practices include:

- **Leveraging Local Agriculture Resources:** Effectively reaches disbursed customers through collaboration with industry associations and farm bureaus, as described in PIP section 6.0biv and 6.0bix.
- **A Continuous Energy Improvement approach:** Proposes to transform the market and reduce energy intensity through addressing technical and management opportunities.
- **Technical Assistance:** Recognizes the need for personalized assistance for customers which includes a full service approach. Offer audits/pump tests, design and technical assistance, presentation of recommendations, resources to develop a long term plan, and guidance with incentives, payback rates, and alternative financing options.
- **Vendor Partnerships:** This strategy will be coupled with vendor support and educational workshops to provide the full breadth of support customers may need to implement energy efficient equipment and practices.
- **Statewide Coordination:** In order to take advantage of IOU-generated enhancements and innovations, IOU representatives will meet on a regular basis to improve program operations by sharing successes and trouble-shooting areas of operational concerns.

d) Innovation:

Significant innovative aspects of the Agricultural Program include:

Integration

The Statewide Agriculture Program boldly takes the lead on not only integrated demand side management strategies, but also in developing methods and pilots to promote integration of interlinked environmental and resource management issues. The theory is that by improving the coordination of these issues of paramount importance to the industries being served, more “face-time” will be possible with large customers, projects will become more cost effective, and multiple “problems” will be solved concurrently. Specifically:

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

- Continuous Energy Improvement will foster a long-term energy management approach and support integrated demand side management.
- An innovative food processing pilot will integrate energy, air, water, GHG, and potentially waste streams.
- Integrated Audits delivered under the Non-Residential Audit sub-program will provide targeted customers with integrated solutions in efficiency, DR, and DG, and will, in some cases, advise customers on other sustainability practices such as water conservation opportunities, CO2 reduction potential or other programs references.
- IOUs will link customers with the Climate Registry to support carbon foot printing of a customer's facility.
- Utilities will promote innovative agricultural opportunities such as dairy biogas-to-energy, biogas injection, waste stream utilization, and community scale generation opportunities.

### Marketing

- A market-sector approach to designing and delivering programs will allow IOUs to delve more deeply into market opportunities and overcome specific market barriers. This approach is supported by innovative market segmentation work currently underway at IOUs that will support development of new, integrated marketing and outreach plans outlining multiple delivery channels that target customers based on their needs.
- Closer coordination with third parties, government partnerships, core programs, and other delivery channels will optimize portfolio performance.
- Utilities will increase outreach to new trade and community-based associations, leveraging best practices identified in ACEEE study of utility agricultural programs.
- Expanded workforce education and training efforts with vendors, design teams, industry association members and other key market actors will help overcome many customers' informational and transactional barriers.
- Energy Design Resources, a website under development statewide by IOUs, will be expanded as a web-based hub of agriculture and food processing best practice information, training, modeling and performance tracking tools.
- Training will be provided on modeling and quantifying savings opportunities through tools such as eQUEST and Energy Pro.
- Non-utility financing tools and resources will be coordinated and communicated to help customers leverage all available sources of funds to complete targeted projects.

### Implementation

- Utilities will coordinate on process improvements for statewide sub-programs to ease participation barriers.

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

- Energy performance measuring and benchmarking assistance/services to customers will enable customers to compare themselves to “best in class” peers utilizing tools such as the U.S. EPA’s Energy Star Benchmarking tool.

e) Integrated/coordinated Demand Side Management:

An integrated portfolio is cost-effective, captures program delivery efficiencies, and serves the needs and wants of customers, who prefer a single, informed utility point of contact who can help inform and prioritize their energy investment decisions based on their unique needs. Consistent with CPUC direction and the Strategic Plan, the Agriculture Program includes integration of energy efficiency, demand response and distributed generation programs in integrated audits, marketing materials and industry-specific workshops. To this end, the IOUs and the Statewide Agriculture Program have made tremendous progress in advancing integrated solutions:

- **Marketing:** As described in PIP section 6.0b.iv, the IOUs will place major emphasis on optimizing message delivery to customers. Advanced customer segmentation is being used to develop detailed integrated marketing and outreach plans which will outline tactics and key messages that appeal to individual customers’ specific needs.
- The IOU account representatives, who serve as the key customer point of contact, will attend an integrated sales strategy and training program to ensure consistent delivery of portfolio offerings.
- **Education and training** – especially when organized around a customer segment - provide an ideal situation to integrate customer energy solutions. Utilities will build on past successes providing integrated workshops to dairies, wineries, and food processors, where topics start with “analysis” resources and methods, and move on to “conservation”, “efficiency”, “demand response”, then “generation” topics and resources. These workshops provide opportunities for utilities to cross-sell solutions and share key information from other utility departments – for example, sharing biogas injection information at dairy workshops. They also provide opportunities to look at water, air, carbon credit and waste management issues.
- As appropriate, Workforce Education and Training will also cover integrated energy and system solutions, which will be increasingly important as Critical Peak Pricing matures. The Agricultural Program will coordinate with the WE&T group on curricula development and class planning.
- The availability of a Continuous Energy Improvement approach, especially for the largest, most strategic customer accounts, will facilitate a thoughtful, integrated energy plan and will allow utilities to stay engaged in supporting the progress of that plan.
- As described in PIP section 6.1, Integrated Audits will combine funds and resources of energy efficiency and demand response programs to provide integrated recommendations to customers. These audits will provide

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

customers with EE and DR recommendations and also provide general feasibility assessments for DG. Detailed integrated audits will be offered to customers with loads greater than 500 kW and all integrated audits will focus on EE, DR and DG options. In addition, the utilities are developing an enhanced web-based audit tool that would be accessible by customers as well as internal utility personnel. The audit tool will be the principal tool to provide IDSM information to customers with loads less than 200 kW and will be key for use by the California Solar Initiative program for determining EE opportunities prior to installation of solar equipment. It will be capable of generating customer reports that include specific information on the costs and benefits of IDSM programs.

- Emerging Technologies and CEC-PIER collaboration is expected to include pilot projects and market acceleration assistance for market-ready products in the general categories of day lighting, lighting, HVAC, controls, and building envelope improvements.

f) Integration across resource types:

California's Agriculture and related food processing sectors face a multitude of environmental and regulatory challenges that threaten their survival and competitiveness. In addition to the severe drought impacting California's farmers and increasing water pumping costs, new regulations aimed at improving air quality, water quality and reducing toxic environmental pollutants are proving to be expensive and disruptive to business as usual, and in many cases will have the impact of increasing energy use in compliance.

The Agriculture Program proposes to leverage these challenges to coordinate with the regulating agencies and the programs they are operating in order to support mutually advantageous program designs, customer incentives, marketing opportunities, and implementation opportunities. Recently, PG&E offered targeted trainings to customers who are sharing common regulatory challenges. In 2008, PG&E hosted three successful workshops called NOX – Comply and Save, which educated customers on impending regulations, requirements for their boilers, and the most efficient project options to consider for compliance. This type of workshop, which integrates multiple resource areas related to energy, will be considered at the statewide level during Agriculture Steering Committee meetings. At these meetings, the successes and lessons learned by PG&E will be shared with all IOUs for their consideration and incorporation into workshop planning for wastewater treatment options, refrigeration upgrades, and energy efficiency to meet AB32 targets.

The IOUs will also pursue opportunities to collaborate with water agencies to offer joint energy and water incentives to support projects that reduce both resources. This will, in turn, reduce project costs and improve payback. Further, a recent study conducted by PG&E with Kennedy Jenks recommends future measures IOUs may

**2009–2011 Energy Efficiency Programs  
Statewide Agriculture Program  
Program Implementation Plan**

want to consider for their customers. The IOUs will share these study results, as well as post the research on the Energy Design Resources website.

g) Pilots: Please describe any pilot projects that are part of this program

The Agriculture Program will support the Pilot proposed by the California League of Food Processors tentatively titled the Integrated Demand Side Management for Food Processing Program. The pilot will form an alliance between the food industry, CPUC, IOUs, and other state and national stakeholders and promote integrated energy management solutions to end-use customers in the food processing segment.

The goal of the Pilot is to explore the relationship between energy efficiency, demand response, air, water, and other resources and develop integrated strategic plans for Pilot participants that will optimize their management. This comprehensive strategic approach to resource efficiency is warranted due to the close interconnection between the demand for energy efficiency and reductions in water use, air emissions and wastewater pollution. The Pilot will support the need for industrial managers, plant supervisors and workers to have new skills and abilities to engage in technical deliberations to ensure the integration across resources achieves the desired resource optimization objectives.

The end result is expected to be food processing facilities that reduce, reuse and recycle water resources; limit air emissions; capture solid and liquid waste streams to generate bio-energy products; and continuously achieve energy efficiency through Best Practices and self actualization. The reward will be efficiently-made products that minimize impacts on natural resources and the environment.

The scope of the Pilot is still under development. In 2009, the IOUs will coordinate with the California League of Food Processors, CPUC, California Energy Commission, ANSI and the International Standardization Organization to clarify and refine pilot design, budget, timelines, partners, and goals. Candidates will be selected from the food processing and potentially industrial segments. If possible, non-utility funding sources will be leveraged to support pilot activities as the resource benefits cross multiple agencies and jurisdictions. The pilot is expected to be planned during the bridge period and be rolled out in the six month period after the 2009-11 program cycle begins.

h) EM&V:

The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2009-2011 after the program implementation plans are filed. This will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many

**2009–2011 Energy Efficiency Programs  
Statewide Agriculture Program  
Program Implementation Plan**

cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.



## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

### 6.1) Subprogram Implementation – Non-Residential Audits

The Non-Residential Audits Sub-Program features basic audits, integrated audits and Retrocommissioning (RCx) audits. Audits are technical surveys of energy utilization that occurs throughout a customer's facility. They provide a system view of equipment and processes that consume energy. In this holistic system view, four discrete components of the Strategic Plan (including Energy Conservations, Energy Efficiency, Demand Reduction and Self Generation) are evaluated in various combinations. Each combination will be reviewed for their societal benefits, logical order, and customer benefits, and then presented to the customer in the recommendations section of the final audit report. As described below, the Non-Residential Audits Sub-Program will offer basic, integrated and RCx audits during the 2009-11 program cycle.

#### Basic Audits:

Three types of basic audits will be offered.

- Focused – This on-site audit will be equipment focused. The report will provide a written summary of existing equipment, proposed equipment, and a description of the value of proposed equipment in terms of calculated energy savings. The report will also refer customers to appropriate energy efficiency programs such as the Deemed and Calculated offerings.
- Walk-through – This on-site audit will be systems focused. The report will provide written recommendations on a standardized form that have one or more single line recommendations. Customers will be informed of savings potential and referred to appropriate EE programs.
- Remote – This type of audit will offer the same customer benefits as the on-site audits, but differs in that it is a web-based service appropriate for small to medium-sized non-residential customers.

#### Integrated Audits

Integrated audits will be offered to non-residential customers that require in-depth and detailed information. These audits usually involve complex processes with an operational assessment that includes customized energy savings calculations. In addition, Integrated Audits will provide targeted customers with integrated solutions in efficiency, demand response, and distributed generation, and will, in some cases, advise customers on other sustainability practices such as water conservation opportunities and CO2 reduction potential.

#### Retrocommissioning Audits

The Non-Residential Audits sub-program will house the audits portion of the Retrocommissioning Program offering, while the calculated sub-program will house the

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

incentives portion of RCx. RCx is a systematic process to identify and correct operational problems or inherent repair and maintenance deficiencies that lead to excessive energy use. Unlike retrofits, which focus on equipment replacement, or O&M, which focuses on routine maintenance, RCx focuses on identifying and correcting problems that may not be readily identified by a standard energy audit. Operations and Maintenance items with an effective useful life greater than three years will also be identified through this assessment. Furthermore, opportunities often exist to optimize existing systems to operate more efficiently than originally designed with minimal new capital outlay. The RCx Program will incorporate initial feedback from the 2006-2008 program cycle by expanding its reach into the Agriculture and Industrial sectors. Finally, the IOUs will improve existing tools and practices for building retrocommissioning to reduce energy consumption in commercial buildings per the Strategic Plan.

RCx will be offered as a bundle of products and services. RCx providers will perform several tasks to identify measures. These tasks include, but are not limited to:

- Conduct an initial benchmark
- Collect data to quantify the owner's operational requirements
- Perform detailed on-site audits to evaluate operational deficiencies and/or operational optimization opportunities inclusive of improved and enhanced preventive maintenance and repair programs
- Define measures, quantifying implementation costs and savings
- Assist customers with measure implementation
- Verify completion of measures
- Provide post installation documentation and training as well as other persistence techniques
- Conduct a post-project benchmark

The Non-Residential Audits Sub-Program will offer Integrated Demand-Side Management (IDSM) solutions to SDG&E customers to optimize energy consumption in California and deliver significant environmental benefits. Audit reports will offer no-cost, low-cost and capital-intensive actions to provide customers with an array of choices on how to invest in energy efficiency, demand response, and distributed generation. The program will integrate demand-side energy management opportunities to ensure that the customer has the information available to make a cost-effective, productive decision that meets his/her business requirements and goals.

The sub-program will also help customers overcome first-cost barriers that typically prevent customers from implementing IDSM measures by guiding customers to relevant IOU incentive and/or finance programs. Benefits from non-IOU programs, such as those offered by water agencies and Air Quality Management Districts, may be presented as well. Both basic and integrated audits will calculate energy savings. SDG&E will also support the customer in determining subsequent cost savings and Return on Investment – an important component that affects customer's profitability.

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

To support the core utility programs, Non-Residential Audits will provide Savings Calculation Assistance (SCA), targeted to specific end uses and systems, to support non-residential retrofit applications. SCA will be provided by SDG&E engineers or contracted energy engineering firms and will help customers submit accurate, technically complete non-residential retrofit applications. This assistance will speed the process and reduce expensive, time consuming rework later in the process.

For medium to large-sized customers, SDG&E may provide walk-through audit services using SDG&E contractors, third-parties, and other representatives depending on the complexity of the facility and the estimated savings potential. Less complex facilities may benefit from online audit tools.

Through the Statewide IOU Coordination process, IOUs will consider additional recognition options for customers who utilize audit results to move forward with energy efficiency, demand response, and distributed generation measures. Such options may include, but not be limited to, co-payments, rewards, case studies, or additional incentives.

### Further Information

- For information on sub-program design to overcome market barriers, please refer to PIP section 5.c.
- For information on sub-program targets, please refer to PIP section 5.d.
- For information on how the sub-program advances the Strategic Plan, please refer to PIP section 5.e.

#### a) Statewide IOU Coordination:

The Non-Residential Audits Sub-Program will follow the process for Statewide IOU Coordination described in Section 6.0.a. Coordination is already streamlined, as the Energy Audit has been a statewide program since 2002, and all IOUs use the same types of energy audits for the same type of customer segments.

#### b) Program delivery and coordination:

##### i. Emerging Technologies program

Consistent two-way communication between the Emerging Technologies Program and the Non-Residential Audits Sub-Program will accelerate implementation of pilot programs for demonstrating promising new EE technologies and practices. Additionally, Non-Residential Audits will enable auditors to seek potential applications among targeted customer segments so that ET may gauge potential for promising technologies.

**2009–2011 Energy Efficiency Programs  
Statewide Agriculture Program  
Program Implementation Plan**

ii. Codes and Standards program

As noted in PIP section 6.0.b.ii, the Non-Residential Audits sub-program will work closely with Codes and Standards to recommend appropriate technologies and products to customers.

iii. WE&T efforts

For information on how this sub-program links to WE&T, please refer to PIP section 6.0.b.iii.

iv. Program-specific marketing and outreach efforts (budget provided in Table 1)

A broad range of marketing activities will be used to promote all audit offerings and elevate customer engagement. Marketing plans will incorporate the results of EM&V studies, which specify necessary steps for program enhancement.

Non-Residential Audits will be promoted via direct communication between customers and Account Executives. In addition, IOUs will use traditional advertising activities such as trade publications, utility websites, bill inserts, brochures, and Trade Shows. Marketing activities will be coordinated between IOUs, and the Demand Response and Distributed Generation departments within SDG&E.

v. Non-energy activities of the program

Integrated audits are a key tool for identifying non-energy opportunities for specific customers, as noted in Section 6.0.b.v.

vi. Non-IOU Programs

Please refer to Section 6.0.b.vi.

vii. CEC work with PIER

Please refer to Section 6.0.b.vii.

viii. CEC work on codes and standards

Please refer to Section 6.0.b.viii

ix. Non-utility market initiatives

Please refer to Section 6.0.b.ix.

c) Best Practices:

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

The Non-Residential Audits Sub-Program leverages Workforce Education & Training efforts to expand the reach of the audits to external resources such as third-parties, University internship programs, and municipal utilities. In conjunction with the California Center for Sustainable Energy (CCSE), the sub-program will develop a workforce that is trained to identify energy efficiency and demand response opportunities. These best practice efforts have made the IOU audits program successful in the past, as evidenced by the evolution and progression of the private-sector energy services industry.

In addition, the Non-Residential Audits Sub-Program will improve the adoption rate of energy efficiency and demand-side management opportunities recommended by audits. IOUs will provide comprehensive support and establish an extended follow-up plan. For example, customers who complete an online basic audit (using the Utility Energy Audit Tool) will get a printout of recommendations specific to their facility and information on rebates and incentives, which simplify measure adoption. Following on-site audits for large customers, assigned account managers will contact customers to review audit recommendations and present technical and financial assistance to help them implement measures.

### **d) Innovation:**

The discussion below presents the innovative aspects of the Non-Residential Audits Sub-Program.

#### **Integration with RCx**

Energy Efficiency measures recommended in audit reports comprise three categories defined by their relative cost for implementation – no cost, low cost and capital projects. Integrated audits will be a primary source of leads for potential RCx projects, which assist customers with implementation of no cost and low cost EE measures. In return, RCx contractors, as appropriate, will also recommend that customers pursue a full Integrated Audit before embarking on RCx efforts. In the 2009 – 2011 Non-Residential Audits Sub-Program, cross training and coordination between Integrated Audits and RCx will be increased to encourage optimum effectiveness in achieving an integrated offering.

To encourage implementation of energy audit recommendations, SDG&E will also provide information to customers, such as contractor lists, financial resources and technical assistance, to make it easier for customers to take action in response to audit recommendations.

#### **Energy Challenger Audit Tool**

To implement the integrated audits for smaller customers, SDG&E has developed a Web-based audit (do-it-yourself or auditor-performed) that includes education on various

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

demand-side management solutions as well as greenhouse gas calculations. The Energy Challenger Tool will enable customers to conduct their own energy audits by logging onto the SDG&E Website. It will be the primary tool to provide energy efficiency and greenhouse gas information and analyses to small to medium-sized customers. Customers will supply account information, such as their zip code or telephone number, which will calibrate the tool for their specific microclimate. Additional questions, presented through the latest online graphic interface, will provide robust customization of their end energy use (e.g., type of business, type of residential building, hours of operation, number of inhabitants, etc.). Energy Challenger will specifically address potential measures that qualify for rebates and incentives and provide simple payback information.

SDG&E is planning to participate in the development of the Universal Energy Audit Tool (UEAT) with the other IOUs. The UEAT will provide a portfolio of audits that are easily accessible to SDG&E program managers. It will provide them with unified data resources, a central repository of recommendations and algorithms, and an interface to enable customization of energy audit formats to meet specific customer needs. Historical data from the UEAT, from previous energy audits and efficiency projects implemented at their own facilities, will be accessible to all residential and non-residential SDG&E customers via Web-based tools.

e) Integrated/coordinated Demand Side Management:

The Non-Residential Audits Sub-Program is a core strategy of an overall integrated customer approach. It features a technical and comprehensive survey of energy utilization throughout the customer facility, providing a system view of equipment and processes that consume energy. In this holistic system view, four discrete components of the Strategic Plan (Energy Conservation, Energy Efficiency, Demand Reduction and Self Generation) are evaluated concurrently in various combinations. These combinations will be reviewed for their logical order and customer benefits, and then presented to the customer in the recommendations section of the integrated audit's final report.

The audit will be composed of a site survey, plant operating parameters, and customer input to produce a final energy audit report. The report's recommendations will be optimized to achieve energy savings, reduce environmental impacts and increase productivity and economic viability for the participating customer.

During the integrated audit process, an auditor will analyze and describe multiple energy efficiency, time-of-use management, demand response, and self-generation measures and recommendations. Then, working with the customer, the auditor will optimize a course of action utilizing the SDG&E portfolio to craft an integrated solution that is tailored to the customer's specific business needs and requirements.

The following examples illustrate how the integrated process will be implemented utilizing available programs and services:

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

- After an Integrated Audit is completed, no-cost/low-cost energy conservation measures may be transferred to the Retro-commissioning program for implementation.
- Capital investment measures selected by a customer will become subject to a more rigorous calculation of energy savings under the Saving Calculation Assistance service. These calculations may accompany a customer application to the Deemed or Calculated sub-program to implement a retrofit project.
- Demand response measures can be evaluated for their applicability to load shifting and demand response events.
- Distributed generation opportunities and benefits will be presented to the customer with particular references to respective incentive programs.

Non-Residential Audits will support the Commercial, Industrial, and Agricultural sectors by developing sector experts among external resources such as third-parties, university internship programs, and municipal utilities, and by offering on-line audit tools. In addition, Integrated Audits will be offered to large customers. To deliver an Integrated Audit, SDG&E engineers will work with assigned customer account representatives and the audited firm project leads. This team will translate sector specific market and technical information into a strategic energy resources plan by incorporating energy conservation, energy efficiency, demand response and self generation.

SDG&E will continue to partner with the Local Government Partnerships Program by offering Integrated Audits to qualified governmental agencies as it has during the 2006 – 2008 Program. In the future, this effort will increase the number of Regional, County and City aggregated audits to establish a strategic plan for these customers and better integrate demand response and self generation with energy conservation and energy efficiency. These customers often have multiple accounts that do not meet the demand threshold for on-site audits on their own, but when aggregated they can constitute one of the largest energy consumers in the area.

SDG&E will provide training and guidance to third-party program vendors to broaden their audit focus beyond their program offering in order to identify potential in other end use systems. In this way, SDG&E will minimize inefficient and, to the customer, the hassle of multiple visits. Expanding the scope of third-party program vendor audits will provide customers with additional opportunities through combinations of equipment upgrades in conjunction with other third-party programs.

Both basic and integrated audits will refer customers to appropriate third-party program vendors based on audit report recommendations. The SDG&E Call Center and Account Representatives will provide this service. In addition, the future UEAT (on-line audit tool) will provide potential opportunities via automated selection based on survey input.

**2009–2011 Energy Efficiency Programs  
Statewide Agriculture Program  
Program Implementation Plan**

f) Integration across resource types (energy, water, air quality, etc):

A comprehensive audit marketing plan will be aligned and coordinated with the marketing plans for each of the resource programs in order to maximize effectiveness, integrate offerings, and, where appropriate, refer customers to relevant DSM programs. SDG&E will also look to partner with interested public and governmental bodies to proactively promote energy efficiency and environmentally responsible actions, in partnership with programs such as the local government partnerships and green communities.

Integrated Audits will serve as the foundation for integrated offerings by providing a truly comprehensive energy assessment to customers, providing them information and recommendations around energy efficiency, distributed-generation, demand response, environmental programs, such as the Cool Planet Program, and other relevant programs. SDG&E will provide customers with a complete picture of their energy usage, options for reducing costs and using energy more efficiently, and direct them to programs that meet their needs and situation.

Marketing collateral and messages for energy efficiency will be integrated with other SDG&E programs. Through additional market segmentation and feedback from customers, SDG&E will further adjust approaches based on the varied needs of targeted customers. Services from the Non-Residential Audits Sub-Program may also be available to low-income energy efficiency and third-party program staff and customers.

g) Pilots:

There are no pilots associated with the Non-Residential Audits Sub-Program.

h) EM&V:

The Non-Residential Audits program managers will work with SDG&E EM&V group and initiate studies that will help validate saving claims, and identify market potential and program improvements.



## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

### 6.2) Subprogram Implementation – Calculated Incentives

The statewide non-residential Calculated Incentives Sub-Program will provide customers technical and calculation assistance, as well as incentives based on calculated savings to influence the design and installation of energy efficient equipment and systems in both retrofit and added load applications.

The Calculated approach will be utilized for projects where a rebate is not available through the statewide Deemed Program, where project conditions require customized calculations to provide the most accurate savings estimates, or where a project has interactive effects that are best captured through whole building or whole system modeling. Because calculated savings estimates are based on actual customer operating conditions, pre-inspections (for retrofit projects) and post-inspections are typically required as part of each utility's project documentation.

An important element of the Calculated approach is the design and calculation assistance provided by utilities to influence customers to select the most efficient design and equipment options. For both retrofit and added load projects, the SDG&E will work with the customer's project team to evaluate their proposed projects and provide a report recommending efficient design alternatives. The report will detail energy savings, CO<sub>2</sub> reductions, and calculated incentives available for exceeding Title 24 code or industry standard practice baselines, as appropriate. This information will also be available to customers through the Non-Residential Audits Sub-Program. The combination of technical support and the availability of approved utility incentive funds will be an essential driver to overcome key customer barriers, including lack of technical resources and lack of capital for energy efficiency projects.

Customers and project sponsors (i.e., contractors, design teams, vendors, and ESCOs) participating in the Calculated approach will have the option to complete their own savings calculations for submittal to the utilities for review and approval. For this purpose, statewide-consistent calculators are publicly available to customers for use if desired. The statewide, utility-created and maintained Standard Performance Contract (SPC) Calculator can be used for retrofits and some new construction applications and is available online and through CDs. For whole building construction projects, utilities accept both Energy Pro, available for license, and the utility-sponsored EQEST, available for free on the statewide Energy Design Resources website ([www.energydesignresources.com](http://www.energydesignresources.com)).

Depending on whether a project is a retrofit or added load project, and on whether Title 24 is triggered for a particular project, different baselines are applied to capture appropriate project savings. For retrofit projects, incentives will be capped at 50% of the total project cost. For added load projects, incentives will be capped at 50% of the incremental project cost.

Below is a list of all calculated measures for all IOUs, grouped by measure category.

**2009–2011 Energy Efficiency Programs  
Statewide Agriculture Program  
Program Implementation Plan**

#	MeasureName	Per kWh Incentive	Per kW Incentive
1	Air Compressor System Replacement / Upgrade	\$0.09	\$100
2	ASD - HVAC Compressor Motors	\$0.15	\$100
3	ASD - Others	\$0.09	\$100
4	Building Shell Improvements	\$0.09	\$100
5	Carbon Monoxide Sensors	\$0.09	\$100
6	Controls - Non-Lighting	\$0.09	\$100
7	Equipment - Other not specified	\$0.09	\$100
8	Extruder System Replacement / Upgrade	\$0.09	\$100
9	Fan and Pump System Upgrades	\$0.09	\$100
10	Furnace / Energy Efficient	\$0.09	\$100
11	Heat Recovery Equipment (Process)	\$0.09	\$100
12	Heat Recovery Equipment (Space Conditioning)	\$0.15	\$100
13	HVAC - Chiller	\$0.15	\$100
14	HVAC - Complete Subsystem Replacement / Upgrade	\$0.15	\$100
15	HVAC - Heat Pump	\$0.15	\$100
16	HVAC - Other	\$0.09	\$100
17	HVAC - Package Unit	\$0.15	\$100
18	Injection Molding Machine Replacement / Upgrade	\$0.09	\$100
19	Insulation	\$0.09	\$100
20	Lighting	\$0.05	\$100
21	Lighting Controls	\$0.05	\$100
22	Motors Project (HVAC Compressor)	\$0.15	\$100
23	Motors Project (Non-HVAC Compressor)	\$0.09	\$100
24	Precooling Equipment	\$0.15	\$100
25	Process - Chiller	\$0.15	\$100
26	Process - Complete Subsystem Replacement / Upgrade	\$0.15	\$100
27	Professional Wet Cleaning	\$0.09	\$100
28	Pumping System Replacement / Upgrade	\$0.09	\$100
29	Rapid Closing Door	\$0.09	\$100
30	Refrigeration - Complete Subsystem Replacement / Upgrade	\$0.15	\$100
31	Refrigeration - Other	\$0.09	\$100
32	Series to Parallel Street Lighting	\$0.09	\$100
33	Special Window Glazing & Glazing Treatments	\$0.09	\$100
34	Vacuum Systems	\$0.09	\$100
35	Window Replacement	\$0.09	\$100

The Statewide Agriculture Calculated Sub-Program will offer customers incentives to implement energy efficiency measures that have been identified primarily through standard IOU energy efficiency audits or in-depth facility/process assessments. Other avenues used to identify energy efficiency opportunities include programs that provide Education and Outreach, Workforce Education and Training, or through IOU Emerging Technologies Programs.

The Calculated Sub-Program will deliver a consistent, statewide message to non-residential customers about the benefits, energy savings and GHG reductions that efficient technologies and “best operating practices” offer to customers. This will overcome barriers often run into

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

by non-residential customers, such as receiving incorrect or out of date information from local networks.

Information about the services offered by the Calculated Sub-Program will be delivered through Account Representatives, utility Call Centers, Partnerships, Third Parties, and utility Internet sites. Calculated sub-program information will also be made available through industry events, such as the World Ag Expo, through industry organizations, such as the California League of Food Processors and The Building Owners and Managers Association (BOMA), American Water Works Association (AWWA), Hydraulic Institute, and through advertising in industry and trade publications.

The Calculated Sub-Program will not only bring IOU incentive information to customers, but in many instances will also provide additional information about other opportunities for project assistance, such as State or Federal funds available for energy efficiency projects, tax incentives, and other local sources of project funding.

The Calculated Sub-Program will use Retrocommissioning (RCx) as a resource to deliver energy savings. The non-resource portion of RCx is located in the Non-Residential Audits Sub-Program. However, as RCx provides calculated savings, the resource aspect of this offering will be located in the calculated sub-program. RCx is a systematic process to identify and correct operational problems or inherent repair and maintenance deficiencies that lead to excessive energy use. Unlike retrofits, which focus on equipment replacement, or O&M, which focuses on routine maintenance, RCx focuses on identifying and correcting problems that may not be readily identified by a standard energy audit. O&M items with an effective useful life greater than three years will also be identified through this assessment. Furthermore, opportunities often exist to optimize existing systems to operate more efficiently than originally designed with minimal new capital outlay. Finally, the IOUs will coordinate with the Society of Building Science Educators to improve existing tools and practices for building retrocommissioning so that deep energy savings can be realized in commercial buildings per the Strategic Plan.

RCx will be offered as a bundle of products and services. RCx providers will perform several tasks to identify measures. These tasks include, but are not limited to:

- Conduct an initial benchmark
- Collect data to quantify the owner's operational requirements
- Perform detailed on-site audits to evaluate operational deficiencies and/or operational optimization opportunities inclusive of improved and enhanced preventive maintenance and repair programs
- Define measures, quantify savings
- Assist customers with measure implementation
- Verify completion of measures
- Provide post installation documentation and training as well as other persistence techniques

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

- Conduct post-project benchmark

### Further Information

- For information on sub-program design to overcome market barriers, please refer to PIP section 5.c.
- For information on sub-program targets, please refer to PIP section 5.d.
- For information on how the sub-program advances the Strategic Plan, please refer to PIP section 5e.

#### a) Statewide IOU Coordination:

The Calculated Incentives Sub-Program will follow the process for Statewide IOU Coordination described in Section 6.0.a.

#### b) Program delivery and coordination:

##### i. Emerging Technologies program

The long-term energy efficiency vision of California can only be attained through the long-term and continuous development, verification, and acceptance of new technologies into the market. The achievement of long-term goals requires new technology as well as information, training and market development to maximize the EE benefits of cutting edge technologies. In recognition of the importance of emerging technologies, the program is poised to adopt the efficiency potential of new technologies through its programs. In addition, portfolio staff will actively work to incorporate promising emerging technologies and PIER projects.

##### ii. Codes and Standards program

The Calculated Sub-Program will rely on the Codes and Standards program to maintain an updated and relevant list of measures that will support savings. As Codes and Standards impact measures, the program will act to align itself with appropriate offerings. Programs will include new offerings that will allow flexibility in adapting to changes in codes and standards, market trends, and technologies. Planned enhancements to Title 24 will be reflected in incentive levels and eligible measures and services. As the market moves toward “low energy” or “zero net energy” buildings, specific changes to each element of the bundling will be made to ensure the latest cost effective technologies/services (e.g., LEDs) are made available as these technologies transition from 1) R&D to 2) Emerging technologies to 3) Incubation to 4) Mainstream.

##### iii. WE&T

WE&T is a portfolio of education and training programs that showcase energy efficient equipment found on the list of measures offered by the calculated sub-program. The

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

education and training will take place through energy centers, technology test centers, and education and training program offerings. In addition to providing the education and training, the classes also address how customers can enroll and participate in relevant energy efficiency program offerings. An Energy Efficiency representative will be present at these training events to provide detailed information on the program-specific attributes.

iv. Program-specific marketing and outreach efforts (budget provided in Table 1)

The Calculated Sub-Program will be marketed through IOU Account Executives, as well as through educational, outreach and other marketing activities. Marketing activities will target business customers, ESCOs, trade associations, local business groups and government entities to generate interest and program participation. In addition, direct customer contact by Account Executives, Demand Response Program outreach, phone and email support will be provided.

Marketing campaigns will provide a wide range of action-oriented solutions targeted to “personas” identified through segmentation research. In addition, marketing efforts will be “bundled”. That is, a menu of demand response, energy efficiency and conservation programs will provide customers a full array of EE and DR options. By providing packaged energy management solutions for each industry segment SDG&E will be better able to communicate with and serve customers.

Marketing efforts will incorporate a variety of marketing tactics/activities to promote the Calculated Sub-Program. Education, awareness and outreach efforts will rely on a combination of mass media communication channels and targeted communication channels to ensure the messages reach the intended audiences with enough frequency to motivate attitude and behavior changes. The marketing strategies may include, but are not limited to, a mix of print, radio, TV, direct mail, e-mail, personal contact, trade shows, trade association meetings, customer workshops and seminars, energy related and other community events and partnerships with business and industry organizations, specialized collateral, case studies, website links and information with regular updates, bill inserts, press releases, and newspapers.

The ideal marketing mix will be assessed for maximum awareness and participation. Marketing and outreach coordination will be coordinated among the IOUs utilizing the statewide coordination process described in Section 6.0a.

v. Non-energy activities of program

The Calculated Sub-Program will provide design and calculation assistance prior implementation to help the customer plan energy efficiency measure installation. Therefore, design assistance, in the form of integrated audits that look across the various EE program offerings, as well as incentive and resource programs available

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

through other entities (e.g. water agencies) will be used to identify the opportunities to be recommended to the non-residential customer.

In addition, the Water Efficiency Pilot Program will provide potential opportunities to reduce water use and achieve associated Energy Efficiency savings. Since some customers within the program sectors are major water users, the utilities will be well positioned to assist customers in realizing linked water/energy benefits as a result of the Water Efficiency Pilot Program.

vi. Non-IOU Programs

The Calculated Sub-Program will continue to engage with Air Quality Management Districts, CEC, CARB, DOE, water agencies, and other government agencies responsible for regulating the various aspects and operations of customer facilities participating in the programs.

vii. CEC work on PIER

The Calculated Sub-Program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies and PIER projects. The program will work with PIER on researching new technologies for evaluation and testing for application in mainstream projects.

viii. CEC work on codes and standards

Please refer to Section 6.b.ii.

ix. Non-utility market initiatives

Through pre-installation design and technical assistance, the calculated sub-program will support and provide educational resources on AB32, renewables, ANSI certification, facility benchmarking, Continuous Energy Improvement, California Green Building Initiative, and other initiatives as directed. The IOUs will remain engaged in these efforts and work to influence the development of increasingly higher standards.

c) Best Practices:

The Calculated Sub-Program approach constitutes “best practice” by:

- Providing cost-effective energy efficiency. The program will reimburse up to 50% of the energy efficiency project cost.

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

- Energy savings are based on actual facility operations, process measurement, and accepted engineering protocols for calculating energy savings.
- Energy savings are measured and verified post-installation.
- The program is customer-focused. The incentive options offered have seen high participation due to the program's flexibility in customizing appropriate energy efficiency solutions for a diverse range of customers.
- Avoids lost opportunities by utilizing a comprehensive approach.
- Produces both short and long term energy savings.
- Produces co-branding opportunities supporting the reduction of greenhouse gases.
- Provides an application process that is both easy and friendly.
- Develops new Pilots to test innovative approaches that achieve deeper savings.

### **d) Innovation:**

The Calculated Sub-Program will aim to improve major program performance indicators such as accuracy of energy saving calculations, higher realization rates, overcoming energy efficiency barriers, reducing application processing time and administrative costs, and integrating energy management.

For the new program cycle, IOUs will implement a new incentive structure that emphasizes peak demand reduction, addresses the current economic downturn and will better motivate customers to participate in energy efficiency incentive programs. During the 2009-2011 program cycles, the new incentive structure will be periodically evaluated so that necessary changes can be made in order to enhance program benefits and performance.

IOUs will continue working collaboratively on modifications to program Policies and Procedures to address ongoing changes in customer expectations, market conditions and program flexibility. Such changes have been and will be targeting ease of program understanding and participation, measures eligibility, increase of customer economical benefits, and policy restrictions that will be identified as barriers to participation. IOUs are implementing such a process based on market studies conducted on the subject. Among modifications that would be potentially discussed and implemented are incentive caps, redesign of measure/equipment early retirement according to the CPUC concept and other.

IOUs are planning to elaborate on and utilize the well-received Savings by Design (SBD) simplified tool and extend it to energy efficiency retrofit projects. Such tools substantially reduce application processing and review time, and minimize number of hand-offs, while not sacrificing accuracy of energy saving calculations.

IOUs are planning to consolidate various calculating software such as SPC Software, Engage and other measure-specific calculating tools to standardize calculating methodology. This will ensure that calculations will be more uniform and consistent among all stakeholders. This will not limit the use of nationally recognized standard DOE toolsets for certain measures.

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

IOUs are also planning to continue and expand the Retrocommissioning (RCx) program in multiple target markets. Retrocommissioning is a systematic process for optimizing an existing building or system's performance by identifying operational deficiencies and making necessary adjustments to correct the system. Measures may involve resetting, repair or replacement of existing system controls and components, and in general are low-cost projects with simple payback periods of less than four years.

After an energy audit is complete and applicable no-cost/low-cost measures identified, the scope of work will be handed-off to an RCx implementer who, in-turn, will follow RCx program protocols, execute the scope of work (measure implementation, M&V plan, incentive payment for energy savings, etc.) and report final results to the core program office.

e) Integrated/coordinated Demand Side Management:

Where possible, IOUs will use an integrated approach to addressing DSM opportunities. Innovative integrative aspects include merging energy efficiency and demand response analysis and converting recommendations to projects under the calculated sub-program. In addition, the program will process and review energy efficiency and demand response measures in a single application. Providing analytical information about applicable distributed generation solutions will maximize customer adoption rates for the most cost-effective energy management opportunities.

f) Integration across resource types:

Please refer to Section 6.0f.

g) Pilots:

There are no pilots associated with the Calculated Sub-Program.

h) EM&V:

The program managers will work with SDG&E EM&V group and initiate studies that will help validate saving claims, and identify market potential and program improvements.



## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

### 6.3) Subprogram Implementation - Deemed

The Deemed Sub-Program, commonly referred to as Express Efficiency, will pay rebates for the installation of new energy efficient equipment. Itemized retrofit measures have prescribed energy savings and incentive amounts. These measures are categorized under the following end uses:

- Lighting
- Air conditioning
- Food service
- Refrigeration
- Industrial Process
- Motors
- Plug loads
- High-Efficiency Water Heating
- Greenhouse Curtains and Infrared Films
- Pipe and Tank Insulation
- Steam Traps

The Deemed Sub-Program will address key market factors that contribute to higher energy costs for California businesses. Providing a menu of prescribed common measures simplifies the process of reviewing project proposals and provides a "per-widget" rebate that reduces the cost of retrofitting outdated and inefficient equipment. This element makes it attractive for customers to spend money up front in order to achieve lower energy costs in the long run.

Using itemized energy efficiency measures is intended to overcome barriers that prevent many customers from adopting energy efficiency alternatives. The barriers will be addressed by itemizing common energy efficiency measures and rebates, stimulating the supply of high efficiency equipment and products (through higher demand), and offering rebates that help offset higher start up and down payment expenses for energy efficient retrofits.

Furthermore, to ensure equity to all customer segments, this program will continue to offer statewide-consistent, cost-offsetting itemized rebates to help customers with the cost of installing new energy efficient equipment.

The Deemed Sub-Program will be implemented and coordinated through the same processes used in the Calculated Sub-Program. The Deemed Sub-Program will include existing itemized retrofit (e.g. Express Efficiency); and other itemized measures as relevant.

Applicants who wish to participate in the itemized retrofit element will be allowed to reserve funds for their projects. Reservations will be taken via phone, fax, internet, or

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

mail. SDG&E will maintain an online reservation system for the convenience of applicants. Although reservations are not required, SDG&E recommends that customers reserve funds. At the time that they make a reservation, the applicant will be notified if a pre-inspection is required. Pre-inspection is not required unless there is prior participation at the proposed project location for the same measures being reserved. Projects with prior participation are subject to mandatory pre- and post-inspection. If an applicant does not reserve funds and submits an application that raises the issue of prior participation, the applicant is responsible for clearly demonstrating that the requirements in the terms and conditions were met before a rebate will be paid. Incentives and savings payouts will be based upon deemed measures in the DEER database or through SDG&E's work papers.

The Deemed Sub-Program will be part of the integrated strategy to promote energy efficiency to non-residential customers. The Statewide Deemed Team will hold regular conference calls and in-person meetings to share successes challenges, and best practices in delivering energy efficiency via deemed rebates. As described in Section 6.0a, the Deemed IOU Lead will participate in periodic Steering Committee meetings for the Agriculture, Industrial, and Commercial sectors to share successes, challenges, and best practices in delivering energy efficiency to each market sector and associated sub-segments.

Customers can enroll in the Deemed Sub-Program via paper or online application. Measures will be the same across IOUs and incentive levels will also be aligned, unless markets in the individual IOUs require adjustments based on research, communication with industry, and/or changes in the economic landscape. The Deemed Sub-Program will work with the other sub-programs to design customer facing marketing materials that integrate energy efficiency offerings into a complete energy savings package that is focused on individual market segments.

Where appropriate, IOUs will coordinate with Publicly Owned Utilities to extend customer reach and more deeply penetrate each customer segment and technology market. Each IOU will also coordinate internally with Government Partnership Programs to maximize the effectiveness of program offerings and minimize overlap and confusion.

### Further Information

- For information on sub-program design to overcome market barriers, please refer to Section 5.c.
- For information on sub-program targets, please refer to Section 5.d.
- For information on how the sub-program advances the Strategic Plan, please refer to Section 5.e.

#### a) Statewide IOU Coordination:

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

Consistent statewide specifications and rebate values make it easier for national chains and manufacturers to understand and support IOU rebate programs. Statewide coordination also includes regular meetings to share industry contacts, marketing strategies and lessons learned. Coordinated statewide participation at relevant industry events has reduced costs through sharing. Please refer to Section 6.0.a for more details on statewide coordination.

b) Program delivery and coordination:

i. Emerging Technologies program

To meet California’s future energy efficiency goals, both in terms of overall usage, greenhouse gas reductions, and peak demand usage, new technologies and new applications of technology are needed. The Deemed Sub-Program will seek support from ETP’s incubation and development of new technologies to meet the needs of the marketplace. ETP provides the pipeline of new technologies that Deemed looks to incorporate to maintain a robust selection of energy savings equipment. The program will look to ETP to provide customers with technology information, validating effectiveness as an unbiased and neutral expert.

ii. Codes and Standards program

The Deemed Sub-Program will rely on Codes and Standards to maintain an updated and relevant list of measures that support savings. As Codes and Standards impact measures, the Deemed program will act to align itself with appropriate offerings.

iii. WE&T

WE&T is a portfolio of training and information programs that showcase energy efficient equipment found on the list of measures offered in the Deemed Sub-Program. Dissemination of information takes place through energy centers, technology test centers, and information and training program offerings. During classes, time is dedicated to energy efficiency programs and how customers can participate. In 2009-2011, an Energy Efficiency representative will be available to deliver energy efficiency program messages and answer questions.

iv. Program-specific marketing and outreach efforts (budget provided in Table 1)

The following will be used as marketing and outreach channels:

- Non-contracted vendors are a key delivery channel for the Deemed Sub-Program; therefore, marketing will emphasize building awareness with more vendors in the territory. Training vendors on how to participate effectively in the program will also be a focus in the new program cycle.

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

- Community Based Organizations (CBOs), Faith Based Organizations (FBOs), and Non-Profit Organizations, who have unique access and membership, are expected to be emphasized as a delivery channel.
- Trade associations and industry networks.
- Unique channels that offer complementary value propositions from the customers' perspective (e.g. energy, water, materials management, recyclables, corporate citizenry, etc.).

v. Non-energy activities of program

Please refer to Section 6.0b.v for details.

vi. Non-IOU Programs

The Deemed Sub-Program will continue to engage with Air Quality Management Districts, CEC, CARB, DOE, water agencies, and other government agencies responsible for regulating the various aspects and operations of customer facilities participating in the programs.

vii. CEC work on PIER

The Deemed Sub-Program will interact with the Emerging Technologies Program to leverage new technologies to increase the list of measures available for energy efficiency projects. The portfolio staff actively works to incorporate promising emerging technologies and PIER projects. The program will work with PIER on researching new technologies for evaluation and testing for application in mainstream projects.

viii. CEC work on codes and standards

Please refer to Section 6.0b.viii.

ix. Non-utility market initiatives

Please refer to Section 6.0b.ix.

c) Best Practices:

To maximize program effectiveness, best practices in Program Design and Implementation will be employed and shared among IOUs.

Best practices in Program Design include:

- Regular communication among IOUs to ensure consistent program design.

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

- Identification of qualifying products simply and effectively (Examples; ENERGY STAR®, CEE, FSTC website).
- Seeks input from industry in the development of new measures.
- Rewards customers that continually improve energy efficiency by offering rebates that lower the cost of leading edge technologies.
- Achieves market transformation by generating business for upstream manufacturers that develop highly efficient products.

Best practices in Program Implementation include:

- Strives to simplify messaging and participation for the customer (i.e., “look for the ENERGY STAR label”, “purchase from a qualifying products list”, etc.)
- Understands the key motivators that drive an industry and uses that information to market the program.
- Consistent statewide specifications and rebate values make it easier for national chains and manufacturers to understand and support IOU rebate programs.
- Statewide coordination also includes regular meetings to share industry contacts, marketing strategies and lessons learned. Coordinated statewide participation at relevant industry events has reduced costs through sharing.

d) Innovation:

An innovative program aspect is that SDG&E is considering streamlining Deemed program applications to allow non-residential customers to apply for and receive rebates online.

e) Integrated/coordinated Demand Side Management:

Where possible, IOUs will use an integrated approach to address DSM opportunities. Innovative integrative aspects include merging energy efficiency and demand response offerings in the Deemed program application. Providing analytical information about applicable distributed generation solutions will maximize customer adoption rates for the most cost-effective energy management opportunities.

f) Integration across resource types:

Integration across resource types (e.g., energy, water, and air quality) will be explored. Examples include working with Water Agencies to co-promote appliances that save water and energy and working with Air Quality Management Districts to co-promote Boilers and Water Heating measures that save energy and improve air quality.

g) Pilots:

There are no Pilots associated with the Deemed sub-program.

h) EM&V:

**2009–2011 Energy Efficiency Programs  
Statewide Agriculture Program  
Program Implementation Plan**

The program managers will work with SDG&E EM&V group and initiate studies that will help validate saving claims, and identify market potential and program improvements.

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

### 6.4) Subprogram Implementation - Continuous Energy Improvement (CEI)

Continuous Energy Improvement (CEI) describes a statewide package of products and services aimed at helping customers engage in long-term, strategic energy planning. It proposes to transform the market and reduce energy intensity through a comprehensive approach that includes addressing both technical and management opportunities. A CEI approach applies the principals of well-known business continuous improvement programs, such as Six Sigma and International Standards Organization (ISO) standards, to facility and plant energy management. CEI principles are: Commit, Assess, Plan, Implement, Evaluate, and Modify.

At each stage of customer engagement, there are a variety of utility and non-utility products and services that can be offered to fit different customer profiles and optimize the cost effectiveness of each utility's portfolios. During implementation, utilities will screen customers for certain CEI services based on factors such as customer energy use, complexity, number of facilities, energy decision making structure, environmental commitment, and demonstrated motivation to take action. Screening criteria and specific product offerings will be utility-appropriate.

CEI begins with a high-level management commitment to improving energy performance, which increasingly can be combined with other environmental and regulatory commitments that large energy users are developing in response to market and political pressures. A corporate commitment sends the top-down message to employees, partners, shareholders and vendors that energy is a priority issue requiring attention (akin to safety) and also paves the way for establishing the required company resources required to implement the steps of CEI. These resources can include capital, personnel like energy champions or teams, and technical systems and software required for energy management.

Gaining true customer commitment can take time, but is critical to long-term energy savings. During implementation, utilities will formalize the Commitment phase with larger or more intensive customers through a CEI participation agreement, which outlines the utility CEI services being offered as well as minimum customer expectations.

Following Commitment, a comprehensive assessment is critical to identifying not only technical opportunities, but also systemic energy management practices and cultural shifts that can improve overall facility management practices and sustain continuous improvements towards long-term company targets.

There are many tools and resources - utility and non-utility, free and licensed – available to support comprehensive customer energy assessment. They include ENERGY STAR's Guidelines for Energy Management, customer energy management assessment software products like those developed by Envinta, benchmarking tools, Integrated Audits, and local and statewide third parties who can offer specialized technical expertise and assessment. Based on screening criteria, utilities will offer comprehensive energy

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

assessment services utilizing, but not limited to the sources described above, to develop a customer specific strategic energy plan:

Benchmarking measures the energy performance of a company, building, process, or a piece of equipment to industry standards or comparable groupings. Benchmarking is a particularly useful tool to support a CEI process. Customers with multiple facilities can use benchmarking to prioritize efficiency projects, track progress toward energy or green house gas (GHG) improvement goals, or drive competition among similar benchmarked facilities. Benchmarking can also be applied to other resources and environmental issues such as water use, CO<sub>2</sub>, and water/air emissions.

Existing benchmarking tools include those developed by the EPA for ENERGY STAR and by Lawrence Berkeley National Lab with CEC funding. These include tools for Commercial facilities, Cement, Auto Assembly, and an LBNL Winery benchmarking tool. Under development are Energy Star benchmarking tools for Food Processing, Glass Manufacturing, and Pharmaceutical Manufacturing, as well as an LBNL tool for Dairy Processing.

During implementation, the statewide Commercial, Industrial and Agricultural Program teams will continue to partner with energy industry peers, industry associations and DOE/CPUC sponsored labs and consultants, to enhance the use of existing tools, and develop new tools for key California industries.

### CEI Planning

Strategic energy planning involves setting energy goals and action plans around energy efficiency, demand response, and generation as appropriate. The CEI Planning stage can be undertaken independently by the customer or with utility support. Planning for larger, complex customers will typically involve Account Representatives and/or consultants. As discussed in the Strategic Plan, strategic planning can also include complementary non-energy considerations, such as greenhouse gas (GHG) reductions, water efficiency, and waste-stream minimization, all of which have embedded energy components.

Data and findings from a comprehensive customer Assessment are critical in developing a comprehensive energy plan. A comprehensive Assessment can include the results from technical audits or assessments, facility benchmarks, energy management assessments, and assessments of company priorities. This information will be analyzed and used to develop realistic and achievable company goals and prioritized shorter-term tactics needed to achieve them. Energy plans should be living documents revisited and revised regularly.

Energy goals can vary widely and include elements such as resource utilization (Company X will reduce it's overall energy intensity by 3% over the next 3 years"), carbon reduction goals ("Company X will be carbon neutral by 2012"), or management oriented goals ("Company X will implement energy teams by 2010"). Goals can be



## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

internal documents or can be made public through press releases as part of larger sustainability plans, which is increasingly important for large and public companies.

CEI will assist customers in developing and implementing action plans to execute the prioritized near-term activities in support of their company's energy goals, as well as the resources, staff and schedule for tracking. Action plans typically includes activities such as prioritizing process systems or facilities based on benchmarking or company drivers, identifying internal resources required to implement plans, develop project justification and incentive application documentation lists and detailed schedules.

### CEI Implementation

In the implementation stage, utilities will partner with customers to identify technical support and utility and non-utility resources available to support implementation of projects, such as rebates, incentives, third party and government partnership programs, and state and national resources. These resources may include:

- Statewide Deemed rebates
- Statewide Calculated incentives for new construction/tenant improvement, retrofit and retro-commissioning/repair
- Third Party and Government Partnership programs (described in the statewide and local third party filings)
- Non-utility financing options and owner's engineer support

### CEI Evaluation and Modification

Like in any continuous improvement program, evaluation is an ongoing process of evaluating actual performance against company goals, targets and action plans. It may include repeating the benchmarking process and system or facility baseline process annually, assessing advancements in organizational and management practices that facilitate energy management improvements, or evaluating cost savings per unit of product. Regular evaluation will inform changes to goals and action plans moving forward. As with other information and education sub-programs, CEI will be primarily delivered by IOU customer energy efficiency staff and contractors, service and sales representatives, website and marketing and outreach efforts. Other channels of delivery may be developed.

CEI will be available to all non-residential customers meeting certain eligibility criteria to justify the cost of the offering. Criteria will be utility-specific and may include customer energy use, complexity, number of facilities, energy decision making structure, environmental commitment or demonstrated motivation. Marketing and outreach plans include training of the IOU in-house staff and customer groups. Collateral materials such as fact sheets, how-to documents, and Power Point slides will be produced and distributed during sales calls, public events or trade shows.

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

CEI will include the CEC’s PIER and Green Building Initiative programs, DOE’s “ISO plant certification” programs, EPA ENERGY STAR Portfolio Manager benchmarking and other programs, USGBC LEED certification, and other government incentive programs as applicable.

For information on measures offered under this sub-program, please refer to PIP section 4.b.

### Further Information

- For information on sub-program design to overcome market barriers, please refer to PIP section 5.c.
- For information on sub-program targets, please refer to PIP section 5.d.
- For information on how the sub-program advances the Strategic Plan, please refer to PIP section 5.e.

#### a) Statewide IOU Coordination:

The Statewide IOU Coordination process is described in Section 6.0.a, and will be followed by this sub-program. By following this process, the CEI sub-program managers will play a critical role in ensuring unified implementation on a statewide-level over the course of the three year implementation cycle. Sub-program innovations and challenges will also feed productively into the higher-level Steering Committee process, where the IOU lead will act as participant and conduit between Steering Committee members, sub-program managers, and managers of cross-cutting programs.

#### b) Program Delivery and Coordination

##### i. Emerging Technologies Program

CEI implementation shall include identification and project development at specific customer sites, which will provide opportunity for Emerging Technologies program participation, demonstrations and incentives.

##### ii. Codes and Standards Program

CEI implementation shall include information about new Codes and Standards that may affect planning or prioritization of retrofit or new construction projects.

##### iii. WE&T

CEI implementation will coordinate with Workforce Education and Training efforts by providing CEI process and case study input to “energy engineer” curriculum designers for Community Colleges and Universities.

##### iv. Program-specific marketing and outreach efforts (budget provided in Table 1)

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

The CEI Sub-Program will be marketed through Account Executives, as well as through educational, outreach and other marketing activities. Marketing activities will target business customers, ESCOs, trade associations, local business groups and government entities to generate interest and program participation. In addition, direct customer contact by Account Executives, Demand Response Program outreach, phone and email support will be provided.

In 2009-2011, marketing campaigns will provide a wide range of action-oriented solutions targeted to “personas” identified through segmentation research. In addition, marketing efforts will be “bundled”. That is, a menu of demand response, energy efficiency and conservation programs will provide customers a full array of EE and DR options. By providing packaged energy management solutions for each industry segment the IOUs will be better able to communicate with and serve customers.

Marketing efforts will incorporate a variety of marketing tactics and activities to promote the CEI Sub-Program. Education, awareness and outreach efforts will rely on a combination of mass media communication channels and targeted communication channels to ensure that messages reach the intended audiences with enough frequency to motivate attitude and behavior changes. The marketing strategies may include, but are not limited to, a mix of print, radio, TV, direct mail, e-mail, personal contact, trade shows, trade association meetings, customer workshops and seminars, energy related and other community events and partnerships with business and industry organizations, specialized collateral, case studies, website links and information with regular updates, bill inserts, press releases, and newspapers.

The ideal marketing mix will be assessed for maximum awareness and participation. Marketing and outreach coordination will be coordinated among the IOUs utilizing the statewide coordination process described above.

### v. Non-energy activities of program

CEI implementation shall include non-resource activities such as recognition awards, local area or sector competitions, awareness campaigns, education about non-energy related LEED points and definitions, use of computerized financial analysis tools and cost estimating and forecasting tools. Please also refer to Section 6.0b.v for more details.

### vi. Non-IOU Programs

CEI implementation shall include information on non-IOU Programs to expose customers to funding, such as from air or water agencies to support efforts. The CEI sub-program managers will scan the programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to share program information and marketing collateral with customers. In the past, each

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

government agency and utility has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type.

In the effort to promote inter-agency cooperation toward achievement of mutual goals, IOUs will seek out managers of applicable resource programs to see if there are opportunities to present utility programs along with non-energy applications. For example, utility program managers will contact the local water districts to share marketing collateral, attend trade shows, and co-release notices, for programs with interactive water and energy effects. Similarly, with ARB and Air Quality Management Districts, IOUs will offer customers CEI sub-program incentives for energy efficient equipment that may also reduce air emissions.

vii. CEC work on PIER

CEI implementation will include information on the CEC's work on PIER to expose customers to demonstration or research projects and funding.

viii. CEC work on codes and standards

Please refer to Section 6.0b.viii.

ix. Non-utility market initiatives

Non-utility market initiatives such as education about Federal Tax incentives for energy efficiency investments; is an example of a non-utility information and guidance that CEI sub program will provide to customers.

c) Best Practices:

The CEI approach applies the principals of well-known business continuous improvement programs, such as Lean Six Sigma and ISO standards, to facility and plant energy management. The CEI principles are: Commit, Assess, Plan, Implement, Evaluate, and Modify. This approach can now be successfully implemented given the three year program cycle, which allows longer term and deeper project development engagements with customers.

d) Innovation:

Continuous Energy Improvement is a new way of packaging energy efficiency, demand response and self-generation products and services and is aimed at helping customers engage in long-term, strategic energy planning. CEI proposes to transform the market and reduce energy intensity through a comprehensive approach that includes addressing both technical and management opportunities.

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

### e) Integrated/coordinated Demand Side Management:

CEI includes project analysis and implementation support of recommendations of Integrated Audits, which provide customers with an inventory of facility end-use breakdown of energy efficiency, demand response and self-generation investment opportunities. Over the last few years, traditional DSM programs have learned that successful customer participation in one program leads to a likelihood of repeat participation in the same program. Additionally, this successful participation makes these customers likely candidates for other similarly related types of programs. While a successful program experience leads to repeat participation, there has been difficulty in cross pollinating similarly related types of programs with these candidates due to program-specific silos. To overcome the historic silos of DSM, the CEI sub-program will leverage lesson's learned from IDSM efforts by offering comprehensive, coordinated marketing and program delivery.

A primary issue when integrating energy efficiency and demand response programs is that the two programs are at financial odds with one another, as both programs often reduce the potential for each other's financial incentives. For example, energy efficiency may reduce the overall baseline by which the demand response program's incentives are based upon. Since benefits from long term energy savings derived from technological measures outweigh the temporary demand reduction benefits derived from behavioral actions, the CEI Sub-Program will offer additional incentives for energy efficiency measures that enable demand response when customers enroll, or are already enrolled, in demand response programs. In so doing, the program seeks to maximize the potential for both types of programs.

A secondary issue when integrating energy efficiency and demand response programs is that communications of both types of DSM program are often non-coordinated, since energy efficiency is typically technology based and demand response is often focused on behavior. Also, demand response efforts often happen prior to the summer "event season" and wane throughout the remainder of the year. To overcome these differences, the Program will offer integrated and coordinated year-round marketing through consolidates applications, collateral, web sites, and events, where applicable.

Through bundling program elements and offering one program application, customers will have the opportunity to enroll in demand response programs in addition to energy efficiency programs. To support the integration of energy efficiency and demand response programs, the Program will focus on several tactics:

- Promotion and incentives of demand response enabling energy efficiency measures to ensure that energy efficiency is completed first to maximize potentials.
- Integrated and coordinated year-round marketing (e.g. Applications, collateral, web sites, and events).
- Linking of program eligibility requirements (e.g. Customer size).
- Provide unified technical assistance through enhanced EE/DR Audits through the TA Program to allow for cross-harvesting opportunities.

**2009–2011 Energy Efficiency Programs  
Statewide Agriculture Program  
Program Implementation Plan**

- Integrated presence on utility websites.
- Regular coordination meetings between energy efficiency and demand response program management.

During the current cycle, funding for energy efficiency and demand response must remain non-commingled; therefore payments will be split between the two programs as appropriate.

f) Integration across resource types (energy, water, air quality, etc.):

CEI implementation shall include information on Non-IOU programs to expose customers to funding, such as from air or water agencies to support efforts. IOU CEI Sub-Program managers will scan the programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to share program information, marketing collateral and financial incentive analysis with customers. In the past, each government agency and utility has operated natural resource and energy programs independently, missing opportunities to serve customers who must manage more than one resource type. For customers who are regulated by or interested in more than one resource issue, CEI will inform customer about the mutual benefit of combining complementary resource programs.

g) Pilots:

SDG&E will consider pilot concepts associated with CEI, which may include on-bill financing (OBF) support, collaborations with DOE co-funding and other innovations to motivate energy efficiency measure implementation.

h) EM&V:

As a non-resource program, EM&V is not applicable to this sub-program at this time.

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

### 6.5) Subprogram Implementation - Pump Test

Pumping is estimated to account for more than 80 percent of the electric load in California's agricultural segment, and this load is growing as the state's drought increases reliance on water pumping systems. To help customers make informed decision about improving inefficient pumping systems, all IOUs will offer pump testing services and workshops at no or low cost through in-house or contracted resources in 2009–2011.

These pump testing services, and associated education and training, will reinforce the energy and financial benefits of operating efficient pumping systems. Program services will be offered to agricultural growers, as well as to targeted commercial and industrial customers, such as water agencies, oil industries, and potentially large refrigeration and commercial chiller systems.

For each pump tested, the customer will receive a report that provides customized energy use analysis and operational efficiency information. This information will enable the customer to make an informed decision on whether to renovate or replace their pump, change motors to premium efficiency motors, adjust operating perimeters, make system redesign decisions, or install a variable speed drive.

Each IOU will deliver pump testing services in a manner appropriate to their service territory. Southern California Edison (SCE) will utilize in-house pump testers and may supplement their services utilizing independent pump testers. Southern California Gas Company will rely solely on in-house pump testers. Pacific Gas and Electric and San Diego Gas and Electric will contract 100 percent of pump test services through the California State University, Fresno's Center for Irrigation Technology. The program offered through CSU, Fresno will provide some cost reimbursement per eligible pump test submitted to the program. All utilities will use the resulting database of pump efficiency results to target retrofit opportunities and market the availability of utility incentives, irrigation measure rebates, and technical support to customers with inefficient pumps or in need of pumping system design consultations. Marketing will be conducted through account representatives.

Pump testing services will advise customers of services and offerings from the Agricultural Energy Efficiency Program, Industrial Energy Efficiency Program, On Bill Financing, Demand Response, Renewable Generation/California Solar Initiative, and AB32 Carbon Emissions Reduction Program, and water conservation programs as appropriate.

Through the Pump Test Sub-Program, utilities will be supporting efforts to improve California's average pump efficiency, currently estimated at 53 percent, as directed in the Strategic Plan. The utilities will take the leadership role in developing effective partnerships with the CEC, universities such as CSU Fresno and Cal Poly, commodity groups, CA Department of Food and Agriculture and others on advancing technologies and practices in irrigation and pumping.

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

All utilities will pay the calculated process incentive rate of \$0.09/kWh for pump test energy savings as documented through pre- and post- pump tests. Measures to be included are provided below:

- Full-service pump efficiency improvement (receiving incentives)
- Full-service pump efficiency improvement (not receiving incentives)
- Low-pressure sprinkler nozzles
- Sprinkler to drip irrigation
- Commercial customized pumping
- Variable speed drives
- Variable frequency drives – HVAC fans
- Well pump – variable speed drives
- Commercial chillers
- Commercial - premium efficiency motors (by horsepower)
- Industrial pumping controls
- Industrial adjustable speed drives
- Industrial cooling towers
- Process chillers
- Industrial – premium efficiency motors (by horsepower)

Pump efficiency education and training, offered through utility-sponsored seminars and workshops for agricultural, industrial, municipal, and pumping trade allies and customers; complement the pump testing services and incentives. Workshops and resources, such as those offered by CSU, Fresno's interactive Mobile Pumping Training Center, illustrate the complex concepts of pumping--and the costs of inefficient operations--on functional closed-loop pumping system. Workshops of this type will be offered by each utility, independently and jointly where feasible. In addition, each utility will offer a Pump Efficiency Hotline for customers to conveniently find answers to their questions during weekday business hours and offer wide variety of downloadable technical resource materials on the utilities' website.

Agricultural production and water supply customers lag far behind customers in other segments in adopting energy efficiency technologies and practices for two essential reasons. First, energy cost are a much smaller concern to agricultural and water supply customers than are such issues as overall costs, high labor costs, water use, and water, soil, and air quality. Second, efforts to encourage energy efficiency have almost exclusively focused on water pump improvements. As a result, agricultural customers remain largely unaware of potential energy savings in other areas of their activities.

This program will succeed in overcoming many of these barriers through these actions:

- Expanding activities beyond just addressing water pumps to evaluating and recommending improvements to the efficiency of water pumping systems.



## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

- Expanding the types of customers targeted for services beyond crop and animal farms to include nurseries, greenhouses, and other facilities covered under the Green Building Initiative Executive Order.
- Providing a balance between tried-and-true utility offerings, such as water pump testing, and innovative new activities, such as design assistance, investigating additional financing options, and aligning with agricultural and water trade allies.
- Leveraging the infrastructure and experience of other programs offered by utilities to the non-residential customer segment.

The Pump Test Sub-Program offer customers several benefits:

- The products and services of the program can help customers address water use and air quality concerns, as well as energy reduction and cost savings.
- Helping customers make their businesses energy efficient can also help them stay cost-competitive and retain their operations in California—and create spillover positive impacts on their supporting markets.

### Further Information

- For information on sub-program design to overcome market barriers, please refer to PIP section 5.c.
- For information on sub-program targets, please refer to PIP section 5.d.
- For information on how the sub-program advances the Strategic Plan, please refer to PIP section 5.e.

#### a) Statewide IOU Coordination:

This sub-program will follow the process for IOU statewide coordination outlined in PIP section 6.0.a.

#### b) Program delivery and coordination:

##### i. Emerging Technologies Program

Please refer to Section 6.0.b.i.

##### ii. Codes and Standards

Please refer to Section 6.0.b.ii.

##### iii. WE&T

Please refer to Section 6.0.b.iii.

##### iv. Program-specific marketing and outreach (budget provided in Table 1)

## **2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan**

As described above, the IOUs will rely on a database on previous pump tests to identify customers with inefficient pumps and pumping systems. Utilities will market directly to these customers through mail, phone, and account representatives to encourage retrofits and market the availability of test incentives, irrigation measure rebates, and technical support.

v. Non-energy activities of the program

As noted above, the products and services of the program will help customers address water use and air quality concerns, as well as energy reduction and cost savings. Helping customers make their businesses energy efficient can also help them stay cost-competitive and retain their operations in California.

vi. Non-IOU program

This program will advise customers of services and offerings from the Agricultural Energy Efficiency program, Industrial Energy Efficiency Program, On Bill Financing, Demand Response, Renewable Generation/California Solar Initiative, and AB32 Carbon Emissions Reduction Program, and water conservation programs as appropriate.

vii. CEC Work On PIER

Please refer to PIP section 6.0.b.vii.

viii. CEC work on Codes and Standards

Please refer to PIP section 6.0.b.viii.

ix. Non-utility market initiatives

Please refer to PIP section 6.0.b.xi.

c) Best Practices:

By providing multi-level design, technical, and financial assistance to influence all aspects of the design of a customer's pumping system, this sub-program reduces lost opportunities that may result when a pumping system's energy performance is not at the top of the customer's list. The program will work to incorporate other existing offerings to assist projects that reflect a cohesive sense of energy efficiency and sustainability that go beyond the traditional aspects of electric energy efficiency. Such offerings may include:

- Connections with demand-response, self-generation, and water conservation programs.

**2009–2011 Energy Efficiency Programs  
Statewide Agriculture Program  
Program Implementation Plan**

- Partnerships with industry organizations to promote acceptance of new program approaches by design professionals.
- Coordination with utility Codes & Standards programs to ensure that the impacts of any code changes are incorporated into program design and implementation and will also tie into the Strategic Plan Codes and Standards Strategy and support the zero net energy goals.
- Support of the California Green Building Standard.

d) Innovation:

Please refer to Section 6.5c..

e) Integrated/coordinated Demand Side Management:

Please refer to Section 6.5b.vi.

f) Integration across resource types:

California's serious air quality issues in agriculturally-heavy regions are driving the Environmental Protection Agency (EPA) and other entities to support agricultural pump conversions from diesel to electric. Per the Strategic Plan, utilities will partner with the EPA and air districts to market program services, such as pump tests, as well as to encourage energy efficiency considerations when installing new electric pumps.

Certain irrigation efficiency measures, such as sprinkler to drip systems, have water conservation benefits as well as saving the energy required to pressurize sprinkler systems. Utilities will explore opportunities to market both benefits or partner with water agencies where possible.

g) Pilots:

As a Pilot, the Pump Test sub-program will explore the benefits of testing large chilled water air conditioning and refrigeration systems for pumping system efficiencies. This decision was prompted by the customer energy savings workshop and design brief benefits developed by Architectural Energy Corporation for the Energy Design Resources Program.

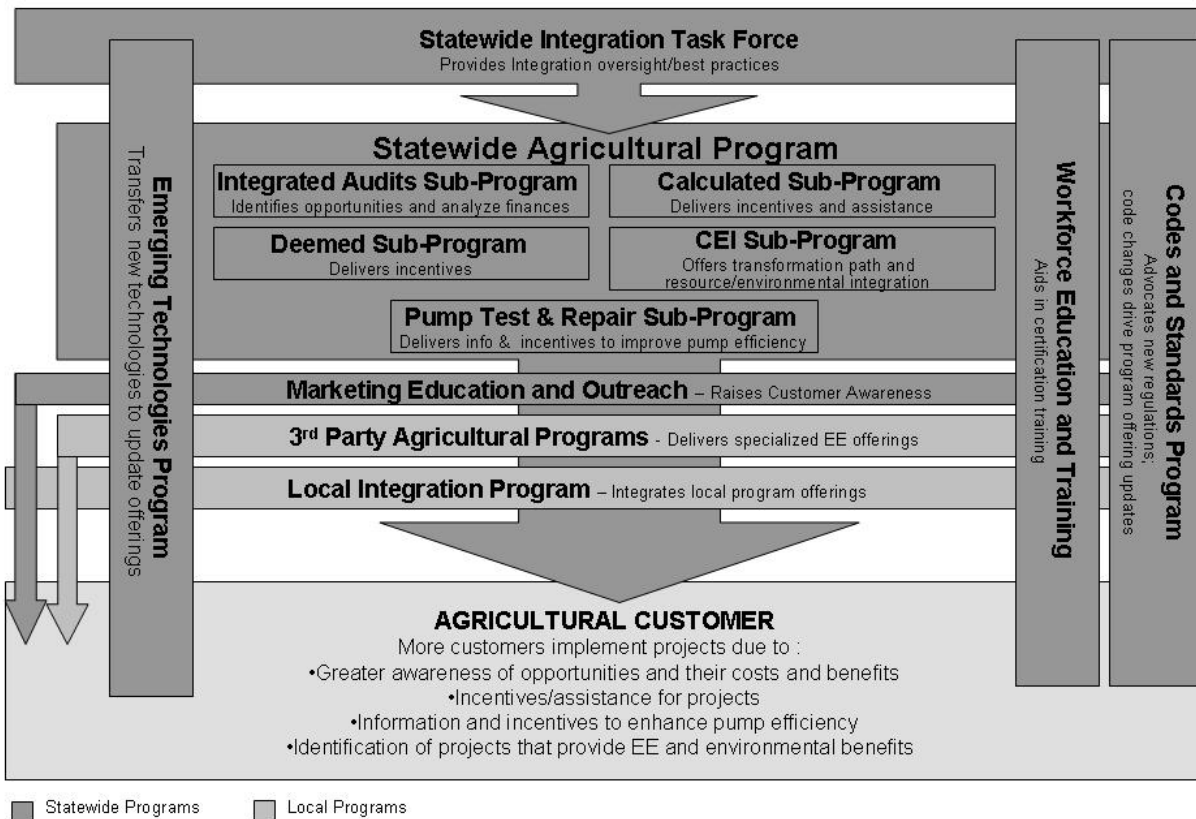
h) EM&V:

As a non-resource program, EM&V is not applicable to this sub-program at this time.

# 2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan

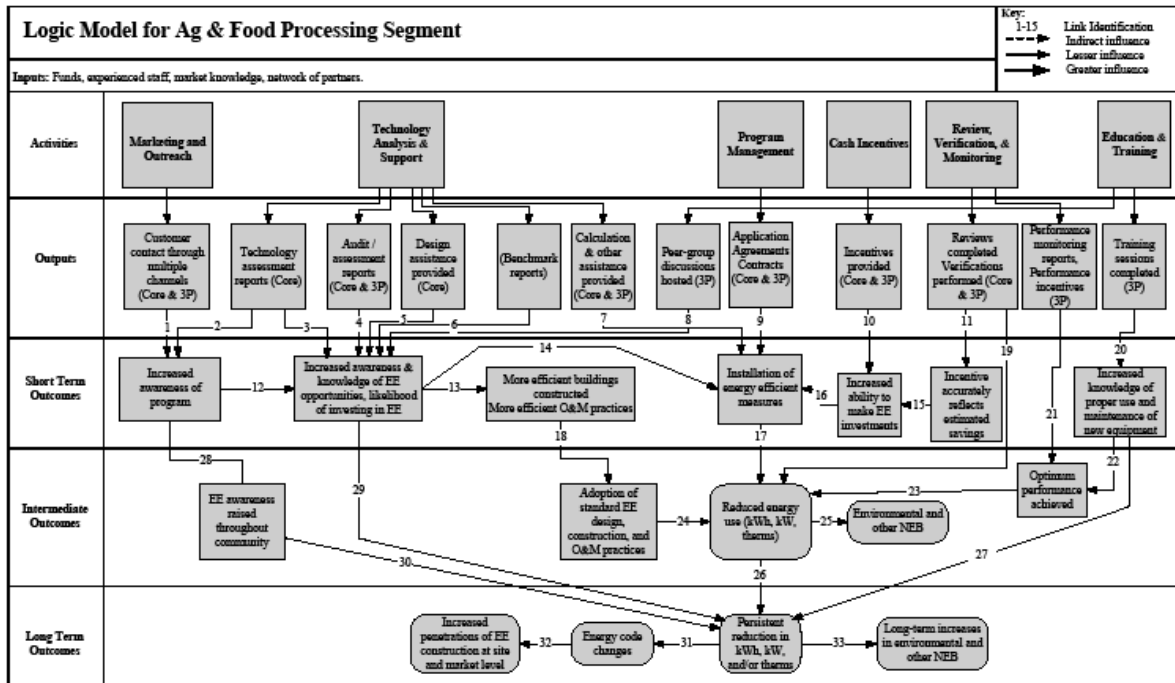
## 7) Diagram of Program

The Agricultural Program, sub-programs, and linkages with other programs are represented in the following Program Diagram. Overlapping boxes indicate major areas of two-way coordination. Direct targets of influence are indicated by arrows. The Statewide HVAC Program, Statewide Lighting Program, and Government Partnerships are not represented in this diagram as the linkages are somewhat limited. Statewide and Local Integration Programs coordinate demand response, distributed generation and other IOU activities that are not indicated on this diagram.



# 2009–2011 Energy Efficiency Programs Statewide Agriculture Program Program Implementation Plan

## 8) Logic Model



## 2009 – 2011 Energy Efficiency Programs New Construction Program Implementation Plan

1. Program Name: New Construction Program  
Program ID#: TBD  
Program Type: Core Program - Statewide

2. Projected Program Budget Table

**Table 1<sup>1</sup>**

Program #	Main Program Name / Sub-Programs	Total Administrative Cost (Actual)	Total Marketing & Outreach (Actual)	TOTAL Direct Implementation	Integration Budget Allocated to Other Programs (if Applicable)	Total Budget By Program (Actual)
<b>Market Sector Programs</b>						
	<b>SW Res New Construction</b>					
	SW-NCResA - RNC	2,317,805	2,114,153	6,923,186	0	11,355,143
	<b>Commercial New Construction</b>					
	SW-NCNR - NRNC Savings By Design	2,255,305	2,114,153	8,230,214	0	12,599,671
	<b>TOTAL:</b>	\$ 4,573,109	\$ 4,228,305	\$ 15,153,400	\$ -	\$ 23,954,814

These budget numbers are presented in Appendix F: Energy Division Tables, Graphs & Pie Charts: Table 7.1 - 2009 - 2011 IOU Strategic Planning Program Budget

3. Projected Program Gross Impacts Table – by calendar year (all utilities combined total here)

**Table 2**

Program #	Program Name Sub- Programs	2009 - 2011	2009 - 2011	2009 - 2011
		Three-Year EE Program Gross kWh Savings	Three-Year EE Program Gross kW Savings	Three-Year EE Program Gross Therm Savings
<b>Market Sector Programs</b>				
	<b>SW Res New Construction</b>			
	SW-NCResA - RNC	472,245	567	75,267
	<b>SW Non-Res New Construction</b>			
	SW-NCNR - NRNC Savings By Design	10,293,250	3,716	585,933
	<b>TOTAL:</b>	10,765,495	4,282	661,200

These savings values are presented in Appendix F: Energy Division Tables, Graphs & Pie Charts: Table 7.2 - IOU 2009 - 2011 Program Savings Estimates

<sup>1</sup> Definition of Table 1 Column Headings: Total Budget is the sum of all other columns presented here  
Total Administrative Cost includes all Managerial and Clerical Labor, Human Resource Support and Development, Travel and Conference Fees, and General and Administrative Overhead (labor and materials).  
Total Direct Implementation – includes all financial incentives used to promote participation in a program and the cost of all direct labor, installation and service labor, hardware and materials, and rebate processing and inspection used to promote participation in a program.  
Total Marketing & Outreach includes all media buy costs and labor associated with marketing production.  
Integrated Budget Allocated to Other Programs includes budget utilized to coordinate with other EE, DR, or DG programs.  
Total Budget is the sum of all other columns presented here  
Definition of Sub-Program: A “sub-program” of a program has a specific title; targets; budget; uses a unique delivery or marketing approach not used across the entire program; and for resource programs, has specific estimated savings and demand impacts.

**2009 – 2011 Energy Efficiency Programs  
New Construction  
Program Implementation Plan**

4. Program Description

a) Describe program

The New Construction Program is a statewide program that will continue the transformation process of California's residential and nonresidential new construction markets consistent with the vision of the California Long Term Energy Efficiency Strategic Plan (CEESP) and a more sustainable energy efficient future. Through several Sub Program elements, the New Construction Program aims to ensure:

- Home builders of all production volumes in California will be encouraged to construct homes that exceed California's Title 24 energy efficiency standards by at least 15%;
- Residential new construction will work towards reaching "zero net energy" (ZNE) performance for all single and multi family homes by 2020;
- By 2011, 50% of new homes built in California will be 35% more efficient than 2005 Title 24 standards and 10% will be 55% more efficient ;
- Plug loads will be managed for decline through technological innovation spurred by market transformation and customer demand for energy efficient products;
- Nonresidential new construction will be progressively more efficient and include clean, on-site distributed generation, moving towards Zero Net Energy (ZNE) by 2030.

The IOUs propose realizing this vision by implementing a comprehensive set of strategies that integrate the utilities' existing programs, education, training, marketing and outreach efforts, and leverage the existing relationships within the building industry. Through the statewide New Construction Program, the utilities plan to implement a common approach to energy efficiency improvements in the building industry, and continually revise/update strategies and programs, guided by the CEESP.

Market transformation and direct energy savings and demand reductions will be achieved through a series of Sub Programs that address the needs of both residential and non residential markets, and are described in detail in separate PIPs. The Sub Programs are briefly summarized below, followed by a pictorial representation.

**Sub Program 1: Savings By Design (SBD)**

This Sub Program aims for significant energy efficiency improvements in the nonresidential new construction industry, and is designed to overcome customer and market barriers to designing and building high performance facilities. Since 1999, SBD has provided statewide consistency, program stability and savings.

## **2009 – 2011 Energy Efficiency Programs New Construction**

### **Program Implementation Plan**

California's Title 24 requirements set some of the most stringent energy regulations in the nation. Exceeding these standard energy performance levels requires a high level of design expertise, technical knowledge, and motivation. The requirements also can be complex and sometimes confusing. Because many in the design field are unaware of the potential savings from energy efficient design or perceive budgetary constraints, they are reluctant to implement energy-efficiency strategies. As a result, energy efficiency is often a lost consideration, abandoned in favor of pursuing the "lower initial cost" option. SBD strives to avoid lost opportunities by assisting customers in moving beyond initial cost considerations and towards the realization of long-term energy cost savings.

Through an integrated design approach (a Whole Building Approach that encourages performance significantly better than Title 24 code by offering a variety of financial incentives) as well as a Systems Approach for simpler facilities where integrated opportunities are limited, SBD encourages energy efficiency and green building practices in new commercial buildings. These financial incentives are supplemented by a variety of other support activities such as: feasibility studies and pilot projects, training and education, conferences and workshops, scholarships, and program marketing activities. In the 2009-2011 portfolio period, SBD will advance a broader palette of technical and financial resources to aid the proactive design of new facilities in accordance with the most cost-effective energy and resource efficiency standards. SBD will incorporate several new approaches towards integrated design and green building certification in support of the CEESP.

#### **Sub Program 2.1: California Advanced Homes Program (CAHP)**

The California Advanced Home Program (CAHP) encourages single and multi-family builders of all production volumes to construct homes that exceed California's Title 24 energy efficiency standards by a minimum of 15 percent. This goal will be achieved through a combination of incentives, technical education, design assistance, and verification. With respect to the CEESP (Section 2, Strategy 1-1), the CAHP targets an interim goal of 50 percent of residential new construction to Tier II (2005) level by 2011, and a final goal of 100 percent of residential new construction to "net zero" by 2020.

Through a pay-for-performance sliding scale incentive structure that is based on a whole building approach, CAHP will encourage builders to exceed Title 24 energy efficiency standards by 15% to 45%. Performance Bonus adds, Design Team Incentives and some prescriptive measure incentives will also be included to encourage green building initiatives, energy star appliances, compact homes, and solar thermal installations. In addition, several non incentive customer services will be offered, including: technical support to Energy Analysts and Design teams, Design Team Assistance, Economic modeling / measure selection support to builders, marketing support and DSM coordination for builders to maximize demand side reductions. CAHP will be closely coordinated with the Zero Net Energy Homes, described below.



**2009 – 2011 Energy Efficiency Programs  
New Construction  
Program Implementation Plan**

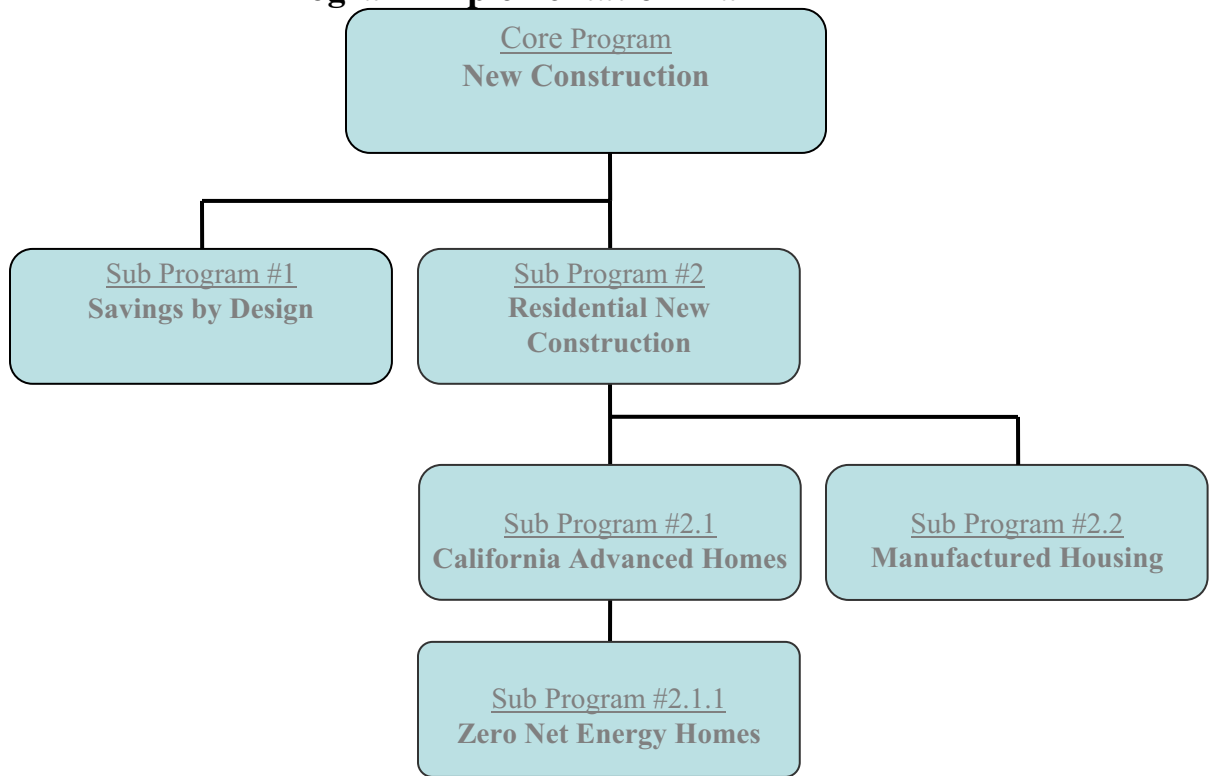
**Sub Program 2.1.1 Zero Net Energy Homes (ZNEH)**

The purpose of this Sub Program is to examine a wide array of energy saving technologies, accelerate the market acceptance of new and emerging technologies, explore new solutions, and encourage distinctive approaches in demonstration projects. Participating builders will be encouraged to incorporate environmentalism, economics, and social equity in their design, while integrating landscape into the built environment for human interaction. Each being distinctive, these case studies will be positioned to highlight the underutilized potential of sustainability in residential new construction. IOUs will seek to integrate R&D ideas from Emerging Technologies, PIER, LBNL and other avenues to further assist the projects in advancing sustainability and achieving higher levels of energy efficiency.

**Sub Program 2.2: Manufactured Housing**

This Sub Program is designed to promote the construction of new manufactured homes that comply with ENERGY STAR® energy efficiency standards. It targets manufacturers, retailers, and homebuyers of new manufactured homes. The current baseline for manufactured homes is the Housing and Urban Development (HUD) standard specification. The program encourages manufacturers to go beyond HUD and install “right-size” heating, cooling, and ventilation equipment (HVAC), install high-efficiency HVAC equipment, and evaluate homes on a whole-building basis covering windows, insulation levels, and quality installation inspections. The key objectives of this Sub Program are to capture cost effective energy savings and demand reduction opportunities and move the industry towards zero-net energy. Additionally, this Sub Program aims to move the market segment from ‘HUD compliant’ to ENERGY STAR and provide savings for customers purchasing energy efficient manufactured homes. The program will also include an education and outreach component.

**2009 – 2011 Energy Efficiency Programs  
New Construction  
Program Implementation Plan**



b) List of Measures

The list of measures eligible for each of the sub programs is provided in the respective Sub Program PIPs.

Incentives

The New Construction Program aims to achieve the deep levels of market transformation desired by the CEESP, primarily by offering meaningful financial incentives directly to key participants in the building community. Incentives will be targeted to builders, designers, and energy analysts. Various organizations involved in developing green building and sustainability standards will also be actively supported. The incentive levels and rationale are discussed in more detail in the Sub Program PIPs

SBD

In addition to the traditional sliding scale incentives that are calibrated to energy savings exceeding standard energy performance code, SBD will offer a flat incentive for peak kW reduction as well as financial support for design teams to undertake an integrated design process. Additionally, sustainability incentives will be offered to building owners to achieve green building certification, perform building commissioning during design and construction, and/or establish and

## **2009 – 2011 Energy Efficiency Programs New Construction**

### **Program Implementation Plan**

follow a building measurement & verification (M&V) plan after occupancy. These sustainability incentives are designed to encourage new buildings to be as well designed as possible, be built as well as they are designed, and be operated as well as they are built.

#### CAHP

In the residential arena, IOUs will advance a pay-for-performance approach designed on a sliding scale from 15% better than Title 24 standards to 45% better than Title 24. The proposed approach is closely modeled on the calculated whole building approach currently being used by SBD. This is a significant departure from the measure-based structure of the past, as well as the current deemed structure consisting of three tiers (15, 20 and 35% better than Title 24). In this approach, the incentive rate per unit of energy (\$/kW, \$/kWh or \$/Therm) is a function of the percentage by which the project exceeds code. The sliding scale incentive methodology offers higher level of incentives to encourage home builders to reach for higher levels of performance and based on energy savings. Additionally, IOUs will offer Design Team Incentives to encourage builders to seek their help in optimizing their building designs.

#### ZNEH

The ZNEH Sub Program goes further in providing financial incentives that could drive builders towards constructing homes that will eventually incorporate features that reach beyond energy efficiency – sustainability, renewables, and distributed generation. Homes considered for the ZNEH case studies will start at “45% better than Title 24 standards”, and the additional measures will be incentivized on a case by case basis.

#### Manufactured Housing

The Manufactured Housing Sub Program provides an incentive to manufactured home retailers when they sell a home that meets or exceeds the current ENERGY STAR standards. These standards extend to the ducting and installation guidelines for heating/cooling equipment, water heating technologies, water saving devices, and home appliances. Customers may also receive incentives for purchasing an ENERGY STAR manufactured home. The incentives may be paid directly to the customer after successful construction, assembly, and inspection of the home site.

#### c) List non-incentive customer services

The New Construction Program will be active in a number of non-incentive activities as well. Several non-incentive customer service components are incorporated in each of the Sub Programs, including the following:

- Technical support to Energy Analysts and Design Teams
- Economic Modeling / measure selection support to builders and construction managers

**2009 – 2011 Energy Efficiency Programs  
New Construction  
Program Implementation Plan**

- Marketing support to builders
- DSM coordination (PV, DR, AMI, ET) for builders to maximize demand side reductions
- Feasibility studies and pilot program components as needed to develop new approaches to more effectively engage new and targeted non residential market segments.
- Training and resource enhancements
- Conferences and workshops to develop tools and concepts that will help the program expand its educational efforts
- Scholarships for students to attend the UC/CSU’s Sustainability Conferences.
- Educational Institution Collaboration; Sustainability lectures to students

These activities are discussed in detail in the respective Sub Program PIPs.

5. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information:

Market transformation (MT) metrics proposed in Tables 3 and 4 are preliminary. The proposed metrics are meant to initiate a collaborative effort to elaborate meaningful metrics that will provide overall indicators of how markets as a whole are evolving. MT metrics should neither be used for short-term analyses nor for specific program analyses. Rather, should focus on broad market segments.

Market transformation is embraced as an ideal end state resulting from the collective efforts of the energy efficiency field, but differing understandings of both the MT process and the successful end state have not yet converged. The CPUC defines the end state of MT as “Long-lasting sustainable changes in the structure or functioning of a market achieved by reducing barriers to the adoption of energy efficiency measures to the point where further publicly-funded intervention is no longer appropriate in that specific market.”<sup>1</sup> The Strategic Plan recognizes that process of transformation is harder to define than its end state, and that new programs are needed to support the continuous transformation of markets around successive generations of new technologies<sup>2</sup>.

Market transformation programs differ from resource acquisition programs on 1) objectives, 2) geographical and 3) temporal dimensions, 4) baselines, 5) performance metrics, 6) program delivery mechanisms, 7) target populations, 8) attribution of causal relationships, and 9) market structures<sup>3</sup>. Markets are social institutions<sup>1</sup>, and

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<sup>1</sup> California Public Utilities Commission Decision, D.98-04-063, Appendix A.

<sup>2</sup> California Public Utilities Commission (2008) *California Long Term Energy Efficiency Strategic Plan*, p. 5. Available at <http://www.californiaenergyefficiency.com/docs/EEStrategicPlan.pdf>

<sup>3</sup> Pelozo, J., and York, D. (1999). “Market Transformation: A Guide for Program Developers.” Energy Center of Wisconsin. Available at: <http://www.ecw.org/ecwresults/189-1.pdf>

## 2009 – 2011 Energy Efficiency Programs New Construction

### Program Implementation Plan

transformation requires the coordinated effort of many stakeholders at the national level, directed to not immediate energy savings but rather to intermediary steps such as changing behavior, attitudes, and market supply chains<sup>2</sup> as well as changes to codes and standards. Resource acquisition programs rely upon the use of financial incentives, but concerns have been raised that these incentives distort true market price signals and may directly counter market transformation progress<sup>3</sup>. According to York<sup>4</sup>, “Market transformation is not likely to be achieved without significant, permanent increases in energy prices. From an economic perspective, there are 3 ways to achieve market transformation: (1) fundamental changes in behavior, (2) provide proper price signals, and (3) permanent subsidy.”

The question of what constitutes successful transformation is controversial because of a Catch-22: Market transformation is deemed successful when the changed market is self-sustaining, but that determination cannot be made until after program interventions are ended. Often, however, the need for immediate energy and demand savings or immediate carbon-emissions reductions will mean that program interventions may need to continue, which would interfere with the evaluation of whether MT is self-sustaining. Market transformation success has also been defined in terms of higher sales of efficient measures than would have otherwise occurred against a baseline absent of program interventions. The real world, however, provides no such control condition. Evaluators must estimate these baselines from quantitative factors such as past market sales that may be sparse and/or inaccurate - particularly for new products. Evaluations must also defer to expert judgments on what these baselines may have been as well as on the degree of successful market transformation<sup>5</sup>. Due to the subjective nature of these judgments, it is imperative that baselines as well as milestone MT targets be determined and agreed upon through collaborative discussion by all stakeholders, and these targets may need periodic revision as deemed necessary by changing context.

Market transformation draws heavily upon diffusion of innovation theory<sup>6</sup>, with the state of a market usually characterized by adoption rate plotted against time on the well-known S-shaped diffusion curve. In practice, however, the diffusion curve of products may span

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<sup>1</sup> Blumstein, C., Goldstone, S., & Lutzenhiser, L. (2001) “From technology transfer to market transformation”. Proceedings of the European Council for an Energy Efficient Economy Summer Study. Available at [http://www.eceee.org/conference\\_proceedings/eceee/2001/Panel\\_2/p2\\_7/Paper/](http://www.eceee.org/conference_proceedings/eceee/2001/Panel_2/p2_7/Paper/)

<sup>2</sup> Sebold, F. D., Fields, A., Skumatz, L., Feldman, S., Goldberg, M., Keating, K., Peters, J. (2001) *A Framework for Planning and Assessing Publicly Funded Energy Efficiency*. p. 6-4. Available at [www.calmac.org](http://www.calmac.org).

<sup>3</sup> Gibbs, M., and Townsend, J. (2000). The Role of Rebates in Market Transformation: Friend or Foe. In *Proceedings from 2000 Summer Study on Energy Efficiency in Buildings*.

<sup>4</sup> York, D., (1999). “A Discussion and Critique of Market Transformation”, Energy Center of Wisconsin. Available at <http://www.ecw.org/ecwresults/186-1.pdf>.

<sup>5</sup> Nadel, S., Thorne, J., Sachs, H., Prindle, B., and Elliot, R.N. (2003). “Market Transformation: Substantial Progress from a Decade of Work.” American Council for an Energy-Efficient Economy, Report Number A036. Available at: <http://www.aceee.org/pubs/a036full.pdf>

<sup>6</sup> Rogers (1995) *Diffusion of Innovations*, 5<sup>th</sup> Ed.

## **2009 – 2011 Energy Efficiency Programs New Construction Program Implementation Plan**

decades<sup>1</sup>. Market share tracking studies conducted 3, 5 or even 10 years after the start of an MT program may reveal only small market transformation effects<sup>2</sup>. The ability to make causal connections between these market transformation effects and any particular program's activities fades with time, as markets continually change and other influences come into play.

These challenges mentioned above are in reference to programs that were specifically designed to achieve market transformation; and these challenges are only compounded for programs that were primarily designed to achieve energy and demand savings. However, since the inception of market transformation programs almost two decades ago, many lessons have been learned about what the characteristics of successful MT programs are. First and foremost, they need to be designed specifically to address market transformation. "The main reason that (most) programs do not accomplish lasting market effects is because they are not designed specifically to address this goal (often because of regulatory policy directions given to program designers.)"<sup>3</sup> The Strategic Plan recognizes that regulatory policies are not yet in place to support the success of market transformation efforts<sup>4</sup>, but also reflects the CPUC's directive to design energy efficiency programs that can lay the groundwork for either market transformation success or for codes and standards changes.

Above all else, the hallmark of a successful market transformation program is in the coordination of efforts across many stakeholders. The most successful MT programs have involved multiple organizations, providing overlapping market interventions<sup>5</sup>. The Strategic Plan calls for coordination and collaboration throughout, and in that spirit the utilities look forward to working with the CPUC and all stakeholders to help achieve market transformation while meeting all the immediate energy, demand, and environmental needs. Drawing upon lessons learned from past MT efforts, the Energy Center of Wisconsin's guide for MT program developers<sup>6</sup> suggests that the first step is not to set end-point definitions, progress metrics or goals. Rather, the first steps include forming a collaborative of key participants. As the Strategic Plan suggests, these may include municipal utilities, local governments, industry and business leaders, and consumers. Then, with the collective expertise of the collaborative, we can define markets, characterize markets, measure baselines with better access to historical data, and define objectives, design strategies and tactics, implement and then evaluate programs. The collaborative will also provide insights that will set our collective expectations for the size of market effects we can expect, relative to the amount of resources we can devote to MT. No one organization in the collaborative will have all the requisite

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<sup>1</sup> Example in bottom chart of this graphic from NYTimes:

<http://www.nytimes.com/imagepages/2008/02/10/opinion/10op.graphic.ready.html>

<sup>2</sup> Sebold et al (2001) p. 6-5,

<sup>3</sup> Peters, J.S., Mast,B., Igelzi, P., Megdal, L.M. (1998). *Market Effects Summary Study Final Report: Volume 1.* Available at <http://calmac.org/publications/19981215CAD0001ME.PDF>.

<sup>4</sup> CPUC (2008) Strategic Plan, p. 5.

<sup>5</sup> Nadel, Thorne, Saches, Prindle & Elliot (2003).

<sup>6</sup> Pelozo & York, (1999).

**2009 – 2011 Energy Efficiency Programs  
New Construction  
Program Implementation Plan**

information and expertise for this huge effort. This truly needs to be a collaborative approach from the start.

The metrics and baselines described below in Tables 3 and 4 are presented for the purposes of starting the much-needed discussion between all key participants. These are suggestions, intended to allow key participants to pilot-test processes for establishing baseline metrics, tracking market transformation progress, and for refining evaluation tools. Early trial of these evaluation metrics will reveal any gaps in data tracking so that we may refine our processes before full-scale market transformation evaluations take place.

The set of metrics we selected is intentionally a small set, for several reasons. First, as mentioned, the full set of metrics and baselines need to be selected by key participants. Second, we anticipate that market share data for many mid- and low-impact measures will be too sparse to show MT effects and not cost-effective to analyze. Third, we selected core measures and metrics that would both be indicative of overall portfolio efforts. These measures are also likely to be offered on a broad level by other utilities, providing a greater base of sales and customer data that could be analyzed for far-reaching MT effects.

The IOUs are proposing a metric that is believed to reliably indicate a trend toward market transformation for Energy Efficient in Residential New Construction (RNC). While all metrics fall short of a perfect measure, the ideal metric would have a baseline that is already established that includes a reasonable and easy method of duplication and comparison. Market transformation cannot be measured on a year to year basis but will take several years and measurements to reliably discern trends. With this in mind, the IOUs propose the following metrics:

- Participants in the Statewide Residential New Construction program with projects exceeding Title 24 (2005) standard by specific percentages, as determined from IOU program records.
- Average compliance margin of the Residential New Construction sector, as determined through a sample study of as-built residences.

The overarching purpose for these metrics is to understand how this market is transforming. Future studies could estimate compliance margins relative to code and highlight key changes in measure adoptions driving changes in compliance margins. Drivers of this MT include efforts from Codes and Standards, Marketing, Education, and Outreach, Workforce Education and Training, and the direct RNC program

Therefore, for the Residential New Construction sector, the approach to quantitative baseline and market transformation information is as follows:

Table 3

**2009 – 2011 Energy Efficiency Programs  
New Construction  
Program Implementation Plan**

Metric A	Metric B
Percent of participants with projects exceeding Title 24 (2005) standard by specific percentages.	Average compliance margin of the Residential New Construction sector.

b) Market Transformation Information

As stated above, market transformation draws heavily upon diffusion of innovation theory, with the state of a market characterized by adoption rate plotted against time on the well-known S-shaped diffusion curve. In practice, however, the diffusion curve of products may span decades. Market share tracking studies conducted 3, 5 or even 10 years after the start of an MT program may reveal only small market transformation effects. Therefore it is problematic, if not impractical, to offer internal annual milestones towards market transformation sectors and specific program activities.

As a consequence, it is not appropriate to offer more than broad and general projections. Any targets provided in the following table are nothing more than best guesstimates, and are subject to the effects of many factors and market forces outside the control of program implementers.

Table 4

Residential New Construction Sector Internal Market Transformation Planning Estimates			
	2009	2010	2011
Metric A	Upward moving trend toward 2011 target.	Upward moving trend toward 2011 target.	Up to 50% of projects 30-35% better than 2005 Title 24; Up to 10% of projects 55% better than 2005 Title 24. (Consistent with Residential Strategy 1-1 in Long Term Strategic Plan)
Metric B	Upward trend in non-participants as-built compliance margins.	Upward trend in non-participants as-built compliance margins.	Upward trend in non-participants as-built compliance margins.

c) Program Design to Overcome Barriers: The New Construction program will address the following barriers, some of which are common across the different market segments:

- **Building Code Changes:** Effective July 1, 2009, California’s Title 24 standards will be revised and updated. Overall, residential baseline energy performance for heating, cooling, and hot water will be increased by approximately 15 percent, which implies a marked increase in production costs for builders at a time when the industry and the economy at large are experiencing significant challenges.



## 2009 – 2011 Energy Efficiency Programs New Construction

### Program Implementation Plan

- Home Buyer awareness: Although the energy used in the average home produces roughly twice the greenhouse gas emissions as the average automobile, there is little consumer awareness of the impact their homes have on the environment. Moreover, there is scant evidence that energy efficiency drives decision-making among homebuyers, whose access to capital is more restricted in the current capital market environment.
  
- Financing: Financing of energy efficiency upgrades continues to be a barrier in achieving full savings potential. This is critically important for the small and medium size builders who have limited access to capital financing. To this end, SBD will evaluate the development of innovative financing tools in the commercial markets.
  
- Small-Project Market Penetration: SBD has historically achieved very high penetration rates with mid-sized and especially large new construction projects. However, barriers exist to deeply penetrating the small-project market due to extensive level of design assistance provided to SBD projects. To help overcome this, SBD has developed a simplified, web-based system for projects that meet a specific size.
  
- Program Presentation: Gaining a full understanding of program offerings can be difficult for some customers, especially in the case of non residential building participants. Collaboration with demand response and distributed generation programs, as appropriate, to combine program offerings into a customer-friendly and easy-to-navigate suite of materials is essential for effective communication of integrated offerings.

The building industry in California is in one of the worst slumps in decades. In a buyer's market, builders are looking to differentiate themselves from competition. This presents a great opportunity for New Construction to assist builders in overcoming cost barriers, minimizing lost opportunities, and working collaboratively to meet the state's and utilities' goals for the reduction of green house gas emissions and utility source demand.

- d) Quantitative Program Targets: The New Construction program aims to achieve the following broad program targets:

**Table 5**


**2009 – 2011 Energy Efficiency Programs  
New Construction  
Program Implementation Plan**

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- e) Advancing Strategic Plan goals and objectives: The New Construction Program is designed to enable the achievement of several goals and strategies identified in the CEESP. Additionally, the New Construction Program will facilitate implementation of the mandates of AB32 (California Global Warming Solutions Act) for carbon reduction, as well as the State of California’s Green Building Initiative.
- Residential New Construction:  
The CEESP envisions a transformation of the core residential sector to ultra-high levels of energy efficiency, resulting in Zero Net Energy new construction standards by 2020. It spells out several goals and strategies to address energy reduction in residential new construction.
    - Goal #1: New Construction will deliver “zero net energy” (ZNE) performance for all new single and multi family homes by 2020.
      - By 2011, 50% of New Homes will exceed 2005 Title 24 energy efficiency standards by 35%; 10% will surpass 2005 Title 24 standards by 55% (Strategy 1-1)
    - Goal #2: Home buyers, owners and renovators will implement a whole house approach to energy consumption that will guide their purchase and use of existing and new homes, home equipment household appliances, and plug load amenities
    - Goal #3: Plug load will grow at a slower rate and then decline through technological innovation spurred by market transformation and customer demand for energy efficient products.

The goal of energy efficient Residential New Construction will be achieved through a combination of incentives, technical education, design assistance, and verification. CAHP supports the ambitious goals of CEESP, and works in close coordination with the Zero Net Energy Homes sub-element. Together these elements seek to raise plug load efficiency, focus on whole-house solutions, drive occupant behavior through in-home monitoring and visual display tools, and leverage market demand for green building standards. CAHP is also coordinated with demand response programs, Emerging Technology, and the New Solar Homes Partnership. In fully aligning itself with the CEESP, the CAHP targets an interim goal of 50 percent of RNC to Tier II (2005) by 2011, 10 per cent of RNC to 55 percent by 2011, and a final goal of 100 percent of residential new construction to be net zero by 2020.

The ZNEH Sub Program is designed primarily with the focus of accelerating the achievement of the ZNE goals envisioned by the Strategic Plan. The purpose of ZNEH Case Studies is to examine a wide array of energy saving technologies, accelerate the market acceptance of new and emerging

## 2009 – 2011 Energy Efficiency Programs New Construction

### Program Implementation Plan

technologies, explore new solutions, and encourage distinctive approaches in demonstration projects. Each being distinctive, the case studies will be positioned to highlight the underutilized potential of sustainability in residential new construction, in a range of market segments and climate zones. The utilities will seek to integrate R&D ideas from Emerging Technologies, PIER, LBNL and other agencies to further assist the projects in advancing sustainability and achieving very high levels of energy efficiency.

The minimum threshold for acceptance in the ZNEH Case Study program will be a whole building performance of at least 45% over Title 24 standards. Projects must meet LEED for Homes (Silver) equivalent and/or qualify for a minimum of 100 points from Build It Green's Green Point Rated system. Financial incentives and marketing support offered for the case study projects will be significantly higher than those offered under CAHP. By providing strong encouragement for builders to move up on the energy efficiency scale with financial and non-financial incentives, the ZNEH Sub Program is uniquely positioned to support the CEESP goal of Zero Net Energy by 2020.

- Commercial New Construction:

With respect to commercial new buildings, the CEESP calls for laying out a path to zero net energy by 2030; it envisions a dramatic growth of innovative technologies, enhanced building design and operating practices through a combination of whole building programs, technology development, market pull, professional education, targeted financing and incentives, and codes and standards. Specifically, the CEESP lays out the following goal for Commercial New Construction.

  - Goal #1: Commercial new construction will increasingly embrace zero net energy performance (including clean, on-site distributed generation), reaching 100% penetration of new starts in 2030.

The SBD Sub Program elements are designed to advance the CEESP's comprehensive energy efficiency goals. By offering a set of tools and expertise, as well as financial incentives (traditional sliding scale incentives tied to building design performance, peak reduction incentives that encourage load reduction, Design Team Incentives that ensure intervention at early design phases) that support long term energy efficiency improvements, as well as training and education to the design professionals and architects, SBD plans to accelerate commercial building design practices towards ZNE. By offering increased incentives and design assistance for innovative buildings and through case studies to show case ZNE projects, this Sub Program establishes a "Path To Zero" campaign to create demand for high efficiency buildings. SBD will partner with green focused organizations and local governments to advance the "Path To Zero" concept. These strategies and the IOU action plans are further elaborated in the SBD PIP for Savings By Design (Appendix A: Zero Net Energy Goals and Strategies).

## **2009 – 2011 Energy Efficiency Programs New Construction Program Implementation Plan**

- The State of California’s Green Building Initiative<sup>1</sup> requires that state agencies, departments, and other entities under the direct executive authority of the Governor cooperate in taking measures to reduce grid-based energy purchases for state-owned buildings by 20 percent by 2015, through cost-effective efficiency measures and distributed generation technologies. Commercial building owners are also encouraged to take aggressive action to reduce electricity usage by retrofitting, building, and operating the most energy- and resource-efficient buildings by taking measures described in the Green Building Action Plan. SBD supports the voluntary portions of the Green Building Initiative through improved new construction in the commercial sector as well as the mandates in the government sector.
- The California Global Warming Solutions Act of 2006 (AB 32) created a state-mandated program to reduce greenhouse gas (GHG) emissions in California to 1990 levels by 2020, specifically including emissions of GHG from the generation of electricity delivered and consumed in the state. SBD supports efforts to enhance the public’s understanding of AB 32 by relating the carbon reduction effects of energy efficiency programs to program participants.

### 6. Program Implementation

- a. Statewide IOU Coordination: The IOUs will jointly participate in California’s efforts to achieve real market transformation in the new construction market segment. In order to accomplish this task, the IOUs will use the principles of adaptive management and follow a structured process to continuously update and enhance the Sub Programs throughout the three-year implementation cycle. The process will include the following key elements:
  - Designate an IOU Program Lead: Each IOU will designate a New Construction Program Lead. The lead will investigate new innovations, special accomplishments and challenges faced by the Sub Programs within their own IOU. Where such innovations or challenges offer some potential for improving the New Construction Program, the Program Lead will present such information in a quarterly New Construction Program Management Team meeting.
  - Hold Quarterly New Construction Program Management Team Meetings: At this quarterly meeting, individual innovations and accomplishments experienced in one IOU will be presented to all IOUs. The team will

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<sup>1</sup> Per Executive order S-20-04, dated December 14, 2004,  
[http://www.energy.ca.gov/greenbuilding/documents/executive\\_order\\_s-20-04.html](http://www.energy.ca.gov/greenbuilding/documents/executive_order_s-20-04.html)

## **2009 – 2011 Energy Efficiency Programs**

### **New Construction**

#### **Program Implementation Plan**

evaluate the innovations and accomplishments of the individual IOUs, hear ideas for course corrections and overcoming challenges, measure the New Construction Program's progress against statewide metrics and goals.

- **Adopt Program Enhancements:** Once the New Construction Program Management Team agrees that a particular idea or innovation has merit on a statewide level, each IOU program lead will disseminate the information to their Sub Program managers for adoption and integration. The IOU Program Leads will act as conduits, feeding IOU-specific information for adoption.
- **Evaluate Program Enhancements Against Statewide Targets:** To complete the adaptive management loop, the Program Management Team will track the program's accomplishment of statewide targets and goals to ensure that adopted program enhancements are generating their intended results. The Program Management Team will determine whether future course corrections are needed, and if so, "activate" a fresh start of the adaptive management cycle to generate the improvements necessary to stay on track.

Additional areas of program coordination include:

- i. **Program names:** Savings By Design, California Advanced Homes Program (CAHP and Zero Net Energy Homes (ZNEH), – these names will be adopted by all the IOUs uniformly and used in their communications consistently. This will ensure better communication across the utility service territories and ensure uniformity and long term continuity of program offerings.
- ii. **Program delivery mechanisms –** The New Construction Program is the umbrella activity that encompasses and unifies the Sub Program activities discussed in more detail in their own unique PIPs and summarized above in Section 4.a. The IOUs will deliver these Sub Programs through a combination of delivery channels such as account executives, third-party vendors and internal program management staff. The Sub Programs will be delivered using existing industry infrastructure and the individual utility's organization structure, in order to enhance their local effectiveness.
- iii. **Incentive levels –** To the extent possible, the IOUs will retain uniformity in the incentive structure of the Sub Programs. See Section 4.b above and Sub Program PIPs for more details on specific incentive levels. .
- iv. **Marketing and outreach plans:** Each utility will develop and execute specific marketing and outreach plans to engage the industry in its own particular market transformation objectives. The Program Management Team will explore opportunities for extracting synergies in developing collateral materials, common program websites that could be utilized by builders and

## 2009 – 2011 Energy Efficiency Programs

### New Construction

#### Program Implementation Plan

designers, exchange of builder contact information, joint presentations at trade shows, expos, and other industry events.

- v. IOU program interactions: Strategy [1-2] outlined in the CEESP is to create a better linkage between the CEC's Title 24 compliance efforts with the IOUs' energy efficiency programs. In order to achieve the market transformation goals of the CEESP, the Program Management Team will ensure coordination with the efforts of the CEC, Codes and Standards and Emerging Technology.
- b. Program delivery and coordination: The New Construction program will be coordinated with the following statewide and local activities. The individual IOUs are responsible for ensuring communication and cooperation with the entities listed below on an as-required basis. The Program Management Team will ensure such communication occurs on a regular basis from a statewide perspective.
- i. Emerging Technologies program: Coordination of New Construction Program with the Codes and Standards and Emerging Technologies activities will be realized through the Program Management Team (consisting of the appropriate program managers from the four IOUs) that meets on a quarterly basis to discuss program integration and implementation issues. The ZNEH and SBD Sub Programs are expected to interact extensively with the ET Program to ensure new and emerging technologies are showcased and / or piloted through the ZNEH case study projects.
  - ii. Codes and Standards program: Close coordination with the statewide Codes and Standards team is essential for tracking and implementing changes initiated by the Title 24 standards. The New Construction Program goals are closely tied to Title 24 standards, and it is imperative to track and implement changes to the program on an as-needed basis. New Construction, Codes and Standards and Emerging Technologies activities will be coordinated through the Program Management Team.
  - iii. WE&T efforts: The workforce education and training needs for the New Construction program are unique to the industry and close coordination with WE&T will be necessary. CAHP and SBD program staff will coordinate with the WE&T program management team to ensure its training and education needs are met.
  - iv. Non-IOU Programs – The Program will remain engaged with CEC, DOE and other government agencies responsible for various aspects of New Construction in California.
  - v. CEC work on PIER – The ZNEH Sub Program will interact extensively with the Emerging Technologies Program to ensure new technologies are absorbed quickly into the case study projects. Such efforts are already underway with

## 2009 – 2011 Energy Efficiency Programs New Construction

### Program Implementation Plan

the PIER program. This activity will primarily be managed under the Technology and System Diagnostics Advocacy Program (see the ZNEH Sub Program plan for more details).

- vi. CEC work on codes and standards – See Section 6.b.ii.
- vii. Non-utility market initiatives: California utilities have established relationships with a number of other groups in the building industry. The New Construction Program will continue to seek out and coordinate synergies with, but not limited to, the following groups:
  - New Solar Home Partnerships (NSHP)
  - Environmental Protection Agency (EPA)
  - California Building Industry Association (CBIA)
  - Green Building Consulting Organizations ( Build It Green, California Green Builder, Global Green)
  - National Association of Homebuilders (NAHB)
  - Rater Organizations (ResNet, CalCerts, CHEERS, HERS)

IOUs are keenly interested in the efforts of Green Building organizations that are engaged in developing industry-wide qualification standards, and will coordinate with the relevant organizations to ensure appropriate standards are developed and adopted.

- c. Best Practices: The Statewide New Construction Program demonstrates several examples of programmatic best practices. The Savings By Design team recently completed process evaluations of the 2006-08 programs. Based on interviews with various market actors and focus groups from the design community, several recommendations were developed to improve the program. Based on that feedback several enhancements have been added to the SBD Sub Program for 2009-11. Providing early design charrettes to explore “out-of-the-box” ideas, promoting high efficiency standards (LEED certification), expanding energy credits for unconventional measures, establishing tracks for cutting edge projects, providing early design team incentives, expanding the incentives for commissioning and M&E projects are some of the recommendations that resulted from the process evaluation, and they have been duly incorporated into the design of the SBD program.

Additionally, SBD will extend the potential of targeted approaches to market segments or industries where alternative interventions may be more effective than the traditional design assistance/incentive approach. A customized approach will focus on market segments such as hospitals and clean room facilities, and other market segments as identified.

- d. Innovation: The Statewide New Construction Program features a number of new program elements that reflect innovative out-of-the box thinking. These

## 2009 – 2011 Energy Efficiency Programs New Construction

### Program Implementation Plan

innovative features originated from the IOUs' desire to extend their resources in order to achieve the ambitious goals of the program by tapping into heretofore unexplored markets. Some examples:

- i. SBD's "Path To Zero" campaign, which aims to create a demand in the marketplace for super efficient, green, LEED+ and/or solar ready, high-performance buildings.
  - ii. Simplified SBD for smaller projects, which will offer web based advice on common energy saving strategies
  - iii. Sustainability incentives: additional financial incentives beyond direct energy and demand reduction incentives for SBD's systems approach and WBA projects that meet qualifying criteria
  - iv. Redesigned incentive mechanism for single family and multi family projects offered by CAHP, which rewards higher levels of performance in a whole house approach. Performance Bonus adders for sustainability measures, green building and compact homes, designed to move the market towards very high levels of energy efficiency
  - v. Program implementation that will emphasize fuel neutrality: a whole house, performance based incentive approach that focuses on overall building efficiency rather than individual measures.
  - vi. ZNEH case studies and demonstrations that will be showcased and marketed through company web sites, recognition awards, trade show participation, on-site promotions, etc.
- e. Integrated/coordinated Demand Side Management: At a minimum, all marketing materials developed to support energy efficient design process will cross promote demand response to educate customers on the availability of IOU DR programs. Additional work will take place during the three-year program cycle to evaluate closer linkages between EE and DR. [Other? LIEE, DG?]
- f. Integration across resource types (gas, electricity, water, air quality, etc): The New Construction Program is designed to be implemented with fuel neutrality. Wherever possible, program management staff will highlight potential water savings and work with the local water utilities to incorporate water savings into the program.
- g. Pilots: The ZNEH Sub Program will serve as the proving ground for pilots, and will actively engage Emerging Technologies to incorporate new measures in the initial design of pilot projects.
- h. EM&V: The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2009-2011 after the program implementation plans are filed. This will include process evaluations and other

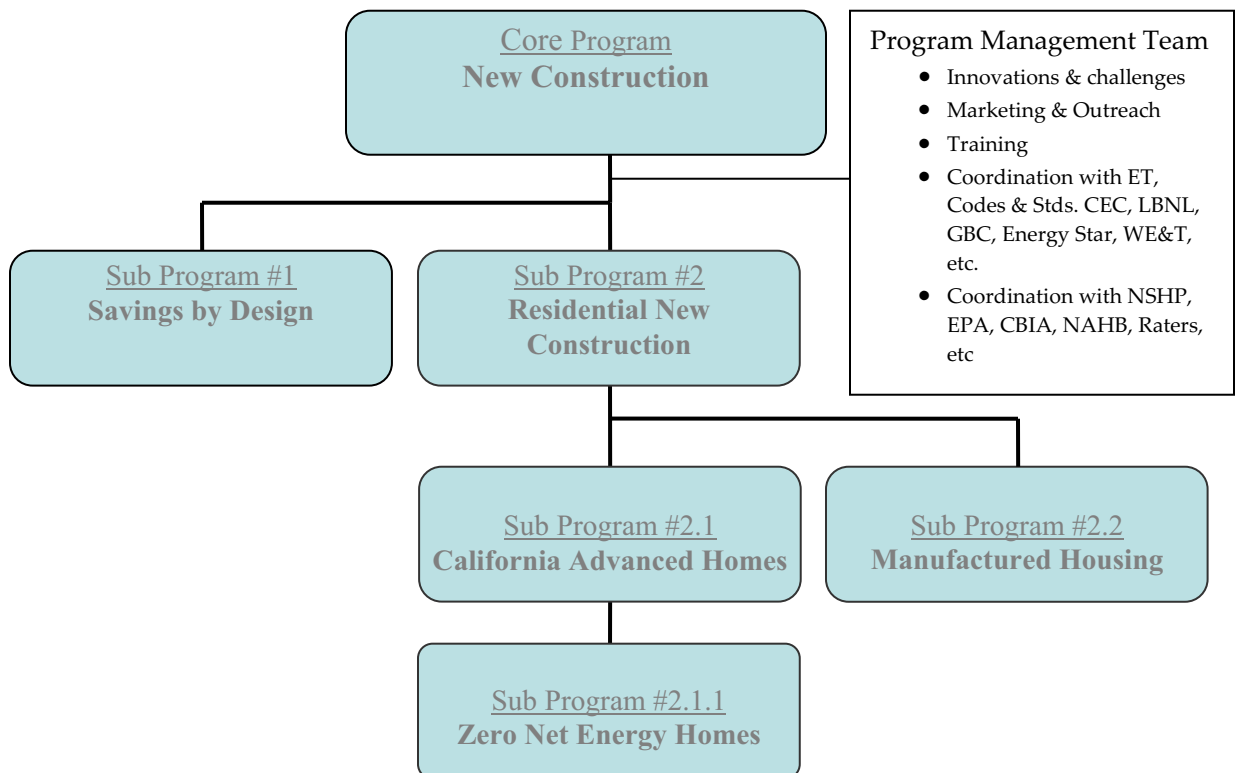


## 2009 – 2011 Energy Efficiency Programs New Construction

### Program Implementation Plan

program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.

7. Diagram of Program: The overall structure of the statewide New Construction Program is depicted in the following diagram. The actual implementation of the Sub Programs is flexible and may differ depending on the IOU's internal organization of the programs. The individual differences in implementation are highlighted in the individual IOU's PIPs. [The description of the subprograms does not match this diagram.]



8. Program Logic Model:

Logic models for the Sub Programs are presented in the respective Sub Program PIPs.

**2009 – 2011 Energy Efficiency Programs  
New Construction  
Program Implementation Plan**

1. Program Name: Savings By Design  
Program ID#  
Program Type: This is a core, statewide program
2. Projected Program Budget Table

**Table 1<sup>1</sup>**

Program #	Main Program Name / Sub-Programs	Total Administrative Cost (Actual)	Total Marketing & Outreach (Actual)	TOTAL Direct Implementation	Integration Budget Allocated to Other Programs (if Applicable)	Total Budget By Program (Actual)
<b>Market Sector Programs</b>						
	<b>Core Program #1</b>					
	<b>Sub-Program #1</b>					
	<b>Sub-Program #2</b>					
	<b>Sub-Program #3</b>					
	<b>Sub-Program #4</b>					
	<b>Etc.</b>					
	<b>TOTAL:</b>					

These budget numbers are presented in Appendix F: Energy Division Tables, Graphs & Pie Charts: Table 7.1 - 2009 - 2011 IOU Strategic Planning Program Budget

3. Projected Program Gross Impacts Table<sup>2</sup> – by calendar year

**Table 2**

Program #	Program Name / Sub-Programs	2009 - 2011	2009 - 2011	2009 - 2011
		Three-Year EE Program Gross	Three-Year EE Program Gross	Three-Year EE Program Gross

<sup>1</sup> Definition of Table 1 Column Headings: Total Budget is the sum of all other columns presented here  
Total Administrative Cost includes all Managerial and Clerical Labor, Human Resource Support and Development, Travel and Conference Fees, and General and Administrative Overhead (labor and materials).  
Total Direct Implementation – includes all financial incentives used to promote participation in a program and the cost of all direct labor, installation and service labor, hardware and materials, and rebate processing and inspection used to promote participation in a program.  
Total Marketing & Outreach includes all media buy costs and labor associated with marketing production.  
Integrated Budget Allocated to Other Programs includes budget utilized to coordinate with other EE, DR, or DG programs.  
Total Budget is the sum of all other columns presented here  
Definition of Sub-Program: A “sub-program” of a program has a specific title; targets; budget; uses a unique delivery or marketing approach not used across the entire program; and for resource programs, has specific estimated savings and demand impacts.

<sup>2</sup> For all-electric IOUs, the therm column should include interactive effects.

**2009 – 2011 Energy Efficiency Programs  
New Construction  
Program Implementation Plan**

		kWh Savings	kW Savings	Therm Savings
<b>Market Sector Programs</b>				
	<b>Core Program #1</b>			
	<b>Sub-Program #1</b>			
	<b>Sub-Program #2</b>			
	<b>Sub-Program #3</b>			
	<b>Sub-Program #4</b>			
	<b>Etc.</b>			
	<b>TOTAL:</b>			

These savings values are presented in Appendix F: Energy Division Tables, Graphs & Pie Charts: Table 7.2 - IOU 2009 - 2011 Program Savings Estimates

4. Program Description<sup>1</sup>

a) Describe program

Savings By Design (SBD) is an energy efficiency program developed for the nonresidential new construction industry. Since 1999, SBD has provided statewide consistency, program stability, and savings. SBD seeks to protect and preserve natural resources by advancing the design and construction of sustainable communities and promoting green building practices. The program is designed to overcome customer and market barriers to designing and building high performance facilities.

SBD provides the nonresidential new construction industry with a broad palette of technical and financial resources to aid the design of new facilities in the most cost-effective energy and resource efficiency standards.

The program will incorporate new approaches for 2009 - 11 to advance integrated design and green building certification in support of the CLTEESP.

**Tools and Expertise:** California’s Title 24 requirements establish some of the most stringent energy regulations in the nation. Exceeding these standard energy performance levels requires a higher level of design, technical assistance, and motivation. The requirements also can be very confusing. SBD provides the assistance, tools and expertise necessary to help customers and designers exceed compliance with the requirements and achieve long-term energy- and cost-savings.

**Long-Term Energy-Efficiency:** It has been firmly established in SBD program evaluations that the integrated design process, when implemented correctly, can lead to highly cost-effective energy savings for most projects. Because many in the design

<sup>1</sup> To be provided for overall program (explaining how sub-programs form a coherent plan) and for each sub-program.

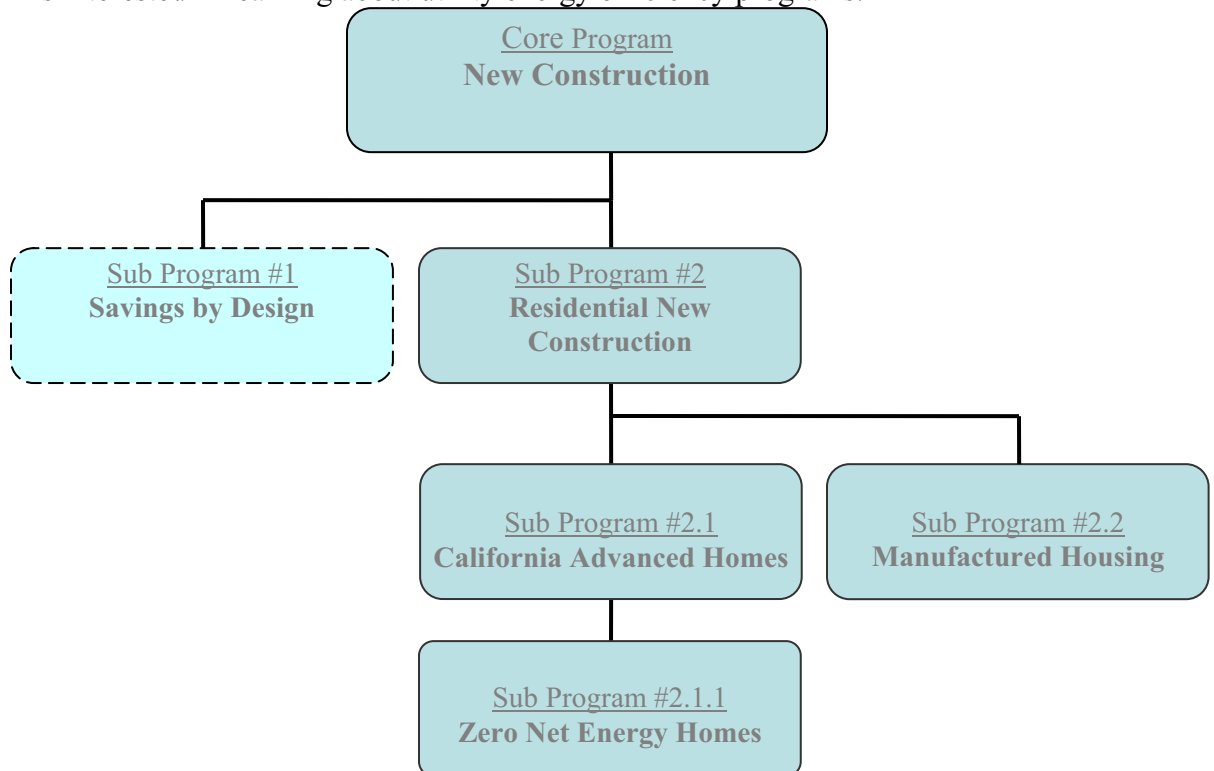
## 2009 – 2011 Energy Efficiency Programs New Construction

### Program Implementation Plan

field are unaware of the potential savings, do not understand the design process, or perceive budgetary constraints, they are reluctant to implement energy-efficiency strategies. As a result, energy efficiency is often a lost consideration, abandoned in favor of pursuing the “lower initial cost” option. SBD strives to avoid lost opportunities by assisting customers in moving beyond initial cost considerations and towards the realization of long-term energy cost savings.

**Energy Design Resources:** Another key component of Savings By Design is Energy Design Resources (EDR). Energy Design Resources offers a valuable palette of energy design tools and resources that help make it easier to design and build energy-efficient commercial and industrial buildings in California. The goal of this effort is to educate architects, engineers, lighting designers, and developers about techniques and technologies that contribute to energy efficient nonresidential new construction. Additionally, design tools that reduce the time spent evaluating the energy use impact of design decisions are provided here at no cost.

**Comprehensive Integrated Building Design Training:** In conjunction with the Workforce Education and Training program, Savings By Design will proactively offer integrated building design training to architects, engineers and other design professionals. Training might encompass highly technical building modeling techniques for use in the selection of cost effective energy efficient measures. In addition, SBD will offer “lunch and learn” sessions to architectural and engineering firms interested in learning about utility energy efficiency programs.



## **2009 – 2011 Energy Efficiency Programs New Construction Program Implementation Plan**

b) List measures

As a program based on supporting whole building design, SBD does not present a set of defined measures.

c) List non-incentive customer services

Beyond traditional incentives, SBD engages in a variety of non-incentive activities as detailed in the State Wide New Construction PIP:

The New Construction Program will be active in a number of non-incentive activities as well. Several non-incentive customer service components are incorporated in each of the Sub Programs, including the following:

- Technical support to Energy Analysts and Design Teams
- Economic Modeling / measure selection support to builders and construction managers
- Marketing support to builders
- DSM coordination (PV, DR, AMI, ET) for owners to maximize demand side reductions
- Feasibility studies and pilot program components as needed to develop new approaches to more effectively engage new and targeted non residential market segments.
- Training and resource enhancements
- Conferences and workshops to develop tools and concepts that will help the program expand its educational efforts
- Scholarships for students to attend the UC/CSU's Sustainability Conferences.
- Educational Institution Collaboration; Sustainability lectures to students

### 5. Program Rationale and Expected Outcome<sup>1</sup>

a) Quantitative Baseline and Market Transformation Information:

Market transformation (MT) metrics proposed in Tables 3 and 4 are preliminary. The proposed metrics are meant to initiate a collaborative effort to elaborate meaningful metrics that will provide overall indicators of how markets as a whole are evolving. MT metrics should neither be used for short-term analyses nor for specific program analyses. Rather, should focus on broad market segments.

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<sup>1</sup> To be provided for each program and sub-program in PIP.

## 2009 – 2011 Energy Efficiency Programs New Construction Program Implementation Plan

Market transformation is embraced as an ideal end state resulting from the collective efforts of the energy efficiency field, but differing understandings of both the MT process and the successful end state have not yet converged. The CPUC defines the end state of MT as “Long-lasting sustainable changes in the structure or functioning of a market achieved by reducing barriers to the adoption of energy efficiency measures to the point where further publicly-funded intervention is no longer appropriate in that specific market.”<sup>1</sup> The Strategic Plan recognizes that process of transformation is harder to define than its end state, and that new programs are needed to support the continuous transformation of markets around successive generations of new technologies<sup>2</sup>.

Market transformation programs differ from resource acquisition programs on 1) objectives, 2) geographical and 3) temporal dimensions, 4) baselines, 5) performance metrics, 6) program delivery mechanisms, 7) target populations, 8) attribution of causal relationships, and 9) market structures<sup>3</sup>. Markets are social institutions<sup>4</sup>, and transformation requires the coordinated effort of many stakeholders at the national level, directed to not immediate energy savings but rather to intermediary steps such as changing behavior, attitudes, and market supply chains<sup>5</sup> as well as changes to codes and standards. Resource acquisition programs rely upon the use of financial incentives, but concerns have been raised that these incentives distort true market price signals and may directly counter market transformation progress<sup>6</sup>. According to York<sup>7</sup>, “Market transformation is not likely to be achieved without significant, permanent increases in energy prices. From an economic perspective, there are 3 ways to achieve market transformation: (1) fundamental changes in behavior, (2) provide proper price signals, and (3) permanent subsidy.”

The question of what constitutes successful transformation is controversial because of a Catch-22: Market transformation is deemed successful when the changed market is self-sustaining, but that determination cannot be made until after program interventions are ended. Often, however, the need for immediate energy and demand savings or immediate carbon-emissions reductions will mean that program interventions may need to continue, which would interfere with the evaluation of whether MT is self-sustaining. Market

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<sup>1</sup> California Public Utilities Commission Decision, D.98-04-063, Appendix A.

<sup>2</sup> California Public Utilities Commission (2008) *California Long Term Energy Efficiency Strategic Plan*, p. 5. Available at <http://www.californiaenergyefficiency.com/docs/EEStrategicPlan.pdf>

<sup>3</sup> Peloza, J., and York, D. (1999). “Market Transformation: A Guide for Program Developers.” Energy Center of Wisconsin. Available at: <http://www.ecw.org/ecwresults/189-1.pdf>

<sup>4</sup> Blumstein, C., Goldstone, S., & Lutzenhiser, L. (2001) “From technology transfer to market transformation”. Proceedings of the European Council for an Energy Efficient Economy Summer Study. Available at [http://www.ecee.org/conference\\_proceedings/ecee/2001/Panel\\_2/p2\\_7/Paper/](http://www.ecee.org/conference_proceedings/ecee/2001/Panel_2/p2_7/Paper/)

<sup>5</sup> Sebald, F. D., Fields, A., Skumatz, L., Feldman, S., Goldberg, M., Keating, K., Peters, J. (2001) *A Framework for Planning and Assessing Publicly Funded Energy Efficiency*. p. 6-4. Available at [www.calmac.org](http://www.calmac.org).

<sup>6</sup> Gibbs, M., and Townsend, J. (2000). The Role of Rebates in Market Transformation: Friend or Foe. In *Proceedings from 2000 Summer Study on Energy Efficiency in Buildings*.

<sup>7</sup> York, D., (1999). “A Discussion and Critique of Market Transformation”, Energy Center of Wisconsin. Available at <http://www.ecw.org/ecwresults/186-1.pdf>.

## 2009 – 2011 Energy Efficiency Programs New Construction Program Implementation Plan

transformation success has also been defined in terms of higher sales of efficient measures than would have otherwise occurred against a baseline absent of program interventions. The real world, however, provides no such control condition. Evaluators must estimate these baselines from quantitative factors such as past market sales that may be sparse and/or inaccurate - particularly for new products. Evaluations must also defer to expert judgments on what these baselines may have been as well as on the degree of successful market transformation<sup>1</sup>. Due to the subjective nature of these judgments, it is imperative that baselines as well as milestone MT targets be determined and agreed upon through collaborative discussion by all stakeholders, and these targets may need periodic revision as deemed necessary by changing context.

Market transformation draws heavily upon diffusion of innovation theory<sup>2</sup>, with the state of a market usually characterized by adoption rate plotted against time on the well-known S-shaped diffusion curve. In practice, however, the diffusion curve of products may span decades<sup>3</sup>. Market share tracking studies conducted 3, 5 or even 10 years after the start of an MT program may reveal only small market transformation effects<sup>4</sup>. The ability to make causal connections between these market transformation effects and any particular program's activities fades with time, as markets continually change and other influences come into play.

These challenges mentioned above are in reference to programs that were specifically designed to achieve market transformation; and these challenges are only compounded for programs that were primarily designed to achieve energy and demand savings. However, since the inception of market transformation programs almost two decades ago, many lessons have been learned about what the characteristics of successful MT programs are. First and foremost, they need to be designed specifically to address market transformation. "The main reason that (most) programs do not accomplish lasting market effects is because they are not designed specifically to address this goal (often because of regulatory policy directions given to program designers.)<sup>5</sup>" The Strategic Plan recognizes that regulatory policies are not yet in place to support the success of market transformation efforts<sup>6</sup>, but also reflects the CPUC's directive to design energy efficiency programs that can lay the groundwork for either market transformation success or for codes and standards changes.

Above all else, the hallmark of a successful market transformation program is in the coordination of efforts across many stakeholders. The most successful MT programs have

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<sup>1</sup> Nadel, S., Thorne, J., Sachs, H., Prindle, B., and Elliot, R.N. (2003). "Market Transformation: Substantial Progress from a Decade of Work." American Council for an Energy-Efficient Economy, Report Number A036. Available at: <http://www.aceee.org/pubs/a036full.pdf>

<sup>2</sup> Rogers (1995) Diffusion of Innovations, 5<sup>th</sup> Ed.

<sup>3</sup> Example in bottom chart of this graphic from NYTimes:  
<http://www.nytimes.com/imagepages/2008/02/10/opinion/10op.graphic.ready.html>

<sup>4</sup> Sebold et al (2001) p. 6-5,

<sup>5</sup> Peters, J.S., Mast, B., Ignelzi, P., Megdal, L.M. (1998). *Market Effects Summary Study Final Report: Volume 1.* Available at <http://calmac.org/publications/19981215CAD0001ME.PDF>.

<sup>6</sup> CPUC (2008) Strategic Plan, p. 5.

## **2009 – 2011 Energy Efficiency Programs New Construction Program Implementation Plan**

involved multiple organizations, providing overlapping market interventions<sup>1</sup>. The Strategic Plan calls for coordination and collaboration throughout, and in that spirit the utilities look forward to working with the CPUC and all stakeholders to help achieve market transformation while meeting all the immediate energy, demand, and environmental needs. Drawing upon lessons learned from past MT efforts, the Energy Center of Wisconsin's guide for MT program developers<sup>2</sup> suggests that the first step is not to set end-point definitions, progress metrics or goals. Rather, the first steps include forming a collaborative of key participants. As the Strategic Plan suggests, these may include municipal utilities, local governments, industry and business leaders, and consumers. Then, with the collective expertise of the collaborative, we can define markets, characterize markets, measure baselines with better access to historical data, and define objectives, design strategies and tactics, implement and then evaluate programs. The collaborative will also provide insights that will set our collective expectations for the size of market effects we can expect, relative to the amount of resources we can devote to MT. No one organization in the collaborative will have all the requisite information and expertise for this huge effort. This truly needs to be a collaborative approach from the start.

The metrics and baselines described below in Tables 3 and 4 are presented for the purposes of starting the much-needed discussion between all key participants. These are suggestions, intended to allow key participants to pilot-test processes for establishing baseline metrics, tracking market transformation progress, and for refining evaluation tools. Early trial of these evaluation metrics will reveal any gaps in data tracking so that we may refine our processes before full-scale market transformation evaluations take place.

The set of metrics we selected is intentionally a small set, for several reasons. First, as mentioned, the full set of metrics and baselines need to be selected by key participants. Second, we anticipate that market share data for many mid- and low-impact measures will be too sparse to show MT effects and not cost-effective to analyze. Third, we selected core measures and metrics that would both be indicative of overall portfolio efforts. These measures are also likely to be offered on a broad level by other utilities, providing a greater base of sales and customer data that could be analyzed for far-reaching MT effects.

The IOUs are proposing a metric that is believed to reliably indicate a trend toward market transformation for Energy Efficiency in Non-Residential New Construction. While all metrics fall short of a perfect measure, the ideal metric would have a baseline that is already established that includes a reasonable and easy method of duplication and comparison. Market transformation cannot be measured on a year to year basis but will take several years and measurements to reliably discern trends. With this in mind, the IOUs propose the following:

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<sup>1</sup> Nadel, Thorne, Saches, Prindle & Elliot (2003).

<sup>2</sup> Pelozo & York, (1999).



**2009 – 2011 Energy Efficiency Programs  
New Construction  
Program Implementation Plan**

- Study of participants in the Savings By Design (SBD) program projects exceeding Title 24 standards by specific percentages as determined from IOU program records.
- Average compliance margin of the Nonresidential New Construction sector as determined through a sample study of as-built construction projects.

The overarching purpose for these metrics is to understand how this market sector is transforming. Drivers of this market transformation include efforts from Codes and Standards, Marketing, Education, and Outreach, Workforce Education and Training, and the direct SBD program.

Therefore, for the Non-Residential New Construction sector, the approach to quantitative baseline and market transformation information is as follows:

Table 3

Metric A	Metric B
Percent of SBD participants with projects exceeding Title 24 (2005) standards by specific percentages.	Average compliance margin of the Nonresidential New Construction sector.

b) Market Transformation Information

As stated above, market transformation draws heavily upon diffusion of innovation theory, with the state of a market characterized by adoption rate plotted against time on the well-known S-shaped diffusion curve. In practice, however, the diffusion curve of products may span decades. Market share tracking studies conducted 3, 5 or even 10 years after the start of an MT program may reveal only small market transformation effects. Therefore it is problematic, if not impractical, to offer internal annual milestones towards market transformation sectors and specific program activities.

As a consequence, it is not appropriate to offer more than broad and general projections. Any targets provided in the following table are nothing more than best guesstimates, and are subject to the effects of many factors and market forces outside the control of program implementers.

Table 4

Non-Residential New Construction Sector Internal Market Transformation Planning Estimates			
	2009	2010	2011
Metric A	Upward moving trend toward 2011 target.	Upward moving trend toward 2011 target.	Upward moving trend toward 2011 target.
Metric B	Upward trend in non-participants as-built compliance margins.	Upward trend in non-participants as-built compliance margins.	Upward trend in non-participants as-built compliance margins.

**2009 – 2011 Energy Efficiency Programs  
New Construction  
Program Implementation Plan**

b) Program Design to Overcome Barriers:

**Financing**

Financing of energy efficiency upgrades continues to be a barrier in achieving full savings potential. To this end the program will evaluate the development of innovative financing tools:

- Explore expanding On-Bill Financing offerings to all participants (more information on page 16, under “Innovation”).
- Investigate how to leverage external funding for zero net energy new buildings and major efficiency upgrades of existing buildings.
- Explore establishing relationships with other entities to identify alternative sources of funding for energy efficiency upgrades.

**Small-Project Market Penetration**

SBD has historically achieved very high penetration rates with mid-sized and large new construction projects. However, barriers exist to deeply penetrating the small-project markets. To help overcome this, SBD will be developing a simplified, web-based system for smaller projects that meet a specific size threshold (more information on page 15, under “Innovation”).

**Program Presentation**

Gaining a full understanding of the program’s offerings can be difficult for some customers. Field delivery staff for SBD will collaborate with demand response and self-generation programs, as appropriate, to combine program offerings into a customer-friendly and easy-to-navigate suite of materials. Programs can be cross-promoted and the whole building approach will help to educate designers in the benefits of their adoption in new construction.

- c) Quantitative Program Targets: Provide estimated quantitative information on number of projects, companies, non-incentive customer services and/or incentives that program aims to deliver and/or complete in 2009-11 timeframe. Provide references where available.

**Table 5**

Program Name	Program Target by 2009	Program Target by 2010	Program Target by 2011
Savings By DesignTarget #1			
Target #2			
Target #3			
Target #4			

\* [e.g. Target #1: 20,000 refrigerators recycled by 2011; or Partnerships with 5 of the 10 top homebuilders by 2010]

## **2009 – 2011 Energy Efficiency Programs New Construction Program Implementation Plan**

### e) Advancing Strategic Plan goals and objectives:

- The State of California’s Green Building Initiative<sup>1</sup> requires that state agencies, departments, and other entities under the direct executive authority of the Governor, cooperate in taking measures to reduce grid-based energy purchases for state-owned buildings by 20 percent by 2015, through cost-effective efficiency measures and distributed generation technologies.

Commercial building owners are also encouraged to take aggressive action to reduce electricity usage by retrofitting, building, and operating the most energy- and resource-efficient buildings by taking measures described in the Green Building Action Plan.

SBD supports the voluntary portions of this legislation through improved new construction in the commercial sector as well as the mandates in the government sector.

- The California Global Warming Solutions Act of 2006 (AB 32) created a state-mandated program to reduce greenhouse gas (GHG) emissions in California to 1990 levels by 2020, specifically including emissions of GHG from the generation of electricity delivered and consumed in the state.

SBD supports efforts to enhance the public’s understanding of AB 32 by relating the carbon reduction effects of energy efficiency programs to program participants.

- The California Long Term Energy Efficient Strategic Plan (CLTEESP<sup>2</sup>) spells out a variety of strategies to address energy reduction in California for homes, offices, factories, and farms.

SBD advances CLTEESP’s comprehensive energy efficiency goals with:

- Integrated design approach
- Support of commissioning and M&V
- Support training activities

## 6. Program Implementation

### a. Statewide IOU Coordination:

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<sup>1</sup> Per Executive order S-20-04, dated December 14, 2004,  
[http://www.energy.ca.gov/greenbuilding/documents/executive\\_order\\_s-20-04.html](http://www.energy.ca.gov/greenbuilding/documents/executive_order_s-20-04.html)

<sup>2</sup> California Energy Efficiency Strategic Plan, 2008,  
<http://www.californiaenergyefficiency.com/index.shtml>

## 2009 – 2011 Energy Efficiency Programs New Construction

### Program Implementation Plan

The SBD program will continue to offer two existing program components to its customers with new construction or major remodel/renovation projects, and will add a simplified approach for smaller projects.

- Whole-Building Approach or WBA (Integrated Design) - existing
- Systems Approach - existing
- Simplified Approach - new

SBD will offer financial support for design teams to undertake an integrated design process. Additionally, sustainability incentives will be offered to building owners to achieve green building certification, perform building commissioning during design and construction, and/or establish and follow a building measurement & verification (M&V) plan after occupancy. These sustainability incentives are designed to encourage new buildings to be as well designed as possible, be built as well as they are designed, and be operated as well as they are built.

#### Non-Energy Activities

In addition, SBD will be engaged in a number of non-energy activities, including the following.

- **Feasibility studies and pilot program components** as needed to develop new approaches to more effectively engage new and targeted market segments.
- **Training and resource enhancements** in concert with the Energy Design Resources component (now included in the Education/Training/Outreach program).
- **Conferences and workshops** to develop tools and concepts that will help the program expand its educational- efforts to encompass sustainability issues, and work towards coordinated delivery of Demand Response, self-generation, water conservation, and enhanced gas savings.
- **Scholarships** for students to attend the UC/CSU's Sustainability Conferences. The annual conference presents the architectural students with the rare opportunity to see first-hand that sustainability issues are growing in importance. Sponsoring Scholarships also provides SBD with a participatory role on a panel that answers questions regarding the SBD program and the compliance characteristics of potential customer projects.
- **Educational Institution Collaboration** will help ensure the development of curricula and adequate preparation of students for opportunities in energy efficiency. Sustainability lectures to students are also expected to help in their development.

#### Subcontractor Activities

Including other industry experts in certain program implementation processes enhances and extends the value of program benefits that customers can receive.

## **2009 – 2011 Energy Efficiency Programs New Construction**

### **Program Implementation Plan**

In recognition of this, appropriate consultants will be selected through competitive bidding processes for some or all of the following activities:

- Project-specific energy simulation design assistance for WBA projects.
- Integrated energy design support, such as charrette facilitation and process training.
- Program marketing and delivery in technically specialized, hard-to-reach industries.
- Complex computational analyses required for the achievement of Zero Net Energy projects, as called for in the CEESP.

#### Marketing Activities

##### **Cross Promotion**

For 2009 - 11, SBD program information will be included with other marketing materials of other programs/services as appropriate. Notably, during events which SBD sponsors, marketing materials from other partner programs, such as DR, Sustainable Communities, Partnership, ET, Retrofit Program, etc will be included with SBD materials. This will extend the reach of the program and reduce customer confusion as to program availability.

##### **Partnership Synergies**

Savings By Design has established close relationships and memberships with other groups involved with the commercial new construction industry. These relationships make it possible to provide comprehensive services to our customers. These groups include:

- American Institute of Architects (AIA)
- California Council of American Institute of Architects (AIACC)
- Illuminating Engineering Society (IES)
- American Society of Heating and Refrigeration Engineers (ASHRAE)
- United States Green Building Council (USGBC)
- Green Building Consultants
- Collaborative for High Performance Schools (CHPS)
- California Commissioning Collaborative (CCC)

SBD seeks out partnerships and opportunities to help educate building owners, building design teams, and other industry participants in order to promote whole building, energy-efficient, sustainable design in new construction.

##### **Awards Sponsorship**

## 2009 – 2011 Energy Efficiency Programs New Construction

### Program Implementation Plan

SBD co-sponsors (with AIA California Council) the annual Energy Efficiency Design Awards. These awards are designed to raise the awareness of successful high-performance facilities within the design professions.

#### Internet

Comprehensive information about SBD can be found on [savingsbydesign.com](http://savingsbydesign.com). In addition, SBD case studies are posted on the Energy Design Resources website. In the future, Web Based Training (WBT) might be considered for both websites mentioned above.

Utility websites will continue to advance Savings By Design by providing program information.

#### Print Media

Articles and press releases submitted to specialty publications targeting developers, building owners and design professionals.

#### Outreach

SBD will continue to seek out speaking opportunities at conferences and provide “Lunch and Learns” for architects and engineers. In addition, Utilities will consider holding conferences to promote and build awareness surrounding their energy efficiency programs, although this might only be offered when resources permit.

#### b) Program delivery and coordination:

- i. Emerging Technologies program: Coordination of New Construction Program with the Codes and Standards and Emerging Technologies activities will be realized through the Program Management Team (consisting of the appropriate program managers from the four IOUs) that meets on a quarterly basis to discuss program integration and implementation issues. The ZNEH and SBD Sub Programs are expected to interact extensively with the ET Program to ensure new and emerging technologies are showcased and / or piloted through the ZNEH case study projects.
- ii. Codes and Standards program: Close coordination with the statewide Codes and Standards team is essential for tracking and implementing changes initiated by the Title 24 standards. The New Construction Program goals are closely tied to Title 24 standards, and it is imperative to track and implement changes to the program on an as-needed basis. New Construction, Codes and Standards and Emerging Technologies activities will be coordinated through the Program Management Team.
- iii. WE&T efforts: The workforce education and training needs for the New Construction program are unique to the industry and close coordination with

## 2009 – 2011 Energy Efficiency Programs

### New Construction

#### Program Implementation Plan

WE&T will be necessary. SBD program staff will coordinate with the WE&T program management team to ensure its training and education needs are met.

- iv. Non-IOU Programs – The Program will remain engaged with CEC, DOE and other government agencies responsible for various aspects of New Construction in California.
- v. CEC work on PIER – The ZNEH Sub Program will interact extensively with the Emerging Technologies Program to ensure new technologies are absorbed quickly into the case study projects. Such efforts are already underway with the PIER program. This activity will primarily be managed under the Technology and System Diagnostics Advocacy Program (see the ZNEH Sub Program plan for more details).
- vi. CEC work on codes and standards – See Section 6.b.ii.
- vii. Non-utility market initiatives: California utilities have established relationships with a number of other groups in the building industry. The New Construction Program will continue to seek out and coordinate synergies with, but not limited to, the following groups:
  - New Solar Home Partnerships (NSHP)
  - Environmental Protection Agency (EPA)
  - California Building Industry Association (CBIA)
  - Green Building Consulting Organizations ( Build It Green, California Green Builder, Global Green)
  - 
  - )

IOUs are keenly interested in the efforts of Green Building organizations that are engaged in developing industry-wide qualification standards, and will coordinate with the relevant organizations to ensure appropriate standards are developed and adopted.

#### Whole Building Approach

The Whole Building Approach (WBA) is SBD's preferred avenue for achieving energy efficiency in new construction because it enables a design team to consider integrated, optimized energy-efficiency solutions. This customized approach requires a high level of building energy simulation and interactive feedback, which generally leads to much more efficient design decisions. The key to maximizing energy choices, using this type of collaborative effort, is intervention at the earliest phase of building design.

## **2009 – 2011 Energy Efficiency Programs New Construction Program Implementation Plan**

### **Traditional Incentives**

For 2009 – 11, the statewide owner’s incentives for electrical energy savings offered by the WBA will start at \$0.10 per kWh at 10 percent better than Title 24 code and increase in a straight line to \$0.30 per kWh at 30 percent better than code. For projects that exceed 30 percent better than code, the electric incentive will be \$0.30 per kWh saved. The incentives will be capped at 75% of incremental cost or \$500,000, whichever is lower. Looking to the future, SBD may offer a significantly higher incentive rate for projects whose aspiration is “Zero Net Energy.”

If SBD provides design assistance services to a project that achieves high performance without incurring incremental equipment cost (due to the intrinsic benefits of the integrated design process), an owner incentive will not be awarded due to the incremental cost cap. In these cases, SBD will still claim the resulting energy and demand savings.

In cases where a WBA project initially meets the 10 percent threshold for eligibility to participate, but later experiences project changes that reduce the building’s performance to less than 10 percent - but are at least 5 percent better than Title 24 - the project will earn an incentive corresponding to the Systems Approach incentive rates. This will overcome a market barrier by reducing risk to owners to participate in SBD for projects that struggle to achieve 10 percent better than code.

### **Peak Reduction Incentives**

In addition to the traditional incentives offered by SBD, an incentive for peak demand reductions consistent with the CPUC’s methodology for determining peak kW reductions will be added. The rationales for directly incentivizing peak reductions are two-fold:

- 1. Adding a direct demand incentive will encourage measures that may have little or no energy savings, but significant demand reductions.**

California values energy savings and permanent demand reductions equally. Therefore, the indirect demand reduction incentive currently offered by the WBA, through tying the energy incentive rate to the Time Dependent Valuation (TDV) based compliance margin, does not offer sufficient visibility to the importance of achieving peak demand reduction.

- 2. A flat incentive for peak demand reductions, in addition to the energy incentive, addresses two industry concerns.**

As Title 24 becomes progressively more stringent, it is increasingly difficult to achieve the same magnitude of energy savings as under the previous Title 24 code versions. There is also widespread recognition in the CLTEESP that



## **2009 – 2011 Energy Efficiency Programs**

### **New Construction**

#### **Program Implementation Plan**

achieving the state's aggressive goals will require increased incentive levels to offset the effects of diminishing returns.

#### **Design Team Incentives**

SBD also offers Design Team Incentives (DTI) for WBA projects to support the extra effort on the part of design teams for integrated energy design and to reward exceptional design accomplishments within the framework of the WBA. In addition, SBD will continue to develop a mechanism by which design firms are offered extensive technical support in building their in-house energy modeling capabilities. This assistance is intended to help design firms overcome the initial learning-curve barriers that have kept many from undertaking energy modeling for energy efficiency measure alternatives analysis when programming buildings.

By forming alliances with design firms to ramp up their internal energy modeling resources, SBD will achieve increased market penetration for the WBA. SBD will support the long-range vision of the CLTEESP by encouraging the design community to consider energy efficiency as an equally important component of every building's programming.

For 2009 - 11, DTI incentives will equal one-third of the owner's incentive. The threshold for design teams to begin earning a DTI is the same as that of the owner: 10 percent better than code. Additionally, 50 percent of the DTI will be paid to the design team upon acceptance of the Owner Agreement and all supporting analysis and documentation. The design team will be required to conduct energy modeling with comparison of alternatives. These analyses will be contained in a report prepared by the design team that is presented to the project owner and accepted by the utility. The DTI will be capped at \$50,000.

If a design team elects not to perform energy modeling for the DTI on a WBA project, SBD will continue to provide comprehensive energy modeling services to the customer and their design team. These Design Assistance (DA) services have proven successful over the past years in providing energy calculations, design facilitation, and energy recommendations that provide the guidance and information building owners need to make well-informed design and construction decisions for their facilities. In many cases building owners find that design assistance is the main influence in their including energy-efficient options in their building - even more influential than a direct incentive. In all such cases, SBD will track and report such results toward its program goals.

#### The Systems Approach

The systems approach is a performance-based method utilizing energy analysis tools for energy modeling to analyze efficiency choices. This approach is used for projects that do not present sufficient opportunities to warrant the labor intensive assistance services offered through the WBA. The systems approach is designed to make it easy for designers to look at the interaction of systems within their project, rather than individual equipment or fixtures. The systems approach

**2009 – 2011 Energy Efficiency Programs**  
**New Construction**  
**Program Implementation Plan**

is used for simple facilities where integrated opportunities are limited, as well as projects where program intervention may come in too late in the design phase to effect sweeping programmatic changes to the design.

For 2009 - 11, SBD will continue to offer the same incentives by measure end-use as the non-residential calculated retrofit program (known in 2006-08 as Standard Performance Contract, or SPC). Additionally, while Title 24 typically (though not exclusively) provides the baseline for the systems approach, SBD will apply an existing equipment baseline to major renovation projects in which SBD's influence has motivated the customer to undertake the replacement of existing, inefficient equipment, even if such renovations subsequently trigger Title 24 requirements.

For example, if SBD motivates a customer to replace over 50% of an existing lighting system, which subsequently triggers Title 24 lighting requirements, the program will claim savings from an existing equipment baseline rather than the Title 24 baseline.

This will reduce customer confusion by keeping SBD and the calculated sub program of the Statewide Commercial program, also known as Standard Performance Contract (SPC), out of direct competition with each other. It will also allow major renovation projects with some retrofit activities to participate wholly in one program. The customer experience will be improved and higher levels of energy performance in existing buildings will be promoted, consistent with the aims of the CLTEESP.

c) Best Practices:

The statewide Savings By Design team has completed process evaluations of the 2006-08 programs. Based on interviews with various market actors and focus groups from the design community, several consistent themes emerged on recommendations to improve the program. Consequently, several enhancements were added to the program.

Process Evaluation Recommendations:

1. Provide Early Energy Charrettes - The objective of the charrette would be to review all of the potential energy efficiency aspects of the project, and to explore all feasible "out-of-the-box" ideas that could conceivably be incorporated into the project at an early stage.
2. Promote High Efficiency - Participants were skeptical about LEED and its value, yet they all acknowledged that higher levels of energy efficiency were valuable.
3. Expand Credit for Unconventional Efficiency Measures - As SBD becomes increasingly ambitious, it will become necessary to update the analysis

**2009 – 2011 Energy Efficiency Programs**  
**New Construction**  
**Program Implementation Plan**

methods to credit measures that lie outside the T-24 compliance domain, for example, natural ventilation and un-air-conditioned buildings.

4. Establish Track for Cutting Edge Projects - Some of the designers suggested that there be a track specifically established to encourage cutting edge projects that significantly diverge from conventional energy efficiency solutions, and which could demonstrate substantial new opportunities for advanced energy efficiency.
5. Provide Early Design Team Incentive Payment - Designers value the design team incentives and would like to have them earlier in the design process. Because the typical design team incentives arrive so late, often years after the extra design effort was expended, the link between the reward and the behavior it encourages is lost. If it were easier for designers to receive a portion of the incentive earlier, it would likely be more influential and give SBD a more prominent role in their projects.
6. Expand Incentives - Incentives could encourage both commissioning activities and the measurement and evaluation of projects. Commissioning especially is perceived as adding costs, so incentives to offset the costs were encouraged.

Up to 10% of SBD projects will be monitored using Energy Star benchmarking. Feedback from these follow-up evaluations will be shared with the building owner and other IOUs.

Alternative Delivery Methods and Targeted Approaches

SBD will continue to build on the successful Alternative Delivery Method, which invites third-party market players to implement program goals in specific hard-to-reach niches such as facilities with dominant refrigeration loads. For 2009 - 11, the program will explore a similar effort to more effectively extend the reach of the program into hospitals, and possibly the arena of leased commercial spaces with high turnover rates. Other niche markets that may respond to a higher level of technical support will also be considered as they are identified.

In addition to working with individual building owners, SBD has interfaced aggressively with large retail chains to promote energy efficiency and sustainability. Large chains such as Target, Walgreens, Thrifty, Staples, Lowe's, Edwards Theatres, and others have participated in the SBD program.

When each chain proposes opening a series of stores across California, SBD will continue to work directly with their design teams helping them incorporate energy efficiency measures into their new prototype, utilizing a whole building approach. SBD models that prototype across all 16 climate zones in California, to clearly identify energy savings and potential incentives for these customers. With these chains now beginning to focus on green/sustainable stores with renewable energy

## 2009 – 2011 Energy Efficiency Programs New Construction

### Program Implementation Plan

as part of the design (e.g., Safeway/Vons) this activity will continue to increase in the 2009-11 program cycle.

SBD will extend the potential of targeted approaches to market segments or industries where alternative interventions may be more effective than the traditional design assistance/incentive approach. For example, simplified approaches to working with the segment of rapidly designed-and-constructed building types would consider such facilities as quick service restaurants. A customized targeted approach will focus on market segments such as hospitals and clean room facilities, and other market segments as identified.

#### d) Innovation:

Savings By design will incorporate several innovative features in the 2009-11 cycle. These are elaborated here:

#### **The Zero Net Energy “Path to Zero” Campaign (See Appendix A)**

Many building owners and their design teams are interested in higher performance buildings, but the costs and risks of going beyond known design practice can be substantial. Learning how to design, build and operate the next generation of buildings will continue to challenge current thinking.

Already, approximately 50% - 70% of the square footage of new building stock participate in the SBD program – the program *is* reaching the customers. Now, using Zero Net Energy (ZNE) benchmarks, SBD will work closely with each IOU’s internal sustainability offerings to develop an overall strategy needed to move toward the goals established in the CLTEESP for commercial buildings in achieving the ZNE performance targets.

In addition to SBD, marketing for the ZNE program will be leveraged through other IOU programs. The campaign will focus on subsectors and climate zones having the most potential in achieving ZNE targets in a cost effective manner.

These innovative projects will require additional design time, innovative technologies, creative design solutions, and higher funding levels to achieve these results.

#### **Program Goals**

Creating a demand in the marketplace for super efficient, green, LEED+ and/or solar ready, high-performance buildings must be a priority. ZNE’s aggressive program goals include the following.

- Buildings will use a minimum of 40% less energy than Title 24 codes requirements

## **2009 – 2011 Energy Efficiency Programs**

### **New Construction**

#### **Program Implementation Plan**

- A performance metric will be adopted (e.g. kBTUs per sq. ft. by building type) to encourage inclusiveness of strategies (e.g. buildings operations and occupant created loads)
- Up to 5% of SBD projects will comply with ZNE goals and outcomes.
- For ZNE pilot projects, the WBA incentives will range up to \$0.50 per kWh plus the standard kW incentive.

Any ZNE pilot savings will be counted as part of SBD.

#### **Incentives**

Reaching ZNE's goal of energy efficiency 40% below Title 24 will require innovative incentives. ZNE building innovators may be eligible for utility funding such as:

- Advanced computational modeling
- Higher incentive targets
- Additional technical/design team assistance
- Financial assistance for natural ventilation strategies and on-site renewable energy systems – either utility- or customer-owned.

#### **Training**

The ZNE program will offer advanced design training for architects, lighting designers, etc. The training, covering subjects including natural ventilation systems and daylight lighting, will take place in workshops and “lunch and learns.”

#### **Program Evaluation**

Influencing the decision makers as early as possible is crucial in addressing the need for sub-metering/advanced metering to track a building's performance in key areas such as lighting and plug loads. Those devices then help create feedback loops for the owner and the utility.

All SBD projects will be benchmarked using Energy Star or other appropriate tools (if applicable). Buildings that appear to have performance problems will receive additional review and or services to improve performance, e.g. re-commissioning.

Following the completion of each project, a comprehensive process evaluation and /or internal program reviews will be conducted to determine:

- Successful incentive strategies

## **2009 – 2011 Energy Efficiency Programs New Construction Program Implementation Plan**

- Successful technical/design integrations
- Key marketing/business case messaging

Lessons learned from these evaluations will be applied to the net zero pathway that will improve SBD performance over time.

To analyze the success of this campaign, it is important to not only evaluate each project upon completion, but energy efficiency performance must be monitored for several years following completion. The building owners need to be apprised of the follow-up results so they know how their building is performing. Elements of these follow-up evaluations will include metering for:

- Plug load
- Lighting
- HVAC
- Other loads (process loads deemed important)

The estimated per-project cost of the follow-up metering is approximately \$10,000:

- \$4,000 hard costs
- \$6,000 soft costs

### **Case Studies**

Case studies will be produced for ZNE projects to capture lessons learned and to highlight the elements, design, and performance of ZNE buildings. These case studies, to include information gathered in the follow-up program evaluations, will broaden the market interest, knowledge, and skill sets to make ZNE buildings a reality.

The Hanna Gabriel Wells (HGW) project is an example of a showcase ZNE project that will be highlighted in a case study. This soon-to-be-completed, 5800 cubic feet structure is a project that was jointly funded with Emerging Technologies (ET). The monitoring of the project, which featured that program's technologies, is funded by ET. When the project is complete, a public relations campaign will be launched to generate publicity and promote public tours. Co-promotions with interested organizations such as USGBC are also planned.

### **Market Transformation**

The ZNE program seeks to encourage high-performance building and transform the market by:

## **2009 – 2011 Energy Efficiency Programs**

### **New Construction**

#### **Program Implementation Plan**

- Identifying, demonstrating, building familiarity and lowering costs of energy-savings strategies so that they are more likely to be codified
- Training design professionals on advanced energy savings strategies
- Providing business case related information (financial benefits, leadership benefits, non-energy benefits) to support owner interest in adopting corporate policies related to green and high-performance buildings.

#### **Internal Program Coordination**

The ZNE program will coordinate very closely with Emerging Technologies (ET) to profile their technologies. ET will help fund the monitoring and verification of ZNE projects and benefit from lessons learned from the process evaluations.

Coordination with Codes and Standards can help develop reach codes for Title 24.

#### **External Program Coordination**

This program would work with various external organizations that are interested in driving ZNE buildings. These organizations will help promote the “success stories” of early adopters.

#### **Simplified Approach for Small Projects**

New for 2009 - 11, SBD will offer a mass-market simplified approach for small projects to participate in the program. SBD has historically achieved very high penetration rates with mid-sized and especially large new construction projects. However, numerous barriers exist to deeply penetrating the small-project market. Such barriers are typically centered on the extensive level of design assistance provided to SBD projects. From the customer’s perspective, small projects often do not warrant the high level of involvement and documentation that participating in the standard systems approach or WBA requires. For the SBD program, these small projects are not cost-effective to deliver the extensive suite of design assistance services typically provided to all SBD projects.

To overcome these barriers, the simplified approach will offer web-based advice on common energy efficiency strategies applicable to customers’ project types through an internal portal. The customer’s Title 24 compliance documentation will be accepted as documentation for implementing these strategies. A project size threshold will be set to prevent overlap between the simplified approach and the systems approach. Incentives will be designed to overcome the capital cost barriers typically present on projects in this size range.

**2009 – 2011 Energy Efficiency Programs**  
**New Construction**  
**Program Implementation Plan**

Initially, small offices, religious facilities, elementary schools, and strip malls have been identified as customer segments that will directly benefit from a simplified SBD approach. The simplified approach will target these projects first, adding in other segments as they are identified as having high potential to benefit.

Elementary school projects that apply too late in the design process to participate in SBD will be directed to Third Party New Construction programs as applicable.

**Sustainability Incentives**

New for 2009 - 11, SBD will offer additional financial incentives beyond direct energy and demand reduction incentives to systems approach and WBA projects that achieve Green Building Certification, perform building commissioning (Cx) during design and construction, and/or establish and follow a building measurement and verification (M&V) plan after occupancy.

US Green Building Council's LEED program and CHPS represent several rating systems for which certification can earn the customer the green building certification incentive (other systems will be used subject to utility consideration and approval). For Cx and M&V incentives, customers must meet all of the requirements of the LEED Energy and Atmosphere Prerequisites and/or credits associated with building commissioning and M&V.

The rationale for providing sustainability incentives is that they are directly supportive of the state's goals in moving the commercial new construction market towards zero-net energy by 2030, as embodied in the CLTEESP. Points-based green building certification systems award points for increasing energy performance. Green building certification incentive has the benefit of indirectly promoting greater levels of efficiency by raising the profile of all green building strategies and helping to transform the market to make sustainable practices standard.

An incentive for building commissioning directly supports the realization of the energy savings that were modeled in the package of energy efficiency recommendations presented by SBD and chosen by the customer for the project. An incentive for Cx ensures that the facility is operated in a manner consistent with achieving the maximum benefit from the installed energy efficiency measures. This helps to ensure that the state will receive the full benefit of the installed measures.

The Sustainability Incentives will take the form of a multiplier of 1.1 to be applied to the owner's base incentives. To be eligible for the Green Building Certification incentive, the project must participate in the WBA. For the commissioning and building M&V incentives, the project can participate in either the WBA or the SA. Projects participating in the simplified approach method are not eligible for sustainability incentives.



## 2009 – 2011 Energy Efficiency Programs New Construction

### Program Implementation Plan

Financing of energy efficiency upgrades continues to be a barrier in achieving full savings potential. To help overcome the barrier of financing higher efficient equipment in Savings By Design projects, the potential for Alternative Financing will be explored. See each Utility's independent PIP for the financing options each may offer customers.

e) Integrated/coordinated Demand Side Management:

#### **Integrated Design**

The integrated design process encourages facilities to be designed with energy efficiency included as an objective from the start. When done correctly, it is likely that the overall cost of construction for the energy-efficient building will not exceed the cost of the building at minimum code compliance. The focus of this offering is to provide an incentive to design teams at the earliest stages of the design process.

Often, a barrier to design teams' full participation in integrated design is that the contract with the building owner is established early and usually has no provision for the additional design effort required. Thus, it becomes difficult to achieve full participation in integrated design without a change order to the customer, which is outside of SBD's ability to obtain. To overcome this identified market barrier, SBD will offer design teams a \$5,000 stipend to participate in an integrated design process for any WBA project. SBD will set objective criteria to ensure that an integrated design process is undertaken and positive outcome is achieved prior to issuing the design team stipend.

f) Integration across resource types (energy, water, air quality, etc.)

#### **Industry Integration**

SBD field delivery staff will develop a full spectrum of energy use and sustainability program offerings by collaboratively working with applicable electric, gas, water and other industry groups. Issues such as energy savings associated with water use efficiency and embodied energies in building materials and transportation will be explored and analyzed to identify potential new sources of energy savings.

SBD will interact with the California Lighting Technology Center to encourage aggressive lighting recommendations which revolve around LED task lighting, LED down lights, effective daylighting and various outdoor lighting applications such as parking garages, exterior lights, walkway and parking lot lighting.

#### **Program Integration**

SBD field delivery staff will collaborate with demand response and self-generation programs, as appropriate, to combine program offerings into a customer-friendly and easy-to-use program. Technologies, such as building-integrated photovoltaic systems and energy management systems that are flexible

## **2009 – 2011 Energy Efficiency Programs New Construction Program Implementation Plan**

enough to respond to new demand response strategies, are obvious strategies that can be integrated into a whole building approach to educate designers in the benefits of their adoption in new construction.

SBD will continue its integrated partnership with the Emerging Technology group in bringing new and innovative technologies and designs into the mainstream commercial new construction market. One of the highlights of this partnership is the *Office of the Future*, a program designed to address new ideas for energy efficiency in the commercial buildings market.

*Office Of The Future* is geared primarily to impact the tenant improvement process for existing office space but is also viable for new construction projects and new tenant improvement projects occurring in Class A office building shells. In addition to high quality, energy efficient lighting, *Office of the Future* also addresses plug loads, HVAC performance, advanced metering technologies for performance verification, and demand response thermostats.

The program is being re-designed to be user-friendly so it will be welcomed by the leasing/tenant improvement market and perceived as a business benefit, both from an environmental standpoint and from the potential incentives perspective.

### **g) Pilots:**

The Savings By Design program will explore the potential for utility ownership of major energy efficiency equipment to facilitate the installation of the highest efficiency HVAC systems in commercial buildings. The program recognizes that building owner financing is constrained and, without utility ownership, the system design may not maximize energy savings. The objective is to capture energy efficiency opportunities that would otherwise be lost for the 20 to 30 year life of the HVAC equipment. This would build on the success of programs that incorporate utility ownership of clean energy generation systems on customer facilities.

SBD will seek to identify projects with the following characteristics:

- The project is of sufficient size to warrant the effort (>\$2,000,000 investment)
- The building is intended to be owner occupied or owner managed
- The HVAC system is a central plant configuration

At IOU discretion, if an appropriate project is identified and the owner is willing to enter into a contractual agreement with the utility to own and operate the building's HVAC central plant, the utility will file an advice letter for approval of incremental capital and maintenance costs for the project. The utility will demonstrate that the project meets the following criteria:

**2009 – 2011 Energy Efficiency Programs  
New Construction  
Program Implementation Plan**

- The project is cost effective as a stand-alone energy-efficiency project and delivers incremental energy savings beyond what the building owner would otherwise have installed
- The capital requirement is between \$2,000,000 and \$20,000,000
- The energy savings associated with the project will count toward both the determination of each IOU's Minimum Performance Standard and the determination of its Performance Earnings Basis.

If approved, the utility may sub-contract out the design, construction, and operation of the facility but will serve as its project manager to ensure that it is constructed and operated at the design efficiency levels.

- h) EM&V: The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2009-2011 after the program implementation plans are filed. This will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.

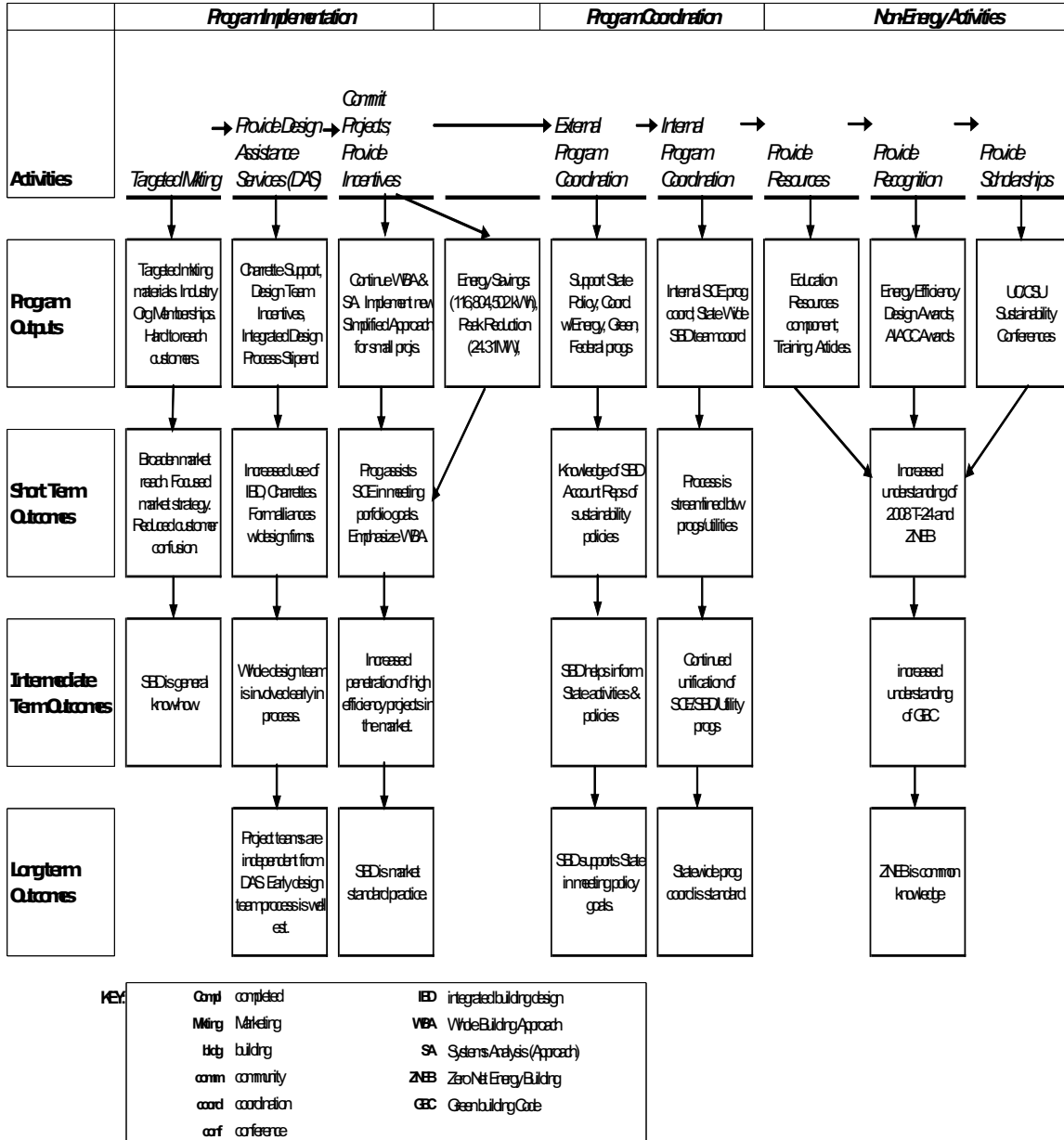
Up to 10% of SBD projects will be monitored using Energy Star benchmarking.

7. Diagram of Program:

# 2009 – 2011 Energy Efficiency Programs New Construction Program Implementation Plan

## 8. Program Logic Model:

Savings by Design DRAFT 2009-2011 Logic Model



**2009 – 2011 Energy Efficiency Programs  
New Construction  
Program Implementation Plan**

Appendix A: Zero Net Energy: Goals and Strategies

<b>Zero Net Energy</b>		
<b>Program Goals</b>	<b>Program Strategies</b>	<b>Action Strategies</b>
<b>1-1:</b> Establish a long-term progressive path of higher minimum codes and standards ending with ZNE codes and standards for all new buildings by 2030.	<ul style="list-style-type: none"> <li>• Establish one-or two-tiered voluntary EE standards, coordinated with green building rating systems.</li> <li>• Align Title 24 targets with goals of AB 32 and carbon reduction.</li> </ul>	<ul style="list-style-type: none"> <li>• Establish a minimum of 40% less energy than Title 24 codes requirements</li> <li>• Adopt a performance metric to encourage inclusiveness of strategies (e.g. buildings operations and occupant created loads)</li> </ul>
<b>1-2:</b> Expand Titles 20 and 24 to address all significant energy and uses.	<ul style="list-style-type: none"> <li>• Develop and adopt broader codes and standards for plug loads, such as copy machines, printers, battery chargers, and televisions.</li> <li>• Expand Title 24 to include whole building approaches including metering and data management, automated diagnostic systems, and sub-metering for tenant-occupied space.</li> <li>• Adopt progressive codes and standards for high-performance commercial lighting applications.</li> </ul>	<ul style="list-style-type: none"> <li>• This action area is primarily addressed in the Codes and Standards PIP. SBD currently supports the Whole Building Approach and is proposing metering in limited circumstances in this filing.</li> </ul>
<b>1-3:</b> Establish a “Path to Zero” campaign to create demand for high-efficiency buildings.	<ul style="list-style-type: none"> <li>• Convene leading building industry associations to plan and conduct campaign.</li> <li>• Organize forums to develop and exchange experience and data on emerging technologies, practices and designs that deliver ultra-low and ZNE buildings.</li> </ul>	<ul style="list-style-type: none"> <li>• Increased incentives and design assistance for innovative “Path to Zero” buildings.</li> <li>• Create case studies to highlight showcase ZNE projects</li> <li>• Partner with green-focused organizations to promote completed projects</li> <li>• Utilize public relations to generate media interest</li> <li>• Partner with local</li> </ul>

**2009 – 2011 Energy Efficiency Programs  
New Construction  
Program Implementation Plan**

<b>Zero Net Energy</b>		
<b>Program Goals</b>	<b>Program Strategies</b>	<b>Action Strategies</b>
		<p>governments</p> <ul style="list-style-type: none"> <li>• Partner with local utilities (such as water districts)</li> </ul>
<p><b>1-4:</b> Develop innovative financial tools for ZNE and ultra-low energy <i>new</i> buildings.</p>	<ul style="list-style-type: none"> <li>• Develop and pilot innovative financial tools.</li> <li>• Identify building performance metrics or documentation needed to inform building performance and valuation.</li> </ul>	<ul style="list-style-type: none"> <li>• On Bill Financing</li> </ul>
<p><b>1-5:</b> Create additional investment incentives and leverage other funding.</p>	<ul style="list-style-type: none"> <li>• Investigate other funding support that might be offered, such as local government “feebates” for EE/green construction, federal funding, federal or state tax incentives, GHG reduction benefits, e.g. via carbon offsets.</li> </ul>	<ul style="list-style-type: none"> <li>• Financial assistance for natural ventilation strategies and on-site renewable energy systems – either utility- or customer-owned.</li> <li>• Package additional funding sources, such as those offered by other utilities and any state and federal tax credits.</li> </ul>
<p><b>1-6:</b> Develop a multi-pronged approach to advance the practice of integrated design.</p>	<ul style="list-style-type: none"> <li>• Promote ID development via Title 24 codes/standards and market activities.</li> <li>• Identify/develop tools and protocols from building commissioning, retro-commissioning, and building M&amp;V to enable ID to be deployed.</li> <li>• Form partnerships with industry and architectural/engineering schools to promote the practice of education in ID.</li> <li>• Provide incentive credits for professionals who maintain their accreditation w/training.</li> </ul>	<ul style="list-style-type: none"> <li>• Apply lessons learned from the completed-project process evaluations to the development of future training</li> <li>• Offer advanced design training for architects, lighting designers, etc., covering subjects including natural ventilation systems and daylight lighting.</li> </ul>

**2009 – 2011 Energy Efficiency Programs  
New Construction  
Program Implementation Plan**

1. Program Name: RNC CA Advanced Homes Program (Manufactured Housing)  
Program ID#:  
Program Type: This is a core statewide program.

**2. Projected Program Budget Table**

**Table 1<sup>1</sup>**

Program #	Main Program Name / Sub-Programs	Total Administrative Cost (Actual)	Total Marketing & Outreach (Actual)	TOTAL Direct Implementation	Integration Budget Allocated to Other Programs (if Applicable)	Total Budget By Program (Actual)
<b>Market Sector Programs</b>						
	<b>Core Program #1</b>					
	<b>Sub-Program #1</b>					
	<b>Sub-Program #2</b>					
	<b>Sub-Program #3</b>					
	<b>Sub-Program #4</b>					
	<b>Etc.</b>					
	<b>TOTAL:</b>					

These budget numbers are presented in Appendix F: Energy Division Tables, Graphs & Pie Charts: Table 7.1 - 2009 - 2011 IOU Strategic Planning Program Budget

**3. Projected Program Gross Impacts Table<sup>2</sup> – by calendar year**

<sup>1</sup> Definition of Table 1 Column Headings: Total Budget is the sum of all other columns presented here  
Total Administrative Cost includes all Managerial and Clerical Labor, Human Resource Support and Development, Travel and Conference Fees, and General and Administrative Overhead (labor and materials).  
Total Direct Implementation – includes all financial incentives used to promote participation in a program and the cost of all direct labor, installation and service labor, hardware and materials, and rebate processing and inspection used to promote participation in a program.  
Total Marketing & Outreach includes all media buy costs and labor associated with marketing production.  
Integrated Budget Allocated to Other Programs includes budget utilized to coordinate with other EE, DR, or DG programs.  
Total Budget is the sum of all other columns presented here  
Definition of Sub-Program: A "sub-program" of a program has a specific title; targets; budget; uses a unique delivery or marketing approach not used across the entire program; and for resource programs, has specific estimated savings and demand impacts.

<sup>2</sup> For all-electric IOUs, the therm column should include interactive effects.

**2009 – 2011 Energy Efficiency Programs  
New Construction  
Program Implementation Plan**

**Table 2**

Program #	Program Name / Sub-Programs	2009 - 2011	2009 - 2011	2009 - 2011
		Three-Year EE Program Gross kWh Savings	Three-Year EE Program Gross kW Savings	Three-Year EE Program Gross Therm Savings
<b>Market Sector Programs</b>				
	<b>Core Program #1</b>			
	<b>Sub-Program #1</b>			
	<b>Sub-Program #2</b>			
	<b>Sub-Program #3</b>			
	<b>Sub-Program #4</b>			
	<b>Etc.</b>			
	<b>TOTAL:</b>			

These savings values are presented in Appendix F: Energy Division Tables, Graphs & Pie Charts: Table 7.2 - IOU 2009 - 2011 Program Savings Estimates

**4. Program Description**

- a) Describe program

The California Advanced Homes Program (CAHP) is part of the statewide Residential New Construction (RNC) program offering. The RNC program is itself one half of the New Construction core offering. CAHP encourages single and multi-family builders of all production volumes to construct homes that exceed California’s Title 24 energy efficiency standards by a minimum of 15 percent. Through this plan, multi-family and single-family projects are approached identically for program purposes except where explicitly noted. The ENERGY STAR Manufactured Homes program addresses new factory-built housing. The structure of the relevant New Construction program elements is as follows:

New Construction Program (Core)

1. Non-residential New Construction Sub-Program (Savings by Design)
2. Residential New Construction Sub-Program
  - 2.1 Single-family/Multi-family Sub-Program (California Advanced Homes)
    - 2.1.1 Zero Net Energy Homes Sub Program
  - 2.2 Manufactured Homes Sub-Program

For the convenience of the reader, two other programs relevant to New Construction are also called out:

1. Sustainable Communities Program (Name / location differs by IOU) (Third party)

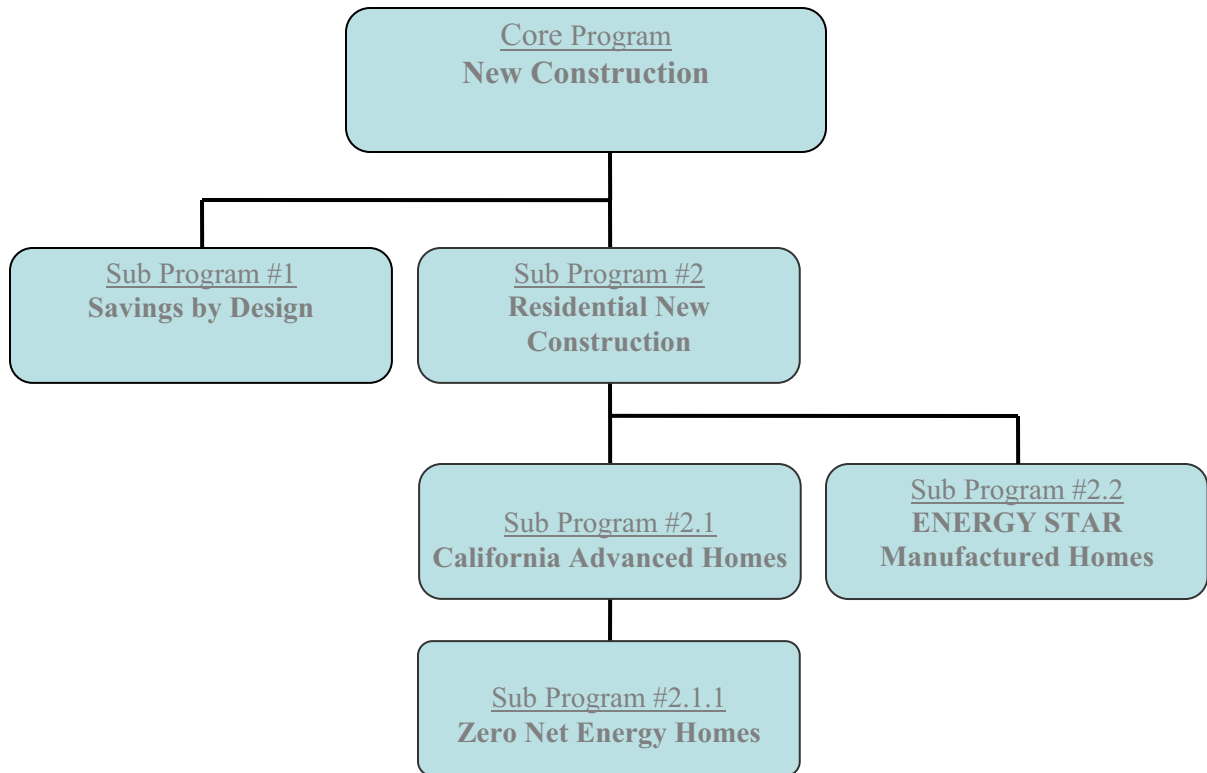


**2009 – 2011 Energy Efficiency Programs  
New Construction**

**Program Implementation Plan**

Covering Master-planned communities, mixed-use projects, campuses, and commercial projects pursuing advanced energy efficiency and green targets.

- 2. Partnership Programs (Core)
  - a. Strategic Planning Sub-Program (ICLEI-ILG-LGC)  
Covering



The goal of energy efficient Residential New Construction (RNC) will be achieved through a combination of incentives, technical education, design assistance, and verification. CAHP supports the ambitious goals of the California Long-Term Energy Efficiency Strategic Plan (CLTEESP), and works in close coordination with the Zero Net Energy Homes sub-element. Together these elements seek to raise plug load efficiency, focus on whole-house solutions, drive occupant behavior through in-home monitoring and visual display tools, and leverage market demand for green building standards. CAHP is also coordinated with demand response programs, Emerging Technology, and the New Solar Homes Partnership. In aligning itself with the CLTEESP, the CAHP targets an interim goal of 50 percent of RNC to Tier II (2005) by 2011, 10 per cent of RNC

## 2009 – 2011 Energy Efficiency Programs New Construction

### Program Implementation Plan

to 55 percent by 2011, and a final goal of 100 percent of residential new construction to be net zero by 2020.

As explored in greater detail below, CAHP will work closely together with the Zero-Net Energy Homes (ZNEH) sub-element to adopt the following strategies toward achieving CLTEESP goals. As program technologies and approaches are developed and demonstrated in ZNEH, they will be incorporated into the California Advanced Homes Program. The lead program is listed in parentheses after each strategy.

- Raise plug load efficiency, (ZNEH)
- Promote Whole House solutions, with a particular focus on zero peak homes as an interim step toward zero net homes, (CAHP)
- Encourage In-home Monitoring and visual display tools, (ZNEH)
- Encourage incorporation of Green Building Standards (ZNEH)
- Coordinate CAHP with demand response programs. (CAHP)

Specific strategies for achieving net zero homes will be reviewed in more detail below. Moreover, as outlined above, where strategies enter the market more rapidly than anticipated, they will be rolled into the core CAHP.

b) List measures

CAHP Program measures, known savings. All IOUs.<sup>1</sup>

- Whole House Incentive
- Dishwashers
- Aerators/Showerheads
- Clothes washers (Water-agency Partnership)<sup>2</sup>
- Dryers
- Interior Lighting
- Refrigerators

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<sup>1</sup> Savings per appliance will be consistent across all IOUs.

<sup>2</sup> Program intent (with regulatory approval) is to maintain IOU funding for appliances regardless of water agency contribution. Since incentive dollars are coming from different sources, there is no double-dipping. However, customer's cost will decrease in IMC calculation. Nevertheless, even in worst case if IMC goes negative, which seems unlikely, clothes washers are small budget and savings measure relative to total RNC program and will have minimal impact on TRC. Future water-energy pilot results may also provide additional cold water savings to augment therm savings.

## 2009 – 2011 Energy Efficiency Programs New Construction

### Program Implementation Plan

Pending Program Measures, savings/incentive TBD. IOU-dependent<sup>1</sup>

- Programmable Communicating Thermostat (deemed, delivers DR measure)
- Refrigerant Charge Adjustment (deemed, delivers Comp HVAC measure)<sup>2</sup>
- In-Home Display (deemed, delivers AMI measure)
  - Specifications, incentive levels, TBD
- Whole House Fan (savings TBD)
- Demand Re-circulation DHW systems (savings TBD)
  - Increase in electric pumping, decrease in heating therms, water usage
- IOU team will evaluate future emerging technologies for inclusion as they become market-ready.

### Incentive Structure

The pay-for-performance incentive structure for the 2009 - 11 CAHP will change from the current deemed structure of three tiers (15 percent, 20 percent, and 35 percent). Under the current deemed program, builders receive the same incentive regardless of how much energy the project saves. By definition, a deemed incentive rewards the same, so overcompensates those who save the least, and under-rewards those who save the most. Since the deemed amount is an average across a wide variety of climate zones, those in the mildest zones are paid more per kWh than those in hotter areas. This effectively shortchanges those whose homes have the highest performance. It also tends to discourage participation in hotter areas (for example, climate zone 15, Palm Springs) where costs are in fact higher for achieving the same level of energy performance.

The proposed approach is closely modeled on the calculated whole building approach used by the Savings By Design program. In this approach, the incentive rate per unit of energy (\$/kW, \$/kWh or \$/Therm) is a function of the percentage by which the project exceeds code. Therefore, a kWh at 15% better than code is worth only \$0.43, but a kWh at 35% better than code is worth \$1.00 to the builder. Multiply this increase in rate by the absolute increase in units of energy saved as performance margins increase, and the result is an arithmetic progression.

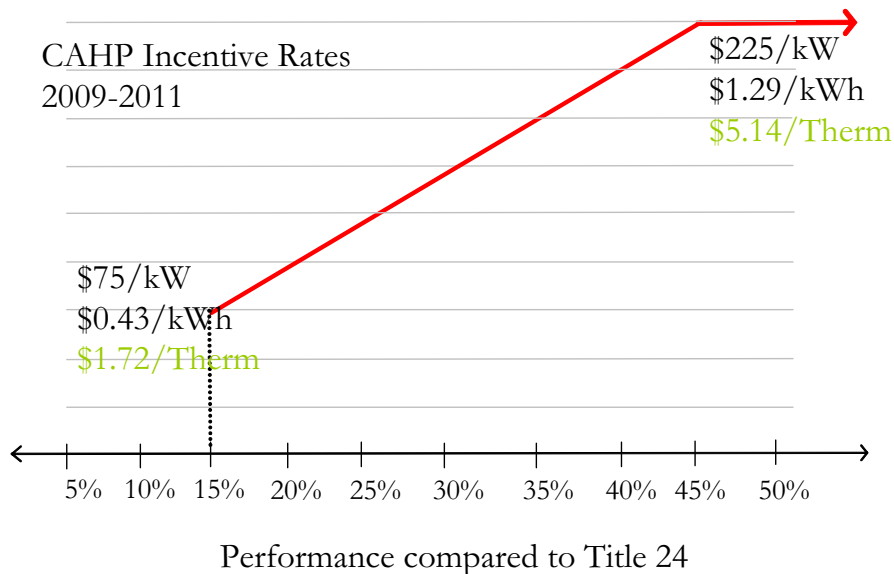
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<sup>1</sup> Since funding is coming from other sources (AMI, Comp HVAC, DR), incentives in this group will be deemed rather than calculated. The intent however, is to maintain consistency in deemed amount across IOUs. Other measures, such as whole-house fans and demand recirculation systems need additional research to determine savings.

<sup>2</sup> T24 requires CIL or RCA in prescriptive path. If used for compliance, measure ineligible

## 2009 – 2011 Energy Efficiency Programs New Construction Program Implementation Plan

The 2009-2011 calculated approach will be as follows:



The peak demand incentive rate is also variable, rising from \$75/kW at 15% to \$225/kW at 45%.

Moreover, because of the challenges faced by builders in adopting the new energy code requirements, the statewide IOU team has adopted the 10% rate to ease the transition to the new code for builders and to compensate for the abandonment of stand-alone prescriptive measures, discussed in more detail below. The IOUs assert that the special rate shall only be offered for a limited time, the five months from August 1, 2009 until December 31, 2010 for those projects subject to the 2008 Title 24 code. It will not be available after January 1, 2010.<sup>1</sup>

This approach rewards builders for achieving higher levels of energy efficiency and avoids the “clustering” problem in tiered programs. A tiered approach discourages builders from achieving incremental performance if they are unable to reach the next higher tier. In line with the elements of the strategic plan, the new approach rewards builders for undertaking whole house solutions where the entire structure can be considered as an integrated system.

Moreover, while executing a net zero home remains a financial and technical challenge, a zero peak home is well within the reach of existing technologies and is particularly appealing to a utility with summer capacity issues. To that end, CAHP has elected to focus on zero peak homes as a bridging strategy to net zero homes, which is another reason to include in its calculated approach a substantial incentive for peak kW reduction.

<sup>1</sup> Because of the anticipated delay of the launch of the full 2009-2011 CAHP until 1 Jan 2010, an accommodation for projects reaching 10% < 2008 T24 will be made within the existing 2006-2008 deemed approach. The amount for this and the timing is TBD by the statewide team.

## **2009 – 2011 Energy Efficiency Programs New Construction Program Implementation Plan**

### Analysis leading to calculated approach

While the need to move to a calculated approach was clear, setting the rates requires additional analysis. Efforts are currently under way to make appropriate software modifications to support incentive calculations over the range of efficiency improvements and climate zones. The goal of the incentives is to cover approximately 50% or more of project IMC, although it is difficult to set one set of rates that works perfectly for all climate zones and building designs, which will be aligned with the IOUs' overall push to drive projects to higher levels of code performance.

### Confidence that incentives will move the market

The statewide team has a high degree of confidence that the revised program design is sufficient to realize substantial market movement toward the 50% penetration goal. As discussed above, incentives alone are not enough to move the market. While more dollars are always preferred by any target industry, it has been the experience of the Southern California utilities that while incentives get one to the table with decision makers, it is the design, technical, and marketing support that makes the sale.

It is the belief of the IOUs that the proposed combination of performance-based incentives, marketing kickers for targeted zero net energy, renewable, and marketing elements, sales agent training, technical support, coordinated delivery through trade allies and ongoing cultivation of builder relationships provide an integrated solution to the priority market barriers (discussed below) builders face in delivering more efficient homes.

Regarding the goal to achieve 50% penetration in the entire California market to '35% below 2005 T24' by 2011, the IOUs make the following assumptions.

- 2008 code is 15% more stringent than 2005 code
- 2011 code will be implemented in 2011.
- 2011 code will be 15% more stringent than 2008 code.
- The goal of 50% of market to 35% < T24 is essentially an area function where A (area) = penetration (50% of market) x performance (35% < T24). That is, getting 25% of the market to 70% <T24 represents an equivalent amount of savings.
- Code compliance is at 70%.
- IOUs will claim the full 30% delta between standard practice and code, in addition to the traditional above-code performance achieved by participating builders.
- IOUs use 70% compliance in 2005 as benchmark against which to demonstrate results.

In the following analysis, the 70% compliance rate is unimproved over time [c], and similarly, IOU participant penetration holds steady at 10% [g]. Both are likely to increase as a result of planned activities in CAHP or in codes and standards; in fact

## 2009 – 2011 Energy Efficiency Programs New Construction

### Program Implementation Plan

statewide penetration rates for CAHP are closer to 12% and are increasing. Similarly, project marginal performance [h] remains at 15%, although the entire incentive design is intended to increase marginal performance.

Code	Rate > 2005 [b]	Compliance [c]	BMrk Performance [b*c=d]	Non-Participant Penetration [e]	NP Performance [d*e=f]	Participant Penetration [g]	Participant %<T24 [h]	Partic. Performance [(h+b-c)*g+d*g=i]	Total [i+f]
Title 24 2005	100%	70%	70.0%	90%	63.0%	10%	15%	11.5%	74.5%
Title 24 2008	115%	70%	80.5%	90%	72.5%	10%	15%	14.1%	86.5%
Title 24 2011	130%	70%	91.0%	90%	81.9%	10%	15%	16.6%	98.5%
CLTEESP 50%	135%	70%	92.8%						
CLTEESP 100%	135%	70%	94.5%						

In this simplified analysis, it is assumed that non-participants are building only code-minimum homes. At 70% compliance, the CLTEESP target at 35% better than 2005 code has a benchmark performance target [d] of 92.8% of minimal T24 2005 compliance. Put another way, with 70% compliance as the baseline, improving compliance to 7.2% *worse* than 2005 code is equivalent to getting half the homes to 35% better than 2005 code. Getting 100% of new construction to 35% better is equivalent to performance of 94.5% of 2005 code, or 5.5% *worse* than a 2005 minimum.

When the 2011 code goes into effect, the IOUs will exceed the equivalent industry-wide performance of 100% of homes to 35% better than 2005 code benchmark [d] of 94.5% with a total industry-wide [i+f] performance (participant and non-participant) of 98.5% compliance with 2005 code.

Without the 2011 code change occurring in 2011, a market penetration rate of 21% is required to achieve the target industry-wide performance of 94.5% of 2005 code.

If 2011 code does not go into effect in 2011, and the utilities are not allowed to claim for purposes of reaching the 50% target using the compliance rate (whatever it may be), the goal of 50% of homes to 35% < T24 2005 would require a penetration rate of 50% to a performance level of 20% better than 2008 code, which is outside the experience and reasonable expectation of the statewide IOUs.

#### How program supports CEC's New Solar Homes Partnership, Tier II

CAHP supports the revised NSHP Tier II (30% < T24 2008) and the goals of the CEC in five ways.

- 1) The IOUs are committed to partnering with the NSHP to streamline the solar application process and to make referrals between NSHP and CAHP.

## 2009 – 2011 Energy Efficiency Programs New Construction

### Program Implementation Plan

Indeed, the goals of zero peak and ZENH appear impossible without the significant presence of solar.

- 2) The IOUs will leverage CEC NSHP material, marketing, and event support for opening events for those projects that commit to the platinum level: 100% penetration at the Tier II EE performance (30%).
- 3) The design of the graduated, performance-based incentive will tend to drive projects to the higher end of the performance curve, consistent with CEC goals.
- 4) The kicker for peak kW reduction by solar equipment, will also reward projects that pursue efficiency before adding solar, and rather than a pass-fail approach, provide the greatest reward to those who achieve the highest efficiency.
- 5) The threshold efficiency (15%) is consistent with the Tier I minimum, and the top end (45%) was selected to support the CEC’s desire to project out three code-cycles (Tier III) into the future.

However, the fact remains that the program design does not provide anything “special” for projects that get to 30%. This is consistent with the CEC’s incentive design, which provides no more PV incentive for a home that gets to 30% < T24 than to 15%. The IOUs support the goals of the NSHP and the marketing synergies of PV and EE remain one of our best strategies for moving the market. Nevertheless, the IOUs position is that if 30% < T24 is very good, 31% is better, and 32% more so.

#### Prescriptive Measures

For those prescriptive measures that the current performance software cannot model (e.g. appliances, lighting, etc.), the builder will be paid at the same rate as the overall home achieves on the incentive scale. As an example, a typical qualifying refrigerator saves 58 kWh, and 0.0099 kW. If the home reached performance of 35 percent, that refrigerator is worth \$59.73. However, should the home only achieve the 10 percent performance level, that dishwasher is worth only \$17.32.

**Incentive per refrigerator**

<b>% &lt; T24</b>	<b>kWh</b>	<b>\$/kWh</b>	<b>kW</b>	<b>\$/kW</b>	<b>Total</b>
35%	58	\$1.00	0.0099	\$ 175	\$ 59.73
10%	58	\$0.29	0.0099	\$ 50	\$ 17.32

See complete list under 4 Program Description, b) List measures, above.

N.B. prescriptive measures may not be used to improve the marginal performance of the home as a whole.

The statewide team has elected to eliminate prescriptive incentives (lighting, appliances) as stand-alone measures separate from overall building performance. This is to encourage more builders to adopt a whole-building approach, and to provide the right price signals to builders to encourage higher levels of performance. However, prescriptive measures

## 2009 – 2011 Energy Efficiency Programs New Construction

### Program Implementation Plan

such as refrigerant charge and airflow (RCA) and programmable communicating thermostats (PCTs), and In-Home Displays (IHDs) will continue to be paid at the deemed rates of their originating program, in large part because the funding for these items is coming from another program's budget.

As part of the effort to address plug loads, ZNEH is exploring such technologies as master plug shut-off switches (smart outlets that shut off when they detect only parasitic loads). Additionally, and as part of the coordinated demand side management (DSM) approach recommended by the CLTEESP, CAHP will reward builders for installing demand response offerings such as PCTs and A/C Cycling controllers. CAHP will deliver demand response measures paid for by the demand response programs. CAHP intends to reward builders for these items based on a deemed amount rather than a performance-based incentive.

CAHP will work with their AMI metering infrastructure teams to test and develop in-home displays to both drive plug load usage down and give customers both financial and social reasons to conserve energy.<sup>1</sup> In addition to financial savings, the rationale is that customers will gain social status and personal satisfaction by being the most conserving, much as Prius current owners compete to outperform each other and the EPA's expected miles per gallon.

Energy savings will be modeled based on the entire package of optimized energy efficiency solutions and will influence the project at the design stage when changes to specifications are most cost-effective.

In addition to the direct energy savings incentives, builders will be eligible for Performance Bonus Incentives when they use any of the program elements listed in the following table. Each Performance Bonus is discrete and independent of the other program elements.

<b>Program Criterion</b>	<b>Percentage Added to Overall Incentive</b>
• ENERGY STAR® Home	10 percent (fixed)
• Green Home	Independent, third-party, transparent verification provider will be retained to verify green building

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<sup>1</sup> To the extent possible, CAHP intends to leverage AMI funding to incent IHDs in new construction projects. However, AMI has its own schedule and its own priorities for research projects. If DR/AMI is not ready for AMI-integrated IHDs, the ZNEH program through its demonstration projects, working in concert with ET, seeks to demonstrate simpler IHD technologies perhaps without the full capabilities of an AMI-integrated device. As these technologies mature into the marketplace, the statewide IOUs will consider adopt them as additional measures into the core CAHP.



**2009 – 2011 Energy Efficiency Programs  
New Construction  
Program Implementation Plan**

Program Criterion	Percentage Added to Overall Incentive
	elements have been installed (similar to HERS registry function). The IOUs will establish a minimum threshold for participation and set an incentive equal to 5% of the total, rising proportionally for higher levels of green performance.
<ul style="list-style-type: none"> <li>• Compact Home</li> </ul>	Percentage by which home < Climate Zone Sq Ft Average for new construction, by building type. Minimum threshold of 10%<CZ average, updated annually. There will be separate baselines for SF and MF homes.
<ul style="list-style-type: none"> <li>• Solar Thermal</li> </ul>	The same \$/Therm rate as overall performance level, in effect a doubling of incentives for therms offset by Solar thermal collector.
<ul style="list-style-type: none"> <li>• kW Reduction (Zero Peak Home)</li> </ul>	The same \$/kW rate for each peak kW reduction due to on-site photovoltaic system

The program will coordinate with the statewide Codes & Standards team to ensure that the impacts of any code changes are incorporated into program design and implementation and will also tie into the CLTEESP Codes and Standards Strategy and support the zero net energy goals.

The California IOUs are working with the local water districts on water-energy pilots promoting water conservation in joint territory with water agencies. If the pilot is able to demonstrate meaningful embodied energy savings from water efficiency, CAHP will consider providing additional incentives for water efficiency. These incentives and our coordinated efforts with the water agencies reflect our commitment to an integrated approach both within and between different utilities.

IOUs are working with their Low Income Energy Efficiency (LIEE) programs to coordinate energy efficient new construction with low income housing development. Coordination activities include: (review with LIEE staff)

- Builders often set-aside a certain number of units for various income classifications to meet low and moderate income housing goals. Builders must meet state-mandated housing goals in the housing elements of local city and county strategic plans<sup>1</sup>
- For those units designated by the builder for low-income occupants, SDG&E’s LIEE program will pay the full incremental cost of installing higher efficiency equipment (high Seasonal Energy Efficiency Rating (SEER) AC systems and refrigerators). LIEE will claim the energy savings from measures they funded.

<sup>1</sup> See, <http://www.hcd.ca.gov/hpd/hrc/plan/he/>, accessed 25 Apr 08.

**2009 – 2011 Energy Efficiency Programs**  
**New Construction**  
**Program Implementation Plan**

- CAHP will pay the standard calculated incentives for all other measures in low-income units (e.g. improved duct work and windows). CAHP will claim the energy savings resulting from EE measures other than high SEER A/C and refrigerators.
- CAHP would treat market-rate units using the standard calculated approach and claim all energy savings.
- This collaboration will encourage the development of more below market rate low income units by developers, will increase participate in the New Construction program based on the combined higher incentives, and will benefit low income occupants over the life of the installed equipment.

The partnerships program will assist in gathering information to ensure that the units actually are occupied by low income qualified customers. Local governments typically track this information in order to show compliance with state mandates.

Zero Net Energy Homes (ZNEH)

The ZNEH sub-program recognizes that critical to achieving zero net new construction is the integration of DSM approaches and truly integrated design. This can only be done when the entire suite of DSM offerings is at the table (electric transportation, demand response, energy efficiency, smart meters, and distributed generation). These will be maximally effective when they are part of a truly integrated design.

To that end, ZNEH will help educate the industry on how to achieve energy efficient, green homes. To avoid inter-program competition, ZNEH will claim no energy savings of its own but will add value to the builder and the homebuyer. Pending future measurement and evaluation efforts to disaggregate its effects, all ZNEH projects will be routed through CAHP for incentives and energy and demand savings claims. More about the incentives for green elements is below.

The ZNEH sub-program will consist of a series of pilot projects, typically custom homes with motivated owners willing to pick up a substantial portion of the cost of additional features. The sub-program may, at its discretion, provide direct financial incentives over and above the standard CAHP offer, but only on a case-by-case basis. The Emerging Technology program may also fund the purchase, installation, and monitoring of candidate technologies. The ZNEH sub-program will provide its support in the form of soft-cost design support to help design teams meet their energy and environmental objectives. The sub-program works closely with home builders seeking assistance in the development of sustainable design and construction, green building practices and emerging technologies.

The ZNEH sub-program offers educational opportunities to builders, architects and other residential construction stakeholders seeking knowledge about emerging technologies and new home design. The program encourages single and multi-family architects and builders to design and construct dwelling units that exceed California's Title 24 standards, reduce greenhouse gas emissions, and provide a healthier and less resource-intensive environment. Such non-standard design elements may include optimization for

## 2009 – 2011 Energy Efficiency Programs New Construction

### Program Implementation Plan

solar orientation, design for comfort without traditional HVAC, or non-vapor compression cooling systems. It also is a priority goal of the sub-program to execute candidate technologies and integrated approaches to realize zero-peak homes, even if zero-net homes (site BTUs for both therms and kWhs) prove too costly.

- Design Assistance Options:
  - General Team Education: Give presentations, review rating system options, determine big picture green building goals.
  - Energy Efficiency/Green Building Recommendations: Project specific recommendations report highlighting ways to incorporate energy efficiency, healthy materials, and other green building features into the unique parameters of the project. Specific product recommendations will not be provided.
  - Energy Modeling Support: Provide support and recommendations for Title 24 energy performance modeling to estimate actual building usage and give the project credit for energy efficiency measures that are difficult or uncommon to model.
  - Plan and Specification Review: Provide comments on the construction documents at various stages to give feedback on clarity of green building specifications.
  - Green Feature Cost Assessment: Provide cost-benefit analyses or value engineering assistance to evaluate specific green building features under consideration for inclusion in the project.
- Rating System Documentation Support: Assess and identify project credit/certification goals, identify and assign rating system tasks to members of the design team, guide the team in system process and timing, assist team in understanding and/or documenting credit achievement. This aid will enhance - but not supplant - participants' efforts to pursue project specifications, designs, calculations, modeling and other necessary services.

The minimum threshold for acceptance in the ZNEH sub-program will be a whole building performance of at least 45% over Title 24 standards. Projects must meet LEED for Homes (Silver) equivalent and/or qualify for a minimum of 100 points from Build It Green's Green Point Rated system. Energy savings will be evaluated based on the diversity of measures and the overall energy performance. The life cycle CO<sub>2</sub> reductions and water savings will also be tracked.

#### ENERGY STAR Manufactured Homes

In addition to the performance approach cited above, CAHP will retain a deemed prescriptive approach for the manufactured home market segment. Homes will have the flexibility to include the entire ENERGY STAR package for manufactured housing or to incorporate elements within those standards, such as improved windows.

The ENERGY STAR Manufactured Homes Sub-program is designed to promote the construction of new manufactured homes in SDG&E's service territory that comply with ENERGY STAR® energy efficiency standards. The program targets manufacturers, retailers, and homebuyers of new manufactured homes. The current baseline for

## 2009 – 2011 Energy Efficiency Programs New Construction

### Program Implementation Plan

manufactured homes is the Housing and Urban Development (HUD) standard specification. The program encourages manufacturers to install “right-size” heating, cooling, and ventilation equipment (HVAC), install high-efficiency HVAC equipment, and evaluate homes on a whole-building basis covering windows, insulation levels, and quality installation inspections. The program works in coordination with the ZNEH sub-program.

The program is a logical fit in SDG&E’s Residential New Construction portfolio of programs and will be another market segment within the California New Homes Program (CAHP), alongside single family and multi-family dwellings. Likewise, the ZNEH element will also look to leverage consumer interest in green building in promoting zero peak homes and market transformation.

The objectives of the program are:

- To capture cost effective energy savings and demand reduction opportunities
- To move the industry toward coordinated demand side management (c-DSM), including self-generation
- To move the industry toward zero-net energy as identified in the BBES and advanced in the CLTEESP
- To move the market segment from HUD compliant to ENERGY STAR and provide savings for customers purchasing energy efficient, manufactured homes

The program encourages manufacturers to:

- Install “right-size” heating, cooling, and ventilation equipment (HVAC)
- Install high-efficiency HVAC equipment
- Evaluate homes on a whole-building basis covering windows, insulation levels, and quality installation inspections

The program will also include an education and outreach component as a means to promote awareness of energy efficient practices in the construction of ENERGY STAR manufactured homes. All segments related to the sale and construction of a manufactured home, including retailers, customers, and manufacturers will be engaged. The marketing plan will also target new retailers to inform them of the program benefits and encourage their participation in the program.

Market actors include manufacturers, retailers and homebuyers. As the primary focus is on retailers, the program is considered a midstream program. Incentives will influence retailers and customers to promote ENERGY STAR qualified manufactured homes.

Program Criterion	Incentive
<ul style="list-style-type: none"> <li>• Prescriptive elements, e.g. windows, additional insulation</li> </ul>	TBD, deemed rather than calculated per CZ

**2009 – 2011 Energy Efficiency Programs  
New Construction  
Program Implementation Plan**

Program Criterion	Incentive
<ul style="list-style-type: none"> <li>• ENERGY STAR Manufactured Home – Gas Heat</li> </ul>	\$300/Home (total of prescriptive elements)
<ul style="list-style-type: none"> <li>• ENERGY STAR Manufactured Home – Electric Heat</li> </ul>	\$600/Home (total of prescriptive elements)
<ul style="list-style-type: none"> <li>• Zero-peak Home</li> </ul>	\$75 for each peak kW reduction due to on-site photovoltaic system

Financial incentives will take the form of fixed rebates (deemed) or may be calculated on a project by project basis.

As in CAHP, SDG&E will pursue zero-peak homes as a reasonable milestone on the way to achieving the CLTEESP’s zero net energy homes. The addition of a zero- peak photovoltaic kicker is part of the effort toward achieving zero-peak homes.

Marketing efforts will target manufactured home retailers as well as customers.

Desired program outcomes are:

- To achieve short and long term energy savings and demand reduction in the most cost effective manner possible.
- To increase the penetration of ENERGY STAR manufactured homes within California, and to make ENERGY STAR the customer’s preferred choice.
- To transform the marketplace by promoting ENERGY STAR qualified manufactured homes the new standard choice instead of homes that meet the existing HUD standards.
- To establish a strong working relationship with manufactured home retailers.

A finished project is defined as the completion and assembly of a manufactured home. The process of purchasing and installing an ENERGY STAR qualified home can be lengthy, so projects need to be monitored closely throughout the program cycle.

The program will include a quality assurance plan with a field inspection component to verify that the manufactured home(s) meets ENERGY STAR and program’s requirements. The program will also have a mechanism to verify that the assembly of the home is in accordance with these standards. This will include ducting work and installation of end-use equipment (e.g., HVAC). Many ENERGY STAR components are assembled on-site and the compliance must be verified once assembled.

Customer information will be captured once a project is complete to allow SDG&E to integrate delivery of other program offerings to these customers as well as tracking any possible double-dipping. Information on parties receiving incentives will be tracked and reported.

## **2009 – 2011 Energy Efficiency Programs New Construction Program Implementation Plan**

### CAHP Incentive Rationale

The program's most ambitious goal for the 2009 - 11 program cycle is to have 50 percent of the residential new construction market to Tier II standards by 2011 (interim goal), based on the 2005 Title 24 code standards.

Let us assume that the 2008 standards exceed the current 2005 standards by 15 percent, on balance (the rate differs by CZ somewhat). Thus, the Big Bold Energy Efficiency goal of getting half of new homes to 2005 Tier II (at 35 percent better than code by 2011 is the equivalent of getting those same homes to about 20 percent better than the 2008 code. Getting half of the market to 20 percent better than code exceeds the IOUs historical expectations for RNC. There are five new program incentive elements to move the industry toward this important goal. The new elements are as follows:

- The first program element is to lower the program's incentive cost-per-home in order to bring the program's cost-effectiveness into closer alignment with the portfolio at large, to budget for incentives necessary to reach 50 percent of the market, and to do so in ways that do not threaten the overall portfolio's total resource cost. The available project funding has increased, but additional performance is required to earn it. By paying for performance, the program rewards higher performing projects, pushing more savings among participants. By combining technical expertise with marketing support, successful participants will outsell non-participants, driving deeper market penetration as non-participants get on board.
- The second program element is to identify interim features of zero net energy homes. To that end, utilities will pursue zero peak homes as a reasonable milestone on the way to net zero homes. The addition of a peak kW incentive and a zero peak photovoltaic kicker are both efforts toward zero peak.
- The third program element is the recognition that the typical homebuyer is more interested in green features than energy efficiency per se. By tying energy efficiency specifically to green measures, the IOUs will effect deeper penetration into the market. Similarly, to the extent that CAHP can influence builders to design smaller homes, there are energy savings from reduced cooling volume, reduced lighting and likely, reduced plug load.
- The fourth program element is to encourage, wherever possible, the implementation of in-home displays or other devices that give homeowners the information and price signals they need to modify their behavior consistent with the needs of the utility and the state.

Finally, times are particularly difficult in the building industry and expedited action is expected from the building community and other partners. Our intention in offering a short term reduction in entry performance from 15 percent to 10 percent above code compliance is to allow first time participants to test the waters at reduced risk.

- c) List non-incentive customer services

**2009 – 2011 Energy Efficiency Programs  
New Construction**

**Program Implementation Plan**

- a. Technical support to Energy Analysts and Design Teams<sup>1</sup>
- b. Economic modeling/measure selection support to builder/construction managers
- c. Marketing support to builders (sales agent training, marketing materials)
- d. DSM coordination (PV, DR, AMI, ET) for builders to maximize demand-side reductions.

**5. Program Rationale and Expected Outcome<sup>2</sup>**

- a) Quantitative Baseline and Market Transformation Information:

Refer to the overarching PIP section

**Table 3**

	Baseline Metric		
	Metric A	Metric B	Metric C
Overall Program			
Sub Program #1			
Sub Program #2			
Sub Program #3			

- b) Market Transformation Information

Refer to the overarching PIP section

**Table 4**

Market Sector and Segment	Internal Market Transformation Planning Estimates		
	2009	2010	2011
Metric A			
Metric B			
Metric C			
Metric D			

<sup>1</sup> There is a desire by the IOUs to explore a variety of forms of design assistance, including design team incentives tied to home performance, peak kW reduction, design optimization services by implementation staff, and funded/hosted charrettes for design teams.

<sup>2</sup> To be provided for each program and sub-program in PIP.

**2009 – 2011 Energy Efficiency Programs  
New Construction  
Program Implementation Plan**

c) Program Design to Overcome Barriers:

Priority Barrier: Building Industry

Effective July 1, 2009, California's Title 24 standards will be revised and updated. Overall, residential baseline energy performance for heating, cooling, and hot water will be increased by approximately 15 percent, which implies marked increase in production costs for builders at a time when the industry and the economy at large are experiencing significant challenges.

Priority Barrier: Homebuyers

The energy used in the average home produces roughly twice the greenhouse gas emissions as the average automobile. In fact, 16 percent of U.S. greenhouse gas emissions result from the generation of energy used in houses nationwide (U.S. EPA). However, there is little consumer awareness of the impact their homes have on the environment. CAHP is working with IOU marketing efforts, statewide partners (e.g. Flex Your Power), ENERGY STAR campaigns, and builder's own messaging to increase consumer awareness of this idea. Moreover, there is scant evidence that energy efficiency drives decision-making among homebuyers, whose access to capital is more difficult in a constrained capital market.

Manufactured Housing: a potential opportunity

The current decline in the housing industry, the high cost of residential housing, and increasing customer awareness of energy efficiency all make this a good time to address this underserved market segment. The manufactured housing industry is somewhat counter-cyclical to the site-built home market. As buyers are priced out of site-built homes, manufactured housing has become an affordable alternative.

Historically, manufactured housing has been considered a lost opportunity. However, as SCE found in the 2006-08 IDEEA program, there is significant interest among manufacturers in promoting the ENERGY STAR brand. Manufacturers recognize that ENERGY STAR manufactured homes address both the high cost of purchasing a traditional new home and the high cost of energy bills. However, without IOU intervention in the market, retailers are not pushing ENERGY STAR homes and there is not enough demand for manufacturers to justify building them.

Overcoming Market Failure: CAHP

In a buyer's market, builders are looking to differentiate themselves from competition. This presents a opportunity for CAHP to assist builders in overcoming cost barriers, minimizing lost opportunities, and working collaboratively to meet the state's and Investor-owned Utilities' goals for the reduction of green house gas emissions and utility source demand.



**2009 – 2011 Energy Efficiency Programs  
New Construction  
Program Implementation Plan**

The residential new construction market without IOU intervention is a lost opportunity for long-term energy savings. However, with IOU intervention in the form of incentives and design support, the new construction market is well placed to demonstrate innovative approaches and cost-effective energy savings technologies.

Overcoming Market Failure: Manufactured Housing

The program provides an incentive to manufactured home retailers when they sell a manufactured home that meets or exceeds the current ENERGY STAR standards. These standards extend to the ducting and installation guidelines for heating/cooling equipment, water heating technologies, water saving devices, and home appliances. Customers may also receive incentives for purchasing an ENERGY STAR manufactured home. The incentives may be paid directly to the customer after successful construction, assembly, and inspection of the home site.

Manufactured homes have a higher potential for market transformation than the site-built industry, due to factory standardization, and the fact that eight manufacturers control 98%<sup>1</sup> of the manufactured housing market

Current Program Baseline: Manufactured Housing:

The construction of manufactured homes that meet ENERGY STAR program standards, as opposed to the less stringent HUD standards, will result in demand reduction, energy savings, and the reduction of greenhouse gas emissions.

The energy savings will result from a combination of improved envelope efficiency (thermal and air tightness), use of high efficiency equipment, and the proper sizing (downsizing) of the cooling equipment. Production of every ENERGY STAR manufactured home built in each IOU territory will be tracked and reported.

Participating ENERGY STAR qualified manufactured homes will generate energy savings and demand reduction. In addition to leveraging retailers of manufactured homes, the program will leverage the partnership program to reach out to local governments where the homes will be built.

This program is a statewide program among all the IOUs. In doing so, the joint program has the potential to provide better service to the builder at reduced cost.

d) Quantitative Program Targets:

**Table 5 (Goals and # of Homes are specific to each IOU)**

Program Name	Program Target by 2009	Program Target by 2010	Program Target by 2011
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<sup>1</sup> “Synopsis of manufacturer market share and status”, Manufactured Research Association, communication, October 2007

**2009 – 2011 Energy Efficiency Programs  
New Construction  
Program Implementation Plan**

	TBD		

\* To be determined by IOU’s after acceptance of program

e) Advancing Strategic Plan goals and objectives:

Since its inception in 2002, CAHP has had a substantial impact on the homebuilding market. There is a significant opportunity to continue to influence builders, architects and other players in the residential new construction industry.

The New Construction Program is designed to enable the achievement of several goals and strategies identified in the CEESP. The Strategic Plan envisions a transformation of the core residential sector to ultra-high levels of energy efficiency, resulting in Zero Net Energy (ZNE) new construction standards by 2020. It spells out several goals and strategies to address energy reduction in residential new construction.

- **Goal #1:** New Construction will deliver “zero net energy” (ZNE) performance for all new single and multi family homes by 2020.
  - By 2011, 50% of New Homes will exceed 2005 Title 24 energy efficiency standards by 35%; 10% will surpass 2005 Title 24 standards by 55% (Strategy 1-1)
- **Goal #2:** Home buyers, owners and renovators will implement a whole house approach to energy consumption that will guide their purchase and use of existing and new homes, home equipment household appliances, and plug load amenities
- **Goal #3:** Plug load will grow at a slower rate and then decline through technological innovation spurred by market transformation and customer demand for energy efficient products.

The goal of energy efficient Residential New Construction will be achieved through a combination of incentives, technical education, design assistance, and verification. CAHP supports the ambitious goals of CEESP, and works in close coordination with the Zero Net Energy Homes sub-element. Together these elements seek to raise plug load efficiency, focus on whole-house solutions, drive occupant behavior through in-home monitoring and visual display tools, and leverage market demand for green building standards. CAHP is also coordinated with demand response programs, Emerging Technology, and the New Solar Homes Partnership. In fully aligning itself with the CEESP, the CAHP targets an interim goal of 50 percent of RNC to Tier II (2005) by 2011, 10 per cent of RNC to 55 percent by 2011, and a final goal of 100 percent of residential new construction to be net zero by 2020.

## **2009 – 2011 Energy Efficiency Programs New Construction**

### **Program Implementation Plan**

The ZNEH Sub Program is designed primarily with the focus of accelerating the achievement of the ZNE goals envisioned by the Strategic Plan. The purpose of ZNEH Case Studies is to examine a wide array of energy saving technologies, accelerate the market acceptance of new and emerging technologies, explore new solutions, and encourage distinctive approaches in demonstration projects. Each being distinctive, the case studies will be positioned to highlight the underutilized potential of sustainability in residential new construction, in a range of market segments and climate zones. The utilities will seek to integrate R&D ideas from Emerging Technologies, PIER, LBNL and other agencies to further assist the projects in advancing sustainability and achieving very high levels of energy efficiency.

The minimum threshold for acceptance in the ZNEH Case Study program will be a whole building performance of at least 45% over Title 24 standards. Projects must meet LEED for Homes (Silver) equivalent and/or qualify for a minimum of 100 points from Build It Green's Green Point Rated system. Financial incentives and marketing support offered for the case study projects will be significantly higher than those offered under CAHP. By providing strong encouragement for builders to move up on the energy efficiency scale with financial and non-financial incentives, the ZNEH Sub Program is uniquely positioned to support the CEESP goal of Zero Net Energy by 2020.

CAHP will work closely with builders who seek assistance in the development of sustainable design and construction, green building practices and emerging technologies through the Zero Net Energy Homes Program (ZNEH). The ZNEH Program is the place to demonstrate innovative technologies and to help drive the market for energy efficiency through the adoption and marketing of green standards. Given consumer's interest in green, and the market's failure to drive energy efficiency sales, marketing the green features (one of which is EE) is the best way to increase consumer demand for more efficient homes. Moreover, the 15% threshold for participation aligns well with existing green building certification programs such as ConSol's California Green Builder and Build it Green's GreenPont Rated Programs.

#### **6) Program Implementation:**

##### **a. Statewide IOU Coordination:**

Given the success of the collaborative process that led to the production of this PIP, the statewide RNC team plans to meet on at least a quarterly basis going forward, in order to review progress toward the goals and make any corrections need to achieve them.

- i. Program name: The single-family and multi-family program will be implemented under the common name of California Advanced Home Program. The zero peak pilots will be referred to as Zero Net Energy Homes, although the details differ somewhat by utility. Factory-built housing will be referred to as ENERGY STAR Manufactured Homes.
- ii. Program delivery mechanisms: Sempra and PG&E deliver the program primarily through in-house Account Executives with some outside technical

## **2009 – 2011 Energy Efficiency Programs New Construction**

### **Program Implementation Plan**

support for specific analysis or niche markets (cf. PG&E, multi-family).  
SDG&E leverages third-party implementers and in-house account executives.

- iii. Incentive levels: The IOUs have agreed upon a common incentive methodology that will be implemented throughout the service territories.
- iv. Marketing and outreach plans, e.g. research, target audience, collateral, delivery mechanisms.

CAHP offers financial incentives, training opportunities, technical support, and marketing resources to single-family and multi-family residential builders who construct homes that exceed California's energy efficiency standards for new construction. All types of residential builders are welcome to participate.<sup>1</sup> For the multi-family segment of the program, qualifying homes include condominiums, town homes, apartment buildings, and mixed-use projects.

There will be closer coordination of marketing efforts to synergize wherever possible. While each utility would like to leverage on their strengths and existing relationships within their service territories, certain marketing elements can be launched on a common platform. A common web site will be created to provide builder information that will be commonly disseminated. Training and education is an area where pooling of resources is possible to reduce cost and increase participation.

The IOUs plan to be actively engaged in the development and implementation of joint marketing, education and training efforts as described in detail in the common section of this PIP.

In 2009-2011, the program will expand its builder/contractor education and training certification courses to increase overall awareness and understanding of the California Advanced Home Program and service offerings. We will continue to strengthen our delivery channels of information by providing relevant information and support materials, reaching target audiences in key decision-making phases. The IOUs' innovative communication tools will include: trade advertising, account representative meetings/presentations, targeted customer mailings, shows/event sponsorships, trade organization affiliations, webcasts, email blast, builder award recognition, customer success stories and public relations campaigns. All materials and communications will also be made available in electronic file formats so information can be forwarded to customers immediately via the internet.

Additionally, CAHP will leverage its stellar relationships in partnering with trade organizations and other groups actively promoting the benefits of green,

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<sup>1</sup> As discussed above, manufactured housing is not subject to Title 24 and uses the national HUD baseline.

## **2009 – 2011 Energy Efficiency Programs New Construction**

### **Program Implementation Plan**

sustainable building practices. Such organizations include: CEC, FYP, NAHB, CBIA, BIAS, AIA, USGBC, ULI, LABC, California Manufactured Housing Institute, Build It Green, IES, AEE, IHACHI, PHCC and others. Through an innovative, coordinated approach, we will maximize outreach opportunities which keep energy efficiency and CAHP's program benefits top-of-mind and maximize program participation.

Marketing materials and other collaterals will be enhanced to communicate more effectively with savvy builders. CAHP marketing efforts will be enhanced by leveraging IOU market studies and builder focus groups identifying consumers' decision triggers and the effect of GHG labeling on purchase decisions. The IOUs will pursue additional sources of research to determine the most cost-effective ways builders can meet program requirements; the results will be incorporated into marketing materials and /or communicated to builders as part of the design assistance recommendations. Participant recognition (plaques, feature presentations, etc.) has proven to be an effective tool in encouraging builder involvement, and will continue to remain as part of the overall marketing tools.

Given consumers' interest in going green and the market's deficiency in driving energy efficiency sales, marketing the green features (one of which is EE) is the best way to increase consumer demand for more efficient homes. To that end, CAHP will help educate the industry on how to achieve energy efficient, green homes. To increase participation in programs and the general understanding of sustainability, greater emphasis will be placed on education and outreach.

The precipitous decline in the building industry offers a great opportunity to improve education and training. Through their Education & Training programs offered at ERC, CTAC, and PEC, the statewide new construction team will work to expand the course offerings, web cast seminars, and cost-benefit effectiveness training classes, thermal by-pass checklists compliance training, cost comparison of alternative measures, etc. In order to meet or exceed increased energy savings goals in an extremely difficult residential construction market, the IOUs will utilize a broad range of marketing tactics and communications tools working in concert to expand program awareness and participation.

The IOUs will diligently explore other means of encouraging builder participation in the program.

- Developing a list of resources and contractors that could be used by builders
- Information on comparative costs and energy savings of alternative measures
- Exploring financing arrangements (green mortgages, energy efficient mortgages, etc.), in consultation with the other IOUs and financial institutions

**2009 – 2011 Energy Efficiency Programs**  
**New Construction**  
**Program Implementation Plan**

- Expedited permitting for high efficiency buildings
  - Working with Municipalities to develop educational channels for codes and standards.
- v. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable

The plan addresses above, in the Incentive Rationale section, the ways CAHP is responding to current code changes and how it anticipates leading code toward requiring demand performance, in-home displays, on-site generation, square footage reductions, and green elements.

CAHP is particularly interested in promoting integrated thermal hot water system designs to displace therm demand with on-site renewable sources. In addition to cold water savings from embedded energy and the energy to heat water, longer term there may be GHG reductions that accrue either to the builder, the homeowner, or the utility associated with each demand side reduction as a result of AB 32 and pending national CO<sub>2</sub> legislation.

CAHP prides itself on its established close relationships and memberships with other groups involved with the building industry. These relationships make it possible to provide comprehensive services to our customers. Thus, CAHP will continue to seek out and coordinate synergies with, but not limited to, the following groups:

- California Energy Commission (CEC)
- New Solar Homes Partnership (NSHP)
- Environmental Protection Agency (EPA)
- California IOUs
- California Building Industry Association (CBIA)
- Green Building Consultants (i.e. Build it Green, California Green Builder, Global Green)
- National Association of Homebuilders (NAHB)
- Rater Organizations (e.g. ResNet, CalCerts, CHEERS)

The California Building Industry Association (CBIA) and the California Energy Commission (CEC) continue to seek out partnerships and opportunities with the utilities to help educate builders and other industry participants in order to promote energy efficiency in new construction.

Since 2002, CAHP has partnered with the EPA in promoting ENERGY STAR New Homes and has won ENERGY STAR Achievement awards for the last five consecutive years.

## **2009 – 2011 Energy Efficiency Programs New Construction**

### **Program Implementation Plan**

CAHP will continue its commitment to the Environmental Protection Agency's (EPA) ENERGY STAR program and will strive to support, partner and contribute to the success of the ENERGY STAR Homes label and branding. Numerous surveys and studies continue to show the ENERGY STAR label represents greater value to consumers and the environmental stewardship it represents.

The program will continue to offer comprehensive training courses and educational seminars relevant to building energy efficiency and green measures into new construction projects including Title 24 code training and ENERGY STAR requirements.

In response to builder requests, CAHP will offer a new training workshop for 2009 - 11 designed for builders' sales agents. Sales agents have direct contact with the homebuyer and have the greatest impact on selling homes. In order to help promote ENERGY STAR developments, CAHP will teach sales agents about energy efficiency. Topics will include what qualifies as an ENERGY STAR home and what is 'green'.

Other activities will include attendance at building industry trade conferences/outreach events and any necessary contractor/builder field visits. The target audience consists of builders, developers, energy consultants, architects, and other industry professionals.

Finally, SDG&E is pursuing partnership efforts with local government entities who are looking to display leadership in the carbon arena by expediting plan check, waiving permit fees, or allowing builders to pay impact fees on the back end (instead of up-front) in exchange for higher levels of home performance documented by our program.

vi. Similar IOU and POU programs

The statewide team will reach out to leading POU programs, such as those at SMUD to learn from their experience how best to deliver energy efficient homes.

In addition, the IOUs will work closely with the existing home remodeling programs (Home Performance with Energy Star and the Comprehensive Mobile Home Program) to maintain a two-way communication of best practices and lessons learned between the new and existing sectors.

b. Program delivery and coordination:

i. Emerging Technologies program

Emerging technologies will chiefly be handled within the ZNEH program. The IOUs are looking to partner with our ET and PIER-funded Testing Facilities to pilot zero-net energy approaches. However, the proposed incentive approach allows the

**2009 – 2011 Energy Efficiency Programs**  
**New Construction**  
**Program Implementation Plan**

IOUs the flexibility to include both deemed and calculated energy savings from new technologies as they become market ready.

The utilities will seek to integrate R&D ideas from Emerging Technologies, PIER, LBNL and other avenues to further assist the projects to advance sustainability and achieve very high levels of energy efficiency.

ii. Codes and Standards program

See C&S PIP for more information. C&S is looking to draft pre-approved “drop-in” legislation that can be used by local municipalities looking to create reach codes. Such activities would all be eligible for utility incentives since IOUs are playing such a critical role in drafting the language.

iii. WE&T efforts

The RNC team is seeking ongoing support from the three energy and training centers for classes relevant to the building industry and training the next generation of trade allies, builders, contractors, and the like.

iv. Program-specific marketing and outreach efforts

TBD

v. Non-energy activities of program

Where applicable, the ZNEH sub-program will seek to identify new types of water savings technologies opportunities; CAHP will leverage local water agency incentives in the core CAHP to save cold and hot water.

vi. Non-IOU Programs

See item v. above on water-agency partnering efforts. There may also be opportunities to partner with local AQMDs and County Integrated Waste Management Boards to encourage material recycling in ZENH and green programs.

vii. CEC work on PIER

See note on Emerging Technology above.

viii. CEC work on codes and standards

The IOUs will continue to support code development work with the CEC and to test candidate technologies in the new construction programs.



**2009 – 2011 Energy Efficiency Programs  
New Construction  
Program Implementation Plan**

ix. Non-utility market initiatives

The homebuilding industry is facing some of the worst times in its history.<sup>1</sup> In fact, new residential single-family housing permits have declined by 37.1 percent relative from 2006 and multi-family permits have declined by 21.2 percent.<sup>2</sup> As a result, builders are building fewer homes and releasing them more slowly to the market. The significant costs associated with carrying inventory coupled with declining prices of houses has created additional resistance in a building industry already averse to additional construction costs. In addition, the industry is consolidating operations and eliminating staff to reduce overhead costs and avoid bankruptcy.

The industry faces the burden of stringent California Title 24 building code standards. The CEC will institute a new code in 2009 and 2011, and on a three year schedule thereafter. Each code is approximately 15% more stringent than the last, increasing costs and requiring additional efforts on the part of the builder. In California, homes built to current Title 24 standards are 35 percent more energy-efficient<sup>3</sup> than homes built to the federal government's standards. In addition, reducing greenhouse gas emissions will become mandatory, due to the adoption of AB 32 (Global Warming Solutions Act). Builders confirm that growing consumer awareness of "green" concerns will lead to greater demand for these advanced homes and builders will adapt to meet these demands at the least possible cost.

Population growth drives the economy and "California's population is expected to keep growing by 500,000 a year for the next three decades. That means California needs between 220,000 and 240,000 new homes and apartments every year to keep pace with the state's population growth."<sup>4</sup> The year 2007 saw only 112,000 new units permitted. The 2008 forecast is for only 87,000.

As alluded to above, buyers are increasingly asking for green and energy efficiency and would pay more (up to \$11,000) for such features.<sup>5</sup> For the first time, a majority of respondents in the National Association of Home Builders' survey are asking for efficiency first, likely in response to rising energy prices economy-wide. Paradoxically, a majority of the same respondents also requested higher ceilings, more square footage, and were willing to trade a larger home for a longer commute, reflecting a soft commitment to green.

Differences in Program Implementation

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<sup>1</sup> Alan N. Nevin, CBIA Chief Economist and Principal, Market Pointe Realty Advisors, California Builder Magazine, January/February 2008

<sup>2</sup> California Industry Research Board (CIRB) Report, January 24, 2008

<sup>3</sup> Ray Becker, Chairman, CBIA, Southern California Builder Magazine Vol. 25. CAHP's internal research has shown typical 2005 T24 performance is 20% above IECC 2006.

<sup>4</sup> Wes Keusder, Former Chairman, CBIA, Southern California Builder Magazine Vol. 24

<sup>5</sup> Jan Dimeo, Builder. <http://www.builderonline.com/business/surveys-reveal-home-buyer-wishes-for-energy-efficiency-and-beyond.aspx>. Accessed 14 Mar 08

## **2009 – 2011 Energy Efficiency Programs New Construction Program Implementation Plan**

This section highlights the major areas where individual IOUs implementation of the program will differ from that of the others. While the incentive structure and other elements of the program will remain synchronized with the statewide nature of the program, each IOUs will leverage its unique strengths and structural differences to enhance the effectiveness of execution. This section highlights some of those differences.

The program will be implemented by direct contact with the market actors: builders, architects, civil and mechanical engineers, energy analysts, home energy rating system (HERS) providers, HERS raters and other participants. Through design assistance and coordination with the builders and their consultants and contractors, projects will be evaluated for optimal approaches to increase energy savings and demonstrate green building concepts.

The program will target the residential design and construction teams, architects, energy analysts, HERS raters, trade contractors, and builders. The target segment is low-rise and high-rise residential new construction with participation being open to all residential new construction including custom homes, single-family production housing, condominiums, town homes and rental apartments

Builders may qualify to participate under one of the two subprogram categories: California Advanced Homes Program (CAHP) or the Zero Net Energy Home (ZNEH). As explained in detail in the common section of this PIP, through financial incentives, design assistance, education and training, the IOUs will aggressively support high performance single family and multifamily building designs that exceed Title 24 standards in an overall performance design of 15% or greater. Energy savings and incentives will be based upon a sliding scale from 15% to 45% reduction in energy usage from Title 24 budget. Program focus will be on increasing the participation to a 35% threshold. The sliding scale incentive structure was discussed in detail under the common section of this PIP.

The Sempra Energy Utilities and PG&E deliver the California Advanced Home Program in their service territories through a team of experienced account executives. Project qualification will be conducted through internal project review by program management staff, or if necessary, using external consultants.

SDG&E Residential New Construction program management teams have extensive experience in designing and implementing successful offerings to the industry as demonstrated by the 2002-2005 *California ENERGY STAR® New Homes* programs and the 2006-2008 *Advanced Home* program. Recognized as an outstanding energy efficiency resource, this team has the ability to successfully work closely with other local, regional, statewide and national stakeholders to ensure the widest opportunities for potential program participants.

## **2009 – 2011 Energy Efficiency Programs New Construction**

### **Program Implementation Plan**

SDG&E will deliver the ZNEH sub program through the same account executive and program management staff as the CAHP. Through case studies and demonstration projects, the utilities will examine a wide array of energy saving technologies, accelerate the market acceptance of new and emerging technologies, explore new solutions, and encourage distinctive approaches in demonstration projects. Participating builders will be encouraged to integrate environmentalism, economics, and social equity, while integrating landscape into the built environment for human interaction. Each being distinctive, these case studies will be positioned to highlight the underutilized potential of sustainability in residential new construction. The utilities will seek to integrate R&D ideas from Emerging Technologies, PIER, LBNL and other avenues to further assist the projects to advance sustainability and achieve very high levels of energy efficiency.

Design assistance for interested builders will be offered through various mechanisms. Design Team Charrettes that will include the architect, energy analyst, civil and mechanical engineers, HVAC contractors and the builder will allow a review of the product and recommendations that will increase the sustainability and energy efficiency of the product. Education and training will be offered through utility training programs (offered frequently at the ERC) that have been extremely successful in the past. SDG&E also intends to offer a structured Design Team Incentive to encourage architects and design engineers to enhance building performance through innovative approaches. Details of the Design Team Incentive are currently under development, and may range from \$250 to \$2000 depending on the number of residences in a project.

In recognition of the increased societal movement towards sustainability, and in line with the other IOUs, SDG&E will offer additional financial incentives beyond direct Therm incentives to projects that achieve a green building certification, perform building commissioning during design and construction, and establish and follow a building measurement and verification plan after occupancy. The USGBC *LEED* program, Build It Green's *GreenPoint Rated* program, and *California Green Builder* represent just a few of the rating systems that will be considered for the incentive. Many credits are available in *LEED-H* for energy efficiency, especially the incorporation of renewable energy. Renewable energy is a significant component to the state's goals of achieving zero net energy in the new construction market by 2020. Building commissioning incentives ensure that the as-designed building becomes the as-built building.

The minimum threshold for acceptance in the ZNEH sub program will be a whole building performance of at least 45% over Title 24 standards. Projects must meet LEED for Homes (Silver) equivalent and/or qualify for a minimum of 100 points from Build It Green's Green Point Rated system. Energy savings will be evaluated based on the diversity of measures and the overall energy performance. The life cycle CO<sub>2</sub> reductions and water savings will be tracked. A broad based support, including outside expertise, education, resources, public recognition, marketing support, design and financial assistance will be offered to qualified builders. The program will explore and encourage the incorporation of innovative measures, such as: Passive Solar, Active Solar (solar water heating), Photovoltaics, Sustainable Urbanism, Smart Growth, Innovative Environmentally Sensitive Building Design, Ecological Design, Innovative Thermal

## 2009 – 2011 Energy Efficiency Programs New Construction

### Program Implementation Plan

Comfort Solutions, Day Lighting, Carbon Sequestration, Water Recovery and Zero Peak Design. Financial incentives and marketing support offered for the Case Study projects will be significantly higher than those offered under CAHP. However, due to the “show case quality requirements”, the number of projects enlisted for case studies is likely to be limited to no more than ten per year per utility.

In addition, the following two new construction programs will be supported through Third Party participation (see separate PIP on Third Party programs):

*California Sustainability Alliance.* Managed by Navigant Consulting, Inc. Innovative cross-cutting market transformation, marketing and outreach programs that targets comprehensive sustainability. The program includes energy efficiency, water efficiency, renewable energy, waste management, transportation management, smart growth/land use best practices, and climate action delivered in a single program under the broad umbrella of sustainability. The program will seek to inform the utility as to potential opportunities for future program design that may be available.

*HERS Rater Training Advancement Program.* Managed by Conservation Services Group.

This program targets training to certified new construction Home Energy Rating System (HERS) raters and Energy Analysts to improve the consistency of ratings and expand the reach of existing programs. Program team members CalCERTS and CHEERS have direct contact with raters, allowing for reduced marketing costs and improved penetration. Conservation Services Group will utilize classroom training and an on-line learning management system (LMS), which includes an assessment test and customizable learning units.

#### c. Best practices

The residential new construction team will gather information and past experience in successful low energy and zero net energy existing projects to evaluate best practices. This information will be used to develop pilot projects that will demonstrate low energy homes and include home performance monitoring.

Several recommendations were made in the Cadmus Report that evaluated the communication plans, program elements, and services offered by IOUs residential new construction programs. These recommendations have been carefully studied and incorporated into the CAHP program design.

Program Components:

- Institute more continuity in program offerings: The program name, incentive structure and several elements of execution will be developed on a statewide basis, ensuring consistency across all the utilities and continuation into the future.

## **2009 – 2011 Energy Efficiency Programs New Construction**

### **Program Implementation Plan**

- Leverage ENERGY STAR AND LEED: The CAHP incentive mechanism incorporates a Performance Bonus element for ENERGY STAR.
  - SDG&E has made LEED certification as one of the requirements for participation in the ZNEH sub program.
- Continue to offer prescriptive options: The CAHP incentive mechanism is based on a sliding scale; however, the Performance Bonus element emphasizes prescriptive elements that are not included in the Title 24 base.
- Enhance demonstration / case study component: The case study component is an integral and crucial element of the ZNEH sub program. The IOUs will strive to show case these homes as reaching far beyond the minimum energy efficiency requirements and serving as the “model homes of the future”.

#### Processes:

- Improve marketing materials and improve participant recognition: As explained in the Marketing, Education and Outreach section of this PIP, marketing materials and other collaterals will continue to be enhanced to communicate more effectively with savvy builders. Participant recognition (plaques, feature presentations, etc.) has proven to be an effective tool in encouraging builder involvement, and will continue to remain as part of the overall marketing tools.
  - In 2008, SDG&E redesigned marketing collaterals to be more informative and professional in appearance.
- Enhance AE’s role in recruiting and marketing: Working closely with the project management teams, they would enhance their role in identifying and developing the ZNEH case study homes. Joint presentations with home builders will improve builder understanding of the purpose and expectations for the case studies.
  - The SDG&E teams now consist of seasoned account executives and are effective.

#### Program Services: Incentives

- In accord with Cadmus recommendations, the CAHP incentives have been fully revamped to be more meaningful and effective for the builders as well as the utilities. Additional incentives under consideration include a Design Team Incentive, more flexible incentives for ZNEH case study projects, and other financial support enumerated earlier are all designed to enhance builder participation in the program and deliberate movement towards the upper end of the energy efficiency scale.

#### Program Services: Training

- Taking advantage of the slow down in the industry, the utilities intend to ramp up the training for builders and other industry participants. Training is an area where significant synergies can be extracted and the IOUs will participate in developing and implementing common training modules and

## 2009 – 2011 Energy Efficiency Programs

### New Construction

#### Program Implementation Plan

web based training tools. Training will focus particularly on cost / benefit evaluation of energy efficiency improvements and thermal bypass checklist compliance.

Program Services: Information, Communication and resources

- A web based incentive calculation tool is currently being evaluated by the IOUs. This tool is intended to assist builders in comparing costs and energy savings of alternative measures and arriving at the most optimal approach for the builder.
- A suggestion was made to create a hotline for builder questions. Since the IOUs deliver CAHP through a team of account executives/field staff who serve as the focal points of contact for the builders, the utilities do not feel it is necessary to provide hot lines for builders to reach. If this becomes a necessity, the utilities will reevaluate the need and provide communication points as appropriate.
- Currently, the technical staff provides preliminary evaluation, engineering review and recommendations for builders to move up on the efficiency scale. It is expected that builders will utilize the services of qualified Energy Analysts and designers in arriving at the final set of measures that should be included. The Design Team Incentive under consideration by the utilities will enable the builders in utilizing the services of qualified engineers that will complement the engineering staff review.
- The IOUs plan to implement an enhanced set of communication tools that will serve to educate builders and enhance participation. As explained earlier, our communication tools will include: trade advertising, account representative meetings/presentations, targeted customer mailings, shows/event sponsorships, trade organization affiliations, webcasts, email blast, builder award recognition, customer success stories and public relations campaigns; all materials and communications will be made available in electronic file formats.

- Innovation:

The sliding scale incentive calculations, ZNEH Case Study projects, and the IOU joint marketing efforts represent significant departure from past practices and reflect innovative approaches to new construction energy efficiency.

The incentive design is based on a whole building performance. It appropriately rewards higher levels of building performance and is likely to motivate builders to move towards higher efficiency buildings. This approach offers the builder adequate flexibility to choose the optimal combination of design features. It also enables the utilities to work together and support new construction projects with fuel neutrality.

## 2009 – 2011 Energy Efficiency Programs New Construction

### Program Implementation Plan

By focusing on efficiencies beyond Title 24 + 35%, and encouraging Zero Net Energy homes for showcasing, the IOUs hope to generate sufficient enthusiasm in the market place for very high efficiency homes. Wherever possible, the California utilities will continue to extract synergies in marketing and program design by developing a truly statewide program with common features and coordinated efforts.

- Integrated / coordinated Demand Side Management:

The ZNEH case studies offer a great opportunity for savvy builders to demonstrate their commitment towards a truly integrated approach to DSM options. With design assistance and incentives from the utility, custom home builders are uniquely positioned to leverage the various tools available at their disposal. The program management teams will educate and strongly advocate these builders to serve as model designers and be recognized and rewarded in the builder community. Case study homes offer an excellent opportunity for builders to install not just energy saving measures, but also renewable energy, in-home display, solar roofs, innovative water saving technologies and other state-of-the art appliances to demonstrate how sustainable design could be achieved.

- f) Integration across resource types (energy, water, air quality, etc):

As discussed above, the program is looking to partner with relevant stakeholders to identify water, air quality, and waste-diversion opportunities.

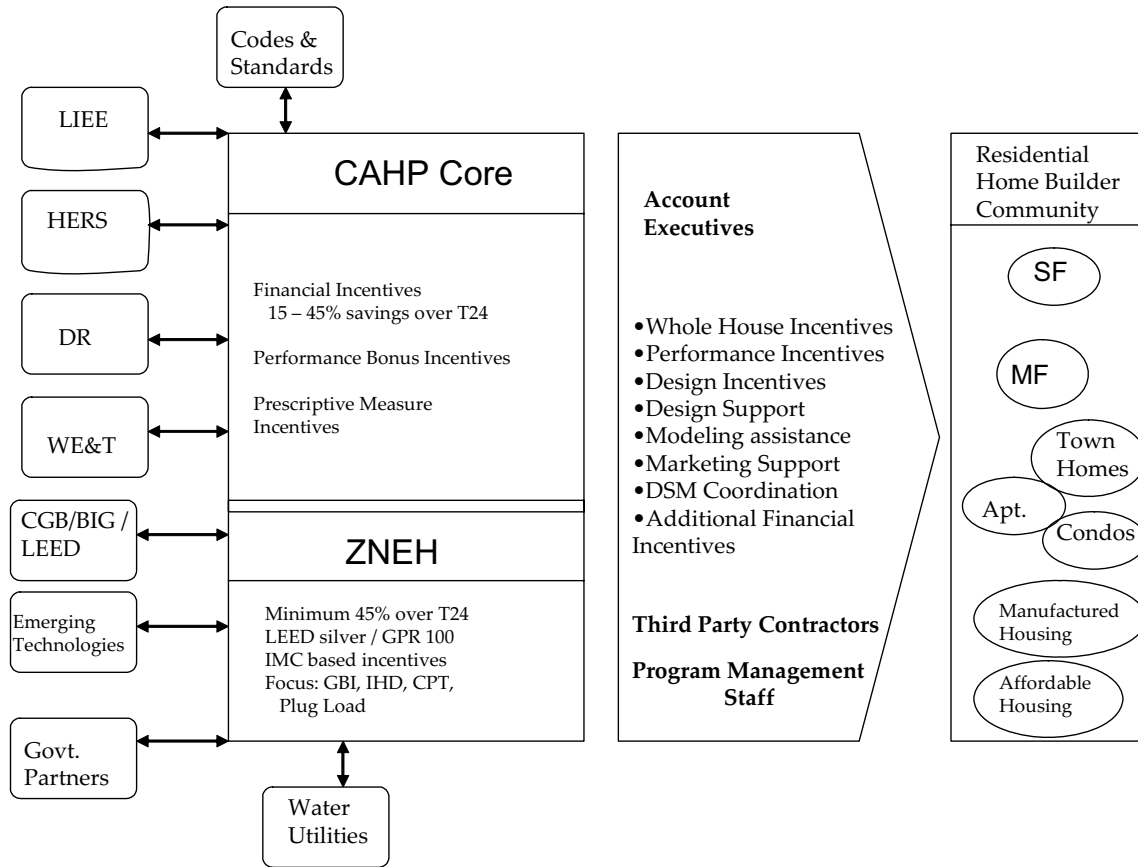
- g) Pilots: Please describe any pilot projects that are part of this program

As discussed above, the ZENH sub-program is a pilot to test emerging technologies and the viability of zero peak and zero-net homes under actual operating conditions.

- h) EM&V: The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2009-2011 after the program implementation plans are filed. This will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts cannot be developed until after the final program design is approved by the CPUC and in many cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.

# 2009 – 2011 Energy Efficiency Programs New Construction Program Implementation Plan

## 7) Diagram of Program

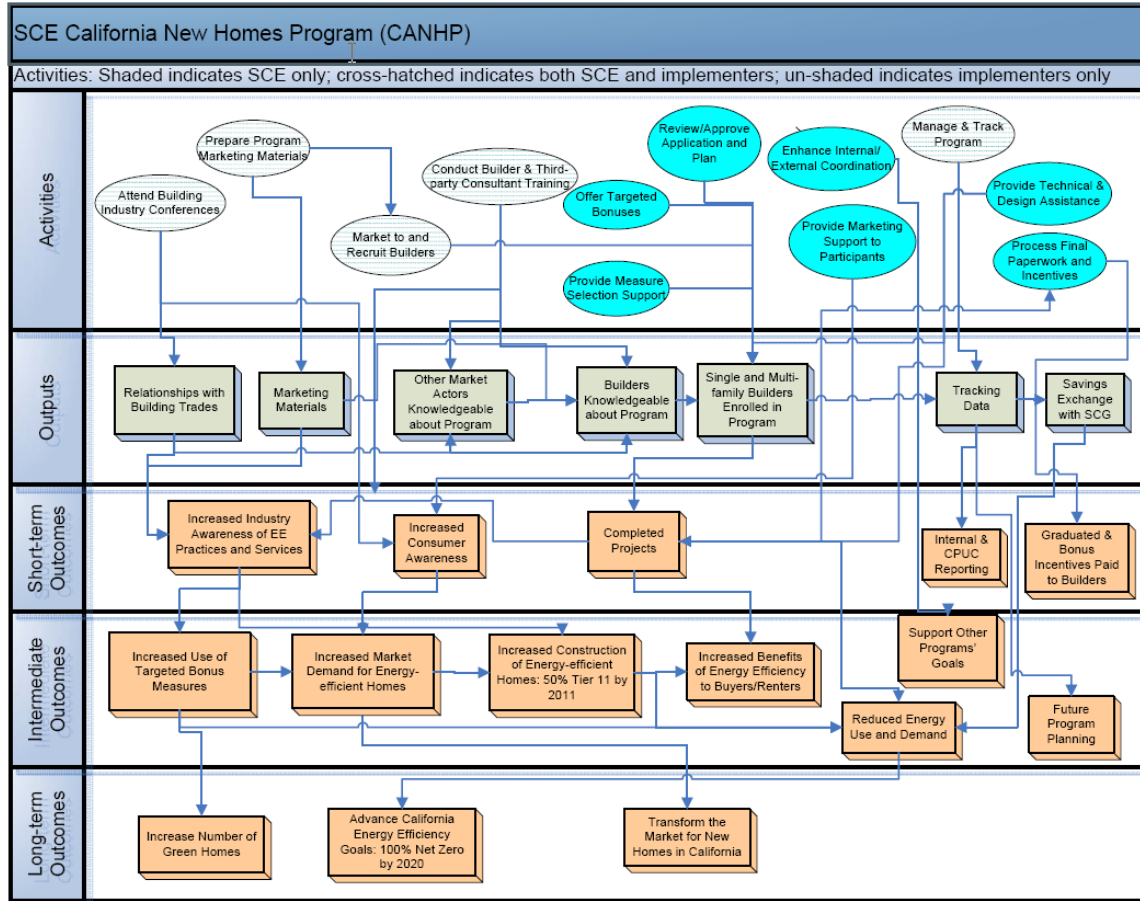


## 8) Program Logic Model: Provide a program logic model including sub-programs.



# 2009 – 2011 Energy Efficiency Programs New Construction Program Implementation Plan

Table X: CAHP & ZNEH Logic Model



# 2009 – 2011 Energy Efficiency Programs New Construction

## Program Implementation Plan

Table XI: Manufactured Housing Logic Model

