PACIFIC GAS AND ELECTRIC COMPANY

2013-2014 ENERGY EFFICIENCY PORTFOLIO

PROGRAM IMPLEMENTATION PLAN

STATEWIDE PROGRAM

COMMERCIAL PROGRAM

PGE2101

APRIL 23, 2013

(REVISED)

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2a) Commercial Energy Efficiency Program, PGE2101, core program

2) Total Authorized Program Budget (including 2010-2012 Carryover Funding)

Table 1[1]

EEGA	New Sub Program	Total Administrative Cost	Total Marketing & Outreach	Total Direct Implementation (Customer Services)	Direct Implementation (Incentives & Rebates)	Total 2013-2014 Compliance Budget	2010-2012 Carryover Funding
PGE21011	Commercial Calculated Incentives	$2,983,988	$4,543,267	$22,452,688	$6,384,763	$36,364,706	$14,576,452
PGE211025	Savings By Design (SBD)	$953,584	$272,108	$9,825,336	$2,720,336	$13,771,365	$5,702,098
PGE21012	Commercial Deemed Incentives	$1,913,382	$2,681,793	$10,342,933	$16,697,634	$31,635,741	-
PGE21013	Commercial Continuous Energy Improvement	$62,156	$50,590	$727,338	-	$840,083	-
PGE21014	Commercial Energy Advisor	$543,948	$225,566	$2,633,890	$5,425,000	$8,828,404	-
PGE21015	Nonresidential HVAC	1,712,675	$543,739	$7,349,554	$16,619,683	$26,225,652	-
	Commercial Direct Install	*	*	*	*	*	-

* The PG&E Commercial Direct Install efforts are delivered by third party contractors. The budgets for these third party direct install efforts are included in the third party program implementation plans.

3) Projected Program Gross Impacts Table

Table 2

EEGA	New Sub Program	GROSS KW	GROSS KWH	GROSS Therms
PGE21011	Commercial Calculated Incentives	15,149	117,724,326	2,309,107
PGE211025	Savings By Design (SBD)	6,892	26,492,348	734,821
PGE21012	Commercial Deemed Incentives	28,686	172,435,222	2,308,110
PGE21013	Commercial Continuous Energy Improvement	-	-	-
PGE21014	Commercial Energy Advisor	8,161	13,572,466	3,106,873

[1] 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.

PGE21015	Nonresidential HVAC	8,970	23,163,014	43,313

*Savings include forecasted 2010-2012 pipeline commitments.

4) Program Description

a) Describe Program

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, incentives, and financing options.

Targeted end users include all commercial sub-segments such as distribution warehouses, office buildings, hotels, motels, restaurants, schools, trade schools, municipalities, universities, colleges, hospitals, retail facilities, entertainment centers, and smaller customers that have similar buying characteristics.

The Statewide Commercial Energy Efficiency Program includes six core statewide sub-program elements, including the Commercial Energy Advisor Program, Commercial Calculated Incentives, Commercial Deemed Incentives, Continuous Energy Improvement, and Nonresidential HVAC. IOU offerings also include local program elements such as third party programs, and local government partnerships that have close ties to Business Improvement Districts (BIDs). Per CPUC directives, the IOUs will strengthen their relationships with local BIDs and develop opportunities for BIDs to participate in the marketing and delivery of direct install and deemed commercial incentives. In addition to the above sub-programs, the utilities will consider one or more demonstrations of a comprehensive whole building approach (WBA) to commercial building energy efficiency. This approach may make available the tools and resources necessary for customers to pursue and integrate multiple customized measures. This approach may also include deployment of energy management and information systems in demonstration projects that can be used to quantify and analyze energy savings based on various forms of measured performance data, including interval meter data. These elements are designed to not only overcome the traditional market barriers to energy efficiency, but also attain deeper energy savings, advance demand response and distributed generation opportunities uniquely suited to the Commercial segment.

Description of the Commercial Energy Efficiency sub-programs:

- Commercial Energy Advisor Program brings together under one program all audit services offered to support customer education and participation in energy efficiency, demand response and self-generation energy reducing opportunities and benefits, along with awareness of greenhouse gas and water conservation

activities. These services include Benchmarking, Online Energy Audit Tool, CEI, Nonresidential Audits, Pump Efficiency Services, Retro-commissioning (RCx) audits and coordination with CEI as described below.

- The Commercial Calculated Incentives Program offering provides standardized incentives for customized and integrated energy efficiency/DR projects for retrofit, and RCx projects while also providing technical and design assistance. 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 Strategic Plan and concurrently overcome technical and financial barriers. Calculated savings for the Savings By Design Program are achieved through the commercial new construction component.
- The Commercial Deemed Incentives Program 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 Commercial Continuous Energy Improvement (CEI) is a consultative service which targets long-term and strategic energy planning. CEI is designed to reintroduce the importance of energy management by transforming the market and to help reduce energy intensity through a comprehensive energy management approach. CEI will address technical and management opportunities for commercial customers while creating sustainable practices through a high-level energy commitment from executive and board-level management. CEI applies the principles of well-known business continuous improvement programs, such as Six Sigma and International Standards Organization (ISO) standards, to facility and plant energy management. These principles are: (1) Commitment; (2) Assessment; (3) Planning; (4) Implementation; (5) Evaluation; and (6) Modification. At each stage of customer engagement, a variety of complementary utility and non-utility products and services can be customized to fit different customer profiles and optimize the cost-effectiveness of the delivered energy management solution.
- The Nonresidential HVAC Program delivers a comprehensive set of upstream strategies that are built on education, marketing efforts and leveraged relationships within the HVAC industry geared to transform the market towards a sustainable, quality driven market.
- 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. However, PG&E and SoCal Gas's Direct Install rebate offering is delivered through its Local Government Partnerships (LGP) and Third Party programs for small business.

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, municipalities 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 (GHG), air quality, and water – is a critical path to optimizing the potential for California's commercial customer segments to thrive. The Statewide Commercial Energy Efficiency Program design includes the staged integration and coordination with existing non-utility programs, initiatives, and existing regulations today. This design is aimed to 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. Utilities are also using integrated energy strategies to test DSM as a means to address T&D constraints in local areas. 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) List of Measures

Technologies addressed through this program effort are varied, and include, but are not limited to, lighting, HVAC, refrigeration, food service equipment, boilers, vertical transportation, motors, and plug load controls.

c) List Non-incentive Customer Services

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:

Energy Advisor Program

- Hands on workshops

- Technical support assistance
- Automated Benchmarking services
- Nonresidential Audits
- Pump tests and pumping systems technical support
- Water leak detection services

Continuous Energy Improvement (CEI)

- Energy management assessments
- Energy planning
- Baselining and benchmarking
- Project implementation support
- Customer recognition
- Resources on Energy Design Resources website
- Resource Conservation Manager initiative

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, and commercial facilities

Workforce Education and Training

- DOE Basic, Intermediate and Specialist Training in support of ANSI Certification, per the Strategic Plan.
- Title 24 Training,
- Commercial refrigeration best practices (for designers), in support of the Strategic Plan focus on refrigeration
- HVAC best practices for data centers, laboratories, and other specialized use facilities.
- California Advanced Lighting Controls Training Program (CALCTP)

New Construction – Savings By Design

- Integrated Building Design Assistance
- Whole Building, Individual Systems, and Simplified Approaches

- Integrated design training for architects, engineers and owners
- Partnerships and collaboration with industry groups like the California Council of American Institute of Architects, California Energy Commission, among others
- Zero Net Energy Design Services, like consultation services, student design competitions, research activities, 2010-2012 pilot success adoptions
- Energy Design Resources and Savings By Design – internet portals
- Software tools and expertise

Nonresidential HVAC

- Education of the market on the value of selecting high-efficiency systems
- Reports for customers of estimated energy savings, cost savings and carbon reductions for their HVAC systems treated under the program
- Training for contractors on HVAC industry standards, sales, and marking of the value of those standard, and their implementation in the field
- Education for customers on how HVAC industry standards can help them compare bids of contractor services and select those with high-road skills.
- Customer education about the benefits of establishing a long-term trust relationship with a qualified contractor, which can lead to future energy and cost savings, such as from better planning for future HVAC system replacements and the quality installation of those systems when replaced.
- Participating contractors can receive new business sales leads from utility company customer representatives.
- Improved comfort and indoor air quality for customers.

5) Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Indicators

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."[2] 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[3].

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

[2] California Public Utilities Commission Decision, D.98-04-063, Appendix A.
[3] California Public Utilities Commission (2008) *California Long Term Energy Efficiency Strategic Plan*, p. 5. Available at http://www.californiaenergyefficiency.com/docs/EEStrategicPlan.pdf

relationships, and 9) market structures[4]. Markets are social institutions[5], 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[6] 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[7]. According to York[8], "Market transformation is not likely to be achieved without significant, permanent increases in energy prices. From an economic perspective, there are three 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[9]. 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[10], 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

[4] 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
[5] 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/
[6] 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.
[7] 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.*
[8] York, D., (1999). "A Discussion and Critique of Market Transformation", Energy Center of Wisconsin. Available at http://www.ecw.org/ecwresults/186-1.pdf.
[9] 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
[10] Rogers (1995) Diffusion of Innovations, 5th Ed.

decades[11]. 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[12]. 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.)[13]" The Strategic Plan recognizes that regulatory policies are not yet in place to support the success of market transformation efforts[14], 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[15]. 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[16] 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

[11] 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
[12] Sebold et al (2001) p. 6-5,
[13] 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.
[14] CPUC (2008) Strategic Plan, p. 5.
[15] Nadel, Thorne, Saches, Prindle & Elliot (2003).
[16] Peloza & York, (1999).

information and expertise for this huge effort. This truly needs to be a collaborative approach from the start.

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 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 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.

Program Performance Metrics (PPMs)

The IOUs have evaluated 2010-2012 PPMs in Resolution E-4385 for applicability to the 2013-2014 program cycle and propose to work collaboratively with Energy Division to develop revised program targets and PPMs as appropriate for the 2013-2014 program cycle. The IOUs' will propose revisions in an advice letter, per additional guidance from Energy Division.

Table 3.1 Short-Term PPMs

On December 2, 2010, the Commission issued Resolution E-4385, approving short-term Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. The Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.

SW PROGRAM / Sub-program	SHORT-TERM PROGRAM PERFORMANCE METRIC (PPM)	Metric Type
COMMERCIAL / INDUSTRIAL / AGRICULTURAL COMBINED		
	*1. Number and percent (relative to all eligible customers) of commercial, industrial and agricultural customers participating in sub-programs (NRA, Deemed, Calculated, and CEI) by NAICS code, by size (+/- 200 kW per yr or +/- 50K therms per yr), and by Hard to Reach (HTR)** ** "HTR" is as defined in the EE Policy Manual	2a
Continuous Energy Improvement (CEI)	*1. Number and percent of commercial, industrial, and agricultural CEI participants that meet short-term (2013-2014) milestones as identified by their long term energy plans.	2a
	*2. Lessons learned, best practices, and plan to ramp up the CEI program are developed. (Y/N)	2b
	*3. Number and percent of commercial, industrial and agricultural customers that created an energy plan via CEI will be tracked by program. *1. Number and percent of commercial, industrial, and agricultural customers receiving non-residential audits by NAICS and SIC code.	2a 2b

Non-Residential Audit Program **(Energy Advisor)**	*2. For commercial, industrial, and agricultural customers who received audits, the number and percent of adopted audit-recommended technologies, processes and practices, (Report disaggregated data by type of audit - Basic, Integrated, and Retro-commissioning audit).** (1) **Data sources for reporting will come from (a) program tracking databases and (b) process evaluation to refine estimates. (1) – An audit completed in one portfolio may have measures implemented over several years and portfolios.	2b
Deemed Incentives	*1. Number and percent of new, improved, or ETP measures** installed in the commercial, industrial and agricultural programs. ** "ETP measure" defined as ET measures first introduced into the EE portfolio since January 1, 2006	2a
Calculated Incentives	*1. Number and percent of new, improved, or ETP measures installed in completed calculated projects.	2a
	*2. Number, percent, and ex-ante savings from commercial, industrial and agricultural sector of projects with ETP measures** included. (Report disaggregated savings by measure and number of installations by measure.) ** "ETP measure" defined as ET measures first introduced into the EE portfolio since January 1, 2006	2b
COMMERCIAL		
Commercial Deemed Incentives	1. Number and percent of participating commercial customers receiving the "Integrated Bonus."** ** "Integration Bonus" is an incentive mechanism to promote greater integration of DSM resources, available to customers who (a) sign up or are already signed up for a DSM program, and (b) purchase, install, and/are eligible to receive a rebate for an energy saving device.	2b
Commercial Direct Install	1. Number and percent of Direct Install participants that participate in other resource programs or OBF.	2a
	2. Number of and percent of participants that are hard to reach (HTR).** ** "HTR" is as defined in the EE Policy Manual	2a
Commercial Calculated Incentives (Savings By Design)	1. Average site energy install, ex-ante (kBtu/sq ft-yr and demand (kW/sq ft) for participating commercial new construction by building type and climate zone	2b
	2. Percentage of committed participating Whole Building Approach projects that are expected to reach a minimum of 40% less energy than 2008 T24 codes requirements	2a

Nonresidential HVAC	1. (a) kW/ton incentivized in the program. (Note: Decrease in metric indicates positive progress), combined with (b) the number of units that are incentivized in the program vs. (c) number of units over 5.4 tons shipped to California as tracked through AHRI shipment data. (Assuming the availability of AHRI data.)1 1 As is indicated within this PPM, the availability of item (c) in this PPM is not yet confirmed, since it is closely-held, proprietary third-party information. The IOU team is in discussions with AHRI about obtaining this data and to ascertain the statistical validity of what data would be provided; the IOU team will communicate with the ED about any issues regarding this data element before the first reporting period in Q1 2011 for 2010 information.	2a
	2. The distributor stocking percentage of units eligible for program. (Note: Assumes availability of individual distributor data and/or aggregated data from HARDI.)1 1 The availability of this data is not yet confirmed, since it is closely-held, proprietary third-party information. The IOU team is in discussions with AHRI about obtaining this data and to ascertain the statistical validity of what data would be provided; the IOU team will communicate with the ED about any issues regarding this data element before the first reporting period in Q1 2011 for 2010 information.	2b
	1. Percentage of HVAC contracting companies that are participating in statewide commercial QI program as a share of the targeted market* * ”Target market” defined as C20 licensed HVAC contracting companies in CA.	2a
	2. Average percentage of "certified" HVAC technicians within each contracting company that participates in the commercial QI program.	2b
	1. Measured progress towards specific milestones provided in the project GANTT chart indicating the development/finalization of this IOU program based on Quality Maintenance standards.	2a

Table 3.2 Long Term PPMs

PG&E includes long term PPMs[17] per Energy Division guidance received in December 2012. As stated in the Joint Utilities’ comments to the Commission in R. 09-11-014 dated November 21, 2011, and discussed between IOUs and ED on January 9, 2013, IOUs plan to finalize long term PPMs in further discussions with involved stakeholders and propose updates to Energy Division at a later date.

[17] From the Energy Division’s file “Revised MTIs_10 27 11-formal-release-ED-May-2012.xlsx”

2013-2014 Statewide Program - Subprogram PIP	MTI Index#	RE-CATEGORIZED Metric (LTPPM - or SPI) [E-4385 Appendix B original text except for noted edits]	Unresolved Issues
CIA - CEI	CIA-1	MT Indicator 1: Number and percent of Calculated Incentive participants who go on to implement a long-term energy plan under the Continuous Energy Improvement program.	
CIA – CEI	CIA-3	MT Indicator 3: Number and percent of CEI Participants who achieve all scheduled milestones, as identified in their long-term energy plans.	
CIA – CEI	CIA-4b	MT Indicator 4b: Number and percent of CEI Participants that include greenhouse gas reduction measurement, monitoring and reduction strategies in their long-term energy plans.	
CIA – CEI	CIA-5	MT Indicator 5: Number and percentage of eligible customers participating in the CEI Program	
CIA - Energy Advisor	CIA-6	MT Indicator 1: Percent of NRA participants that implement non-incented measures recommended in the audit.	
CIA – Combined	CIA-16	MT Indicator 2: Percentage of commercial participants, tracked by NRA, Calculated and Deemed subprogram, who go on to implement a long-term energy plan.	Need to define "long term energy plan"; start with CEI program definitions.
Commercial - Savings by Design	NC-10	MT Indicator 2. 2. Percentage of eligible sq footage that participate in commercial SBD	
Commercial - Savings by Design	NC-11	MT Indicator 3: Percentage of completed CNC buildings in IOU service territory that participated in an IOU commercial building design program	

b) Market Transformation Indicators (MTIs)

Per Resolution E-4385 a subset of market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms were presented at a public workshop on November 7, 2011, to allow for public comments and discussion before being finalized. Per guidance from Energy Division received in December 2012, the approved Market Transformation Indicators for 2013-2014 were filed in a Joint IOU matrix with PG&E's January 14, 2013 compliance filing advice letter.

c) Program Design to Overcome Barriers

The 2013-2014 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.

Among commercial customers, there are many market barriers to energy efficiency offerings:

- Commercial customers are a highly diverse and geographically disperse customer class, which requires utilities to develop a large number of differentiated incentive offerings for a variety of distribution channels.
- There is a general lack of awareness of the benefits of energy efficiency, and uncertainty and skepticism over long-term energy and cost savings.
- Energy efficiency improvements are not perceived to add value and marketability of properties.
- Efficient design alternatives can be lost in low-cost bidding scenarios.
- Small business customers are less likely to install EE technologies than larger customers due to lack of time, resources, financial sophistication and familiarity with energy efficiency, among other reasons.
- Building owners, especially landlord owners[18], tend to focus on minimizing capital costs associated with new construction, building renovation, tenant improvements and building retrofits.
- For multi-tenant buildings, property owners often have little incentive to pursue energy efficiency measures due to ubiquitous "triple net" leasing terms that pass through utility costs to tenants, while tenants may be deterred either by short lease terms relative to project payback or by contractual restrictions regarding leased space improvements.
- Institutional owners are often constrained by rigid boundaries separating capital development and operating budgets and are limited by lowest-bid regulations for capital projects.
- Some activities such as Healthcare and Biotech also face strong regulatory challenges with being integrated in energy efficiency offerings (for example: the Office of Statewide Health Planning and Development (OSHPD) and California Division of Occupational Safety and Health (CAL-OSHA).
- In some activities like High-Tech and Hospitality, international competition drives short-term survival attitudes versus a long-term continuous improvement approach. In addition franchises have additional barriers to overcome such as Franchise owner approval.

[18] 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 in EE

- Whole system opportunities are missed by individual equipment vendors, many of which are only specific equipment types or building systems.
- Customers are often not aware of efficiency degradation or failure in building systems or equipment.
- Customers may be reluctant to invest in new energy savings technologies over concerns regarding product quality, reliability or obsolescence.
- 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.
- When appropriate, IOUs will deliver information to customers in a way that bundles relevant EE, DR and other DSM programs and services. For example, the IOUs will develop print and electronic Case Studies that feature customers who have implemented integrated solutions in order to address their energy management needs. 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 Building Owners and Managers Association (BOMA), Department of General Services (DGS), Green Building Council, Air-Conditioning, Heating, and Refrigeration Institute (AHRI), American Society of Heating, Refrigerating, and Air-conditioning Engineers (ASHRAE), Manufacturers Trade Associations, and specific sub-segment professional association as California Hospital Association (CHA), California Society for Healthcare Engineering (CSHE), International Society for Pharmaceutical Engineering (ISPE), 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.
- The utilities will consider one or more demonstrations of a comprehensive whole building approach (WBA) to commercial building energy efficiency. This approach may make available the tools and resources necessary for customer to pursue and integrate multiple customized measures. This approach may also include the deployment of energy management and information systems in demonstration projects that can be used to quantify and analyze energy savings based on various forms of performance data, including interval meter data.
- Multi-tenant buildings have a unique and significant barrier. Most typically referred to as the principal-agent or tenant-landlord split incentive, this issue is characterized by the natural separation of tenant energy efficiency savings and capital expenditures by building owners. The commercial program will incorporate market research and/or market tests to better understand potential programmatic offerings that can help reduce the barrier. Some examples of strategies that might warrant testing include combinations of education and creative tenant/landlord incentives or credits for centralized systems or building shell upgrades, incentives for sub-metering, and plug load control technologies. Additional information about IOU strategies for overcoming the tenant-owner split incentive and the use of sub-metering and plug load technologies can be found later in this document, under Attachment A and B.
- 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 Statewide EE Finance 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.
- The Statewide Finance PIP includes plans to explore and develop additional finance tools to facilitate the adoption of integrated projects.
- Coordination with other parties will be enhanced so that related programs (e.g., water conservation, reduction in greenhouse gas (GHG emissions, LEED™) are clearly and concisely communicated to customers, which should improve participation in all offerings.
- During the 2013-2014 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. The existing energy benchmarking offering will give customers the information required to understand how their buildings perform and how the improvements they make can be tracked.

- To overcome barriers to advanced lighting control adoption, consideration will be given for systems installed by the California Advanced Lighting Controls Training Program (CALCTP) certified contractors. The 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.

d) Quantitative Program Targets

Program targets are provided at the sub-program level. Refer to each Commercial sub-program for more information.

e) 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 (Strategic Plan). Details on these actions are provided in the tables found in the Commercial 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.
  - Implement integrated local integrated marketing campaigns that leverage multiple tactics and multiple communications to present customers with a holistic view of EE and other DSM programs and service offerings.
  -
- 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 retro-commissioning 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:
  - Create customer awareness and educate customers about standardized statewide EE financing and develop additional finance strategies for the commercial section.
  - Continue incentives for on-peak demand reduction related to retrofits and retro-commissioning.
  - 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 Adoption of New 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 while partnering 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.
  - 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:
  - Integrate successful ZNE strategies and activities proven through program and/or pilot projects during the 2010-2012 program cycle. The commercial

program, particularly Savings By Design, will absorb and enhance existing programmatic elements aimed at delivering ZNE best practices to the market place, potentially including but not limited to:

- Project consultations that pair projects with experts capable of driving unique designs to ZNE;
- Provide education opportunities to key architectural, engineering, and other design professionals (see WE&T plans);
- Continue successful design competition elements aimed at ZNE design in the student and professional communities; and
- Explore cost effective ZNE solutions that consider the intersection of building and community energy use

- Facilitate benchmarking and constant improvement by supporting the initiative recently launched by the DOE and Lawrence Berkeley Laboratory.
- Explore joining or continue a 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 Commercial Calculated and Deemed incentive programs to create a delivery mechanism that supports the path to ZNE buildings.

6) Program Implementation

a) Statewide IOU Coordination

i. Program name

Statewide Commercial Energy Efficiency Program

ii. Program Delivery Mechanisms

The Statewide Commercial Energy Efficiency Program will coordinate on a statewide level to ensure the program is continuously updated and enhanced throughout the 2013-2014 program cycle. In addition, the six Commercial sub-programs will be coordinated on a statewide level to align by 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 and how they will be coordinated statewide, please refer to the Commercial sub-program descriptions). The two

coordination systems (one for the broad programmatic level and one designed for the sub-program level) will interact with and support one another. The broad, high-level coordination effort will be described below, focusing on how the IOUs will work together to effect the continuous improvement of the Statewide Commercial Energy Efficiency Program.

The Statewide IOU coordinated effort for the Statewide Commercial Energy Efficiency Program will be as follows:

- Designate an IOU Program "Lead" – The coordination process will begin with each IOU designating a Statewide Commercial Energy Efficiency Program "lead." The IOU lead will represent one Commercial 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 Commercial Energy Efficiency 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.
- 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 six sub-programs), and possibly other contributing stakeholders identified by the IOUs. At the 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 Commercial Energy Efficiency 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 two year 'transition period' will be assured.

iii. Incentive Levels

Incentives for commercial customers will be provided through both prescriptive and customized approaches. Refer to the Commercial Deemed and Calculated Incentive sub-program descriptions for information regarding specific incentive levels.

iv. Marketing outreach plans

Local commercial marketing strategy will focus on helping customers understand the relevance of EE programs and services and enabling customers to take actions that are appropriate to their needs -- including one-time measures such as rebates as well as deeper retrofits. This local EE marketing strategy will be coordinated through a variety of channels and tactics, with the intent of reaching customers at the right place and at the right time to drive increased participation and ongoing engagement.

The IOUs will continue to develop an in-depth segmentation of the commercial market. The results of this customer segmentation will support the development of targeted integrated marketing and outreach plans outlining multiple delivery channels that target customers based on their needs. Such delivery channels will likely include increased customer outreach through trade and community-based associations, third parties, government partnerships and core IOU programs. More specific marketing information is provided in each of the commercial sub-program plans. Local outreach to SMB customers will also leverage a new Statewide ME&O campaign that will focus on creating awareness and educating customers about energy management and integrated DSM.

v. IOU program interactions with the California Energy Commission (CEC), Air Resources Board (ARB), Air Quality Management Districts, local government programs, other government programs as applicable

The Commercial Energy Efficiency Program 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 commercial customers. Conventionally, 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. Refer to the Commercial sub-program descriptions for more specific information on linkages with other government programs.

vi. Similar IOU and POU programs

Several of the initiatives described herein (i.e., California Advanced Lighting Controls Training Program and Office of the Future Consortium) are joint efforts with the other California IOUs and POUs, as well as other domestic and international utilities. In addition to these joint efforts, local third-party programs that address niche opportunities within the commercial market segmented will be implemented in each of the IOUs service territory. These various efforts will be coordinated to ensure a consistent approach in terms of program message, delivery and measure incentives (as appropriate).

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. 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 will consider higher initial incentives for emerging technologies being newly introduced to the market place. Once the new products have taken hold in the market, the incentives will be adjusted to reflect market conditions. The Commercial Energy Efficiency Program is currently working to support a diverse list of emerging technologies including advanced building system controls and LED lighting technologies.

Similar to years past, commercial, industrial and agricultural lighting performance will be reported primarily under the Commercial, Industrial, and Agricultural EE programs. The Commercial Calculated Incentives and Deemed Incentives programs will include non-residential lighting products, including but not limited to, LEDs, linear fluorescents, fixtures, ballasts, and lighting controls.

ii. Codes and Standards

The commercial offering relies on the Codes and Standards program to help 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. It is important to manage the measure life cycle to take full advantage of providing incentives before moving them into code. The program coordinates with the Codes and Standards Planning & Coordination sub-program. Planned enhancements to Title 20 and 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) made available as these technologies transition from 1) R&D to 2) Emerging technologies to 3) Incubation to 4) Mainstream.

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. For the Commercial Energy Efficiency Program, WE&T efforts will focus in the near term on supporting national ANSI Energy Management Certification and the ISO 50001 Energy Management System 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.

The education and training takes place through energy centers, technology test centers, and education and training program offerings.

iv. Program-specific marketing and outreach efforts:

Integrated and program-specific marketing efforts will complement and work in coordination with statewide ME&O to increase awareness, provide education, and drive ongoing engagement and participation in DSM programs and services among nonresidential customers. When appropriate, individual programs will be targeted to customers or industries based on segmentation data and strategy, however, such individual program-specific efforts will be part of a larger integrated approach to customer outreach to Commercial customers.

The integrated Statewide ME&O effort will focus on creating awareness and educating SMB customers about energy management and the local campaign will focus on the ways that customers can engage and take action to participate in EE as well as other integrated DSM offerings.

To address the diverse commercial customers segments, utilities will continue to foster strategic partnerships with trade association 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 providing 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.
- Online content and integration of marketing materials and campaigns with online tools such as audits and other energy demand and usage.
- Targeted customer efforts through assigned account representatives, technical solutions engineers and program engineers, third parties, and government partnerships.
- Telephone 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

Integrated Energy Audits (described in the Energy Advisor Program) and Continuous Energy Improvement are the primary vehicles to promote project solutions that look across the various IOU DSM program offerings, as well as complementary options available through other entities (e.g., water agencies).

vi. Non-IOU Programs

In addition to the interactions with local, state and national programs, there are a variety of programs that will be coordinated with and leveraged in support of the Program objectives. These include:

- Connecting customers with the CA Climate Action 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 CEI section)
- ISO international energy management standards (see CEI section)

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 programs, as appropriate and feasible.

vii. CEC work with Electric Program Investment Charge (EPIC)

As of June 2012, PIER no longer exists. However, the program will interact with the Emerging Technologies Program (ETP) 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 projects in coordination with the applied research of EPIC.

The program will also coordinate with the CEC on the BEARS tool development and launch.

viii. CEC work on codes and standards

As indicated in Section 6.b.ii, planned enhancements to Title 20 and 24 will be reflected in incentive levels and in eligible measures and services.

ix. Non-utility market initiatives

The Commercial Energy Efficiency 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
- LEED
- Zero-net energy
- DOE
- AB1103
- AB758

c) Best Practices

As described in prior sections, the Commercial Energy Efficiency Program reflects the best of each utility program's successful components of statewide Commercial Energy Efficiency Program offerings, and introduces new elements from other utilities and national efforts as well. Best practices include:

- Benchmarking as an appropriate first step for customers to assess their energy baseline.
- 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 a building 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 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 sector: Resources such as industry associations, trade associations, and facility management associations will be leveraged.

d) Innovation

Significant innovative aspects of the Commercial Energy Efficiency Program offering include:

Integration

- Benchmarking will provide customers with an easy and low cost way to assess and monitor their energy use.
- 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 California Climate Registry to support carbon foot printing of a customer's plant.

Marketing

- The Customer segmentation work currently underway will support development of new, super targeted integrated marketing and outreach plans outlining multiple delivery channels that target customers based on their needs.
- IOUs will examine opportunities in the "MUSH" segments (municipalities, universities, colleges, schools and hospitals) for focused offerings in conjunction with all the segmentation plans being deployed. Approximately 12% of PG&E's

proposed portfolio incentive budget has historically gone to the MUSH markets which have generated approximately 6% of the electric (kWh) savings and approximately 12% of the natural gas (therm) savings. PG&E 2013-2014 targets for percent of programs delivered to MUSH markets will be 12% for 2013-2014, however this percentage is expected to increase in the 2013-2014 due to the additional focus on MUSH markets, especially with the hard-to-reach small and medium business customers, and additional third party and local and regional government partnerships serving the MUSH markets.

- 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 Commercial Energy Efficiency Programs.
- Energy Design Resources, developed statewide by IOUs, will be expanded as a web-based hub of commercial and food processing 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.

Implementation

- Utilities will coordinate process improvements for statewide programs to ease participation barriers.
- SMB-targeted local marketing will leverage the heightened levels of awareness and education that the IOUs expect to result from the Statewide ME&O campaign.

Deeper Energy Savings

- Utilities will seek to deliver deeper energy savings to our customers through bundling of measures, continuous energy improvement, innovative auditing, and/or whole approaches.
- Utilities will explore other mechanisms to more highly reward comprehensive energy management retrofits, e.g. premium incentives for bundled measures coupled with an energy audit.
- Utilities will enhance current finance offerings by standardizing statewide financing and exploring innovative tools to leverage additional funding sources.
- Utilities will evaluate approaches which bundle various equipment and technologies to encourage customer adoption of long and short-term payback IDSM measures.

- Utilities will seek to motivate owners and operators of large facilities to undertake improvements through presenting compelling return on investment (ROI) or Payback based business cases to top decision-makers, while strengthening the skills and knowledge of building operators.
- Utilities are considering a number of different, innovative approaches to achieve deeper energy savings; including a whole building approach that integrates both customized retrofit and retro-commissioning in a single, performance-based program offering.

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. To that end, the statewide utilities and the Statewide Commercial Energy Efficiency Program have made tremendous progress in advancing integrated solutions:

- Marketing: In marketing integration, the IOUs are placing 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 attending 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. For example, the California Advanced Lighting Controls Training Program addresses both the energy efficiency and demand response capabilities through the proper design, specification and installation of lighting system controls.

- 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 Energy 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 California Loading Order: 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-based retro-commissioning efforts where the controls to facilitate demand response efforts would be installed. Additionally, any energy efficiency audits required for participation in distributed generation programs will be expanded to include DR opportunities when appropriate.
- Emerging Technologies and CEC collaboration is expected to include initiatives 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 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 Commercial Energy Efficiency 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.

Utilities will pursue opportunities to partner with water agencies to offer joint energy and water incentives in support for projects that reduce both resources, which ultimately improves payback and decrease project costs.

Where applicable, the program will integrate topics like LEED certification into targeted customer workshops, marketing and communications, building on a strong track record from the 2006-8 program cycle.

Third party programs at the utilities will further integrate resources. These third party programs will focus on specific customer segments offering a complete project package that will include integration aspects.

g) Pilots

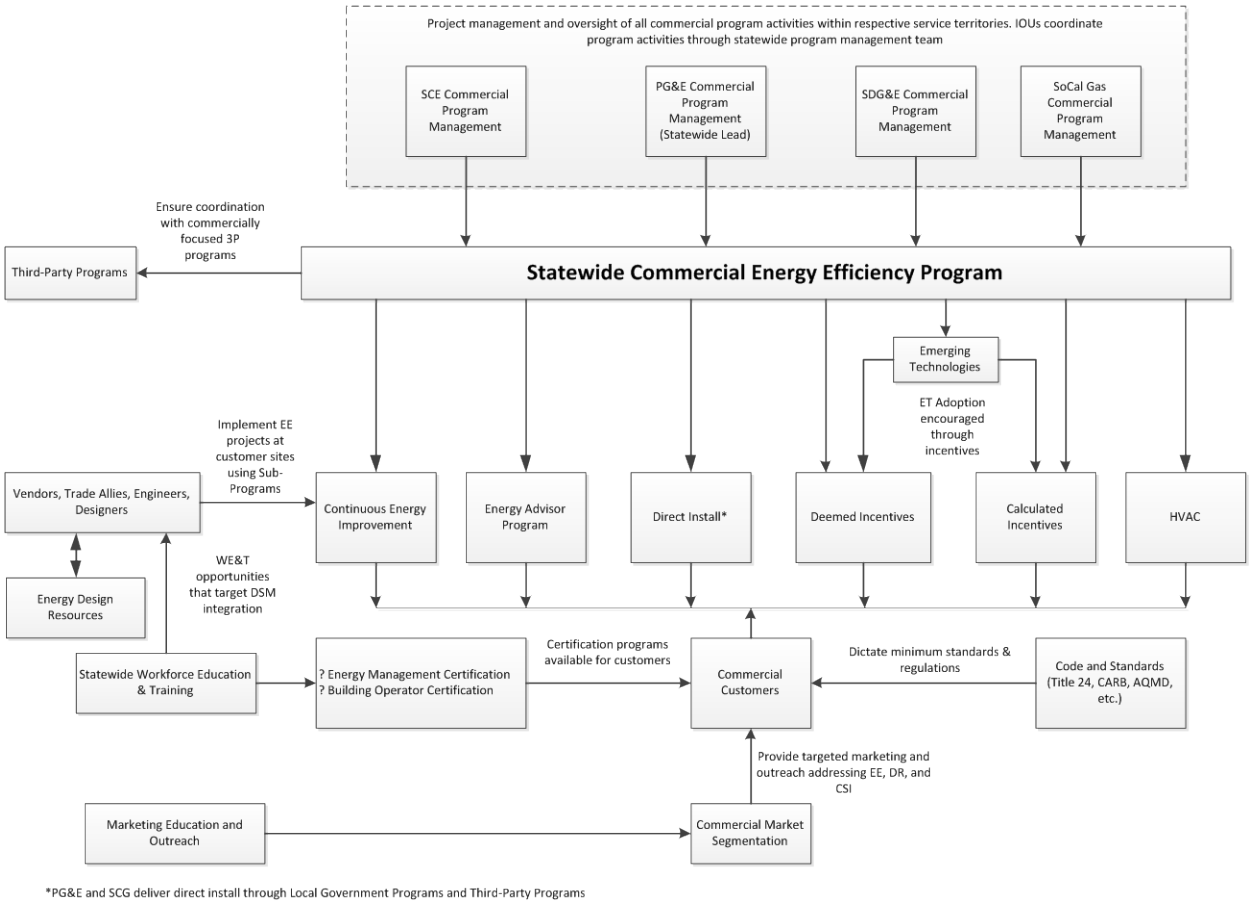
During the course of the two-year cycle, initiatives may be created based on the needs of the commercial customers.

The IOU's intend on implementing methods to gather and retain more detailed performance and usage data on a pilot basis to determine more effective methods and to achieve savings. Exploring incentives for sub-metering is an option as is expanding the tool library in lieu of incentives.

h) EM&V

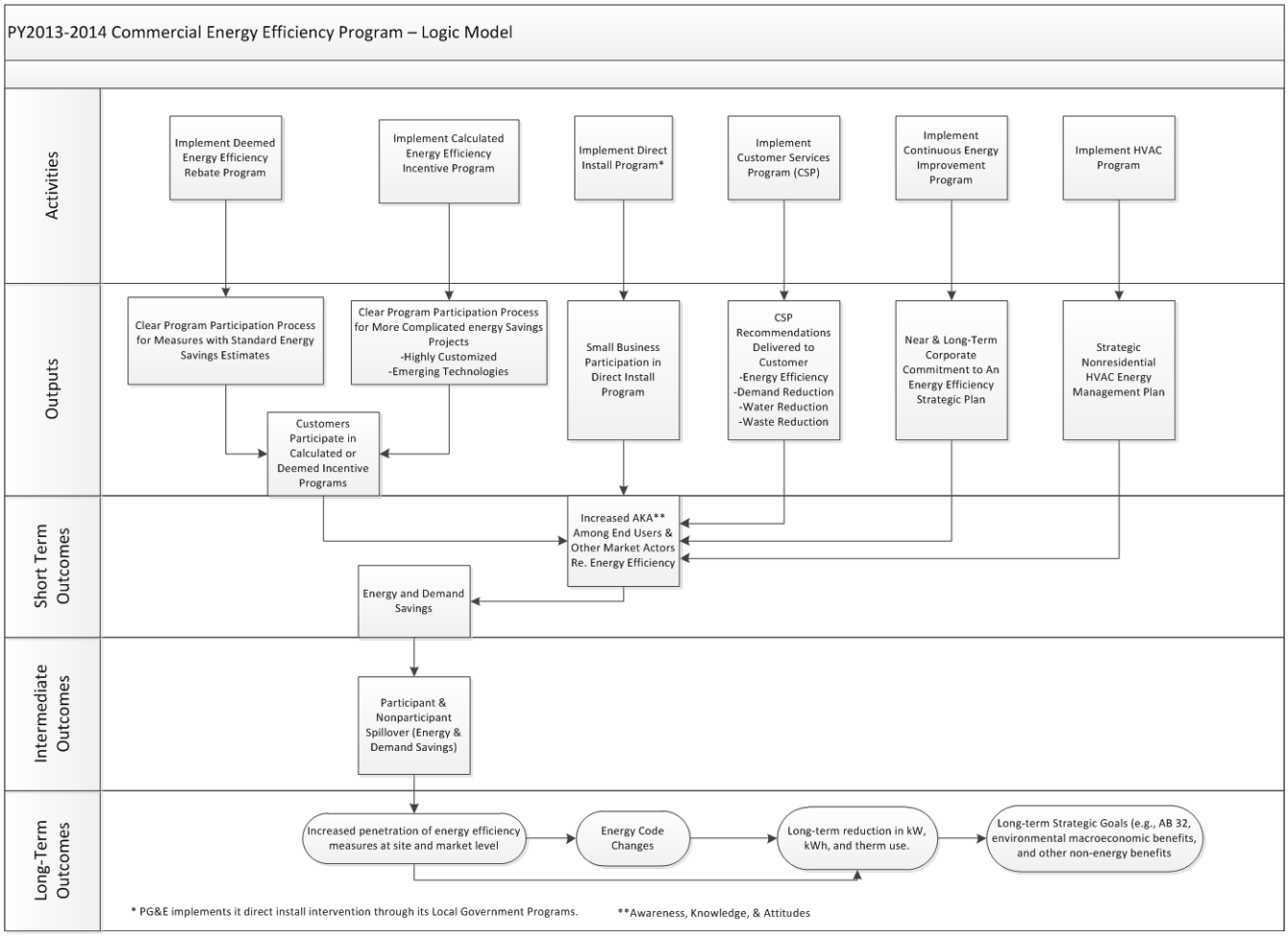
The IOUs will work with the Energy Division to develop and submit a comprehensive EM&V plan for 2013-2014 cycle, after the program implementation plans are filed. This plan will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More details plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the utilities and Energy Division. Development of these plans will occur after the final program design is approved by the CPUC, and in many case, after the program implementation has begun, since the plans need to be based identified program design and implementation issues.

7) Diagram of Program



8) Program Logic Model

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. Below is the approved logic model for the Commercial Energy Efficiency Program.



2b) Commercial Energy Advisor Program, core sub-program, PGE21014, core

4) Program Description

a) Describe Program

The Statewide Investor Owned Utilities (IOUs) have created the Commercial Energy Advisor Program to bring together under one program all services offered to support customer education and participation in energy efficiency, demand response and self-generation energy reducing opportunities and benefits, along with awareness of greenhouse gas and water conservation activities.

The Commercial Energy Advisor Program was created to provide a streamlined and coordinated assignment of right-sized customer solutions. The key is to start the process with an initial analysis of a customer's needs, determination from the analysis which audit will service the customer with the highest cost/benefit, identify additional program support and key indicators that will motivate the customer to implement energy saving recommendations

The utilities anticipate the restructuring of the Commercial Energy Advisor Program will affect the way audits are provided. The Energy Advisor Program will enhance the IOUs' ability to match customers' need(s) with the right audit service. This will result in an increased cost-effective delivery of these audit services with an increased expectation for customer adoption/installation of provided customer specific recommendations.

In its offerings, Energy Advisor Program will place an emphasis in deep energy saving measures and emerging technologies where appropriate. When the technologies and customer opportunities are correctly aligned, the customer will become more open to the benefits these technologies offer to their business and will therefore increase their acceptance and adoption.

Together the Energy Advisor Program offerings will work to support the achievement of Strategic Plan objectives across all non-residential segments.

The IOUs believe this approach is the best way to influence market transformation, serve customers' needs, and increase adoption of DSM solutions.

The Commercial Energy Advisor Program package consists of six (6) distinct offerings:

- **Benchmarking** is the first step for a customer to begin to understand the energy use of their building. Benchmarking is an initiative designed to educate and motivate customers to measure and track the energy use of their facilities, educate customers of the benefits of benchmarking their facilities and how they can track the impact of energy savings after implementing energy saving measures. To support the customer's efforts, the IOUs will

offer technical support, hands-on workshops that will provide customers with information on how to benchmark, how benchmarking can be used as an energy management tool and what to do next after benchmarking.
The IOUs will develop or continue benchmarking initiatives that supports the customers' ability to comply with AB1103's benchmarking requirements (upon its implementation), utilizing ENERGY STAR Portfolio Manager and IOU supported Automated Benchmarking Services.

The IOUs will also continue to offer customers technical support ranging from email and phone hotlines, hands-on workshops and web-based benchmarking educational and instructional materials.

Support will continue to identify, evaluate and make information disposable about other benchmarking tools available.

The primary focus for benchmarking activities will continue to be centered on commercial buildings (in alignment with the target building type of AB 1103).

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- **Online Energy Audit Tool (Small Business):** The online audit tool is an enhanced, customer friendly "do-it-yourself" web-based audit tool targeting small business customers. The online audit tool offers an integrated auditing approach providing energy efficiency, demand response and self-generation recommendation and education. [19]

  With large numbers of small business customers in each IOU's service territory, it is necessary to offer and test different cost-effective strategies that can help small business customers maximize their energy use.

  The IOUs will confirm their implementation timelines and once their tool is rolled out, they will initiate a continuous improvement cycle to ensure the benefits and features of the tool are meaningful for customers use. As the timing is appropriate, the IOUs will initiate marketing campaigns to raise small business customer awareness of the tool's availability and benefits.

[19] The online energy audit tool is a continuation of the Universal Energy Audit Tool (UEAT) from the 2010-2012 program cycle and is also referred to in the Commercial Energy Efficiency Program logic diagram)

Per the Final Transition Period Decision, IOU implementation timelines occurring beyond 2012 are listed below. Note: PG&E implemented its Residential tool, in compliance with CPUC directives, in Q1 2012.

Audit Type	Description	IOU	Small Business	Residential
Online Energy Audit Tool	The web-based energy audit tool (also known as the Progressive Energy Audit Tool) provides Small Business and Residential customers with a customized audit designed to help customers understand their business and/or home energy use. The tool provides concrete customer suggestions about ways to maximize their energy efficiency (EE), demand response (DR) and distributed-generation opportunity.	**SCG**	**Q2 2013**	**Q4 2012**
		SDG&E	**Q2 2013**	**Q4 2012**
		PG&E	**Q4 2012**	**Q1 2012**
		SCE	**Q1 2012**	**Q1 2012**

- **Continuous Energy Improvement (CEI)** is a consultative service aimed at helping customers (utilities will target CEI services in line with market segment potential in their service territories and resource availability) engage in long-term, strategic energy planning. Corporate energy management is not currently part of normal business operations for the majority of utility customers. 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 which address energy savings, reduction of greenhouse gas emissions and water conservation, through high-level energy commitments from executive and board-level management.
  CEI offers customers the pinnacle of audit offerings guiding executive management to levels of energy management self-actualization that makes energy and environmental issues a consideration in all management/business operational decisions and in long term energy planning. For additional information about CEI, please consult the CEI Program Implementation Plan.

- **Non-Residential Audits (NRA)** for the Transition Period will provide Integrated Comprehensive Energy Audits (ICEA) that focus on customer energy savings, cost/benefits, and the targeted delivery of financial and technical assistance. Audit information must communicate complex information in a simple and understandable way to enable customers in identifying energy efficiency, demand response and distributed generation opportunities. Audits use “ex ante” deemed and calculated methodologies for energy savings analysis information.

As stated above, NRA offers two (2) categories of audits – basic and integrated.

Audit Type	Description	Detail	SCG	SDG&E	PG&E	SCE
Integrated Comprehensive Energy Audit	The ICEAT audit is a customized audit specifically designed to help customers understand and identify their facility's energy use and provide concrete suggestions to maximizing energy efficiency (EE) demand response (DR). and distributed-generation opportunity as defined by the customer's need.	Phone	YES	YES	YES	YES
		Online (Web-Based)	YES	YES	YES	YES
		Onsite	YES	YES	YES	YES

This program cycle, emphasis will be given on meeting requirements of the California Long Term Energy Efficiency Strategic Plan (Strategic Plan), streamlining the audit process increasing its efficiency, lessoning complexity, and increasing the effectiveness of influencing customer implementation actions through actions such as integration of the demand response technical audit component directly into NRAs offerings. In addition, the IOUs will investigate ways to implement meaningful financial measurements such as return on investment (ROI) and/or simple payback metrics. The key is ensuring financial tools selected provide the customers with meaningful information by ensuring cost assumptions are appropriate to the customer. Also, NRA will assume the audit and budget responsibilities for Demand Response's technical audit services, as applicable. It is intended that these audits will be a critical component of the integrated comprehensive audit service offering.

- **Pump Efficiency Services** is designed to help commercial customers make informed decisions about improving inefficient pumping systems and operations through recommendations derived from pump test audit or direct observations of processes. Pumping of water is estimated to account for more than 80% of the electric load and 73% of the natural gas requirement in California in the agricultural segment and 73% of the natural gas requirement in California's agriculture segment, and this load is growing as the state's water users increase their reliance on pumping water to meet their needs. Pumping is also estimated to account for 20 to 25% of energy usage within the nation.

  The Pump Efficiency Services program element, implemented by a team of trained in house or third party contractors, aims to overcome key informational, technical, and financial barriers to pump optimization by offering pump tests, retrofit incentives, and targeted education, training and technical support for customers and pump companies. Each IOUs database of pump test results will be used in the near-term to target pumps in need of retrofit as a means to capture savings. However, pump performance data

aggregation at the statewide level will contribute to the development of metrics and targets for pump improvements, in support of a statewide pumping focus across segments, in agriculture, commercial and industrial, supporting their strategies and objectives.

The IOUs will continue to offer pump testing services at no or low cost and pumping system efficiency workshops through their energy education centers or other event opportunities.

- **Retro-commissioning Audits:**
  The IOUs are planning to continue and enhance their core Retro-commissioning (RCx) programs. RCx is a systematic process for optimizing an existing building or system's performance by identifying operational deficiencies through in-depth audits and making necessary adjustments.

  The RCx element is designed to optimize existing building or system performance by identifying operational deficiencies and making necessary adjustments to correct the deficiency. RCx is offered to agricultural, commercial and/or industrial customers based on the market segment potential and resources of the respective IOU. The range of projects may involve measures which reset, repair or replace existing system controls and components. Simple paybacks for these measures are usually short in duration and must meet customer expectations. Through the RCx audit assessment report, comprehensive projects are identified and referred to other sub-programs for completion (i.e., Commercial Calculated and Deemed Incentives). Energy savings from projects identified through RCx will be claimed in the Commercial Calculated Incentives sub-program.

  Enhanced RCx program elements will explore and may include but not be limited to:

  - Innovative approaches to measure identification, automated baseline capabilities, and savings quantification;
  - Continuous commissioning and monitoring-based commissioning;
  - Solutions for small and medium commercial customers;
  - Strategies to drive savings persistence;
  - Appropriate alignment with retrofit activities;
  - Overall program incentives, targeting, and delivery.

The RCx program is a key offering in the Commercial Calculated sub-program and a more detailed description of the program is provided in that section.

The Energy Advisor Program strategy focuses on simplifying the way audits are provided to customers. Through various assessment functions, the IOUs will work with the customer to identify the best, most cost-effective solution and the one with the greatest potential to motivate the customer to implement energy saving solutions (i.e. primarily EE, DR, and SG).

It is anticipated that the Commercial Energy Advisor Program will allow the expansion of audit serves across diverse class of customers, potentially across all segments and will interconnect the customer with the wide and diverse range of programs offered. From a customer perspective, the impact on customer time and resources will be reduced, the audit analyses will include, where applicable, DSM, greenhouse gas reduction information, provide water conservation recommendation all in a single report. The resulting report will identify comprehensive solutions that will simplify the customer decision-making process.

The primary program objectives for 2013-14 are:

- Support the Strategic Plan by offering integrated audits across a wide selection that address the full spectrum of energy solutions, including energy efficiency, demand response, and distributed generation (California Solar Initiative and distributed generation) focusing on customer facilities as defined by each IOU's market potential and resource availability.
- Provide a focus on the "MUSH" market (municipalities, universities, colleges, schools, and hospitals) to test ideas for deeper energy savings efforts. Commercial sub-programs that will address this effort include the Commercial Calculated Incentives, Commercial Deemed Incentives, Energy Advisor, Nonresidential HVAC and Direct Install (PG&E currently delivers direct install services through its local and regional government partnerships and various third party programs).
- PG&E will enhance its current program and product offerings of energy efficiency in 2013-2014 through: (1) additional financing options; (2) additional third party and LGP solicitations and contracts; (3) increased focus on the hard-to-reach small and medium commercial markets, new incentives trials to motivate MUSH customers to perform high impact energy audits; (4) new incentives trials to motivate MUSH customers to bundle DSM measures that enhance each other and create deeper energy savings; and (5) increased incentives for new emerging technologies available to MUSH customers. It is not possible to predict the number of additional Third Party contracts that may result from new Third Party solicitations in 2013-2014.
- The continuation of delivering high value audit reports to the customer. Audit reports will be designed in such a way that they will provide the customer with information which motivates them to implement energy efficiency, demand response and consider renewable generation options.
- Enhance efforts to identify and provide financial analyses focused on deeper energy savings and technologies. Identify ways different financial metrics, such as return on investment (ROI) and/or simple payback, can be provided where the values presented have meaning to the customer.
- The IOUs will explore and evaluate the potential of enhanced customer incentive options that are contingent on a customer's receiving an audit prior to applying to incentive programs.
- Incorporate new and/or emerging technologies appropriate for the customer's facility.

- Develop and implement enhancements to current benchmarking workshops (targeting commercial buildings) and continue providing benchmarking and AB 1103 technical support through established and new delivery channels.
- Encourage statewide consistency by offering a similar energy audits with the ultimate goal of offer customers the best energy management practices and technologies.
- Review and evaluate the CEC's Building Energy Asset Rating System tool (BEARS) once the CEC has completed developing the tool. The successful implementation of testing the new BEARS audit tool will depend on its timely release. BEARS is currently slated for completion at the end 2012. If the release of the BEARS tool is significantly delayed then the implementation of a successful pilot will also be delayed.
- Enhance the Energy Advisor Program offerings by including activities such as, but not limited to:
    - The highlighting of emerging technologies and deep energy savings opportunities and providing education on long term energy planning/project management strategies (in coordination with the Commercial CEI program).
    - Will continue existing water saving services and develop Leak detection services and strategies which will offer the service to customers in all customer segments as determined by the IOUs to provide customer benefits and cost-effective to administer. The services will, be offered through the use of audit teams, in house and/or contracted, and may be required as a service in the delivery of all integrated comprehensive audits.
    - Energy Advisor Program will play a key role in exploring options regarding identifying deep energy savings, promotion of emerging technologies and providing the proper support to those customers who take advantage of more than three (3) measures from Commercial Deemed Incentive subprogram.
    - Energy Advisor Program will develop processes to assist energy audit teams and customers identify facilities and services that will provide the greatest return on benefits from the audit. The IOUs may explore leveraging tools to complete energy audits, usage analysis, assessments and/or building performance benchmarking as the first step in determining a customer's need.
    - Energy Advisor Program may also enhance tracking and audit component capabilities to support customer needs analysis, reduce program application barriers, maximize recommendation follow up and streamlined audit report generation.

The technical assistance provided through the audit products help customers overcome barriers, including lack of technical resources and cost barriers, and guide customers to relevant IOU incentive and/or finance programs and beneficial non-IOU programs. Integrated audits for large customers summarize the effect of utility incentives on the first-cost and lifecycle benefits of energy efficiency actions.

Cost effectiveness calculations enable the customer to make financial decisions to implement projects. Integrated audits for large customers will include ROI/IRR and payback with and without incentives. Current remote auditing tools provide customers with a simple payback calculation. The forthcoming Universal Energy Audit Tool (UEAT) will also have calculations for payback and simplified ROI. As a further enhancement, IOUs will explore the applicability of adding more detailed ROI calculations to UEAT.

To support the core utility programs, Nonresidential Audits will provide Savings Calculation Assistance (SCA), targeted to specific end uses and systems, to support a seamless customer experience. IOU engineers or contracted energy engineering firms 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.

RCx audits, also part of the Energy Advisor Program, offer a systematic process to identify operational problems or inherent repair and maintenance deficiencies that waste energy. Customers have an opportunity to correct these deficiencies and operational problems with the help of incentives provided through the commercial calculated sub-program. 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 through other channels. O&M items with an effective useful life greater than 3 years will also be identified through this assessment. Additionally, opportunities often exist to optimize existing systems to operate more efficiently than originally designed with minimal new capital outlay. Building on early RCx implementation for commercial segments, the program offering is being expanded into the Agriculture and Food Processing markets.
RCx will be offered as a bundle of products and services. RCx service providers will perform several tasks to identify measures. These tasks include, but are not limited to:

- Initial energy benchmarking
- Collecting data to quantify the owner's operational requirements
- Performing detailed on-site RCx assessments to evaluate operational deficiencies and/or operational optimization opportunities inclusive of improved and enhanced preventive maintenance and repair programs
- Defining measures and quantifying implementation costs and savings
- Assisting customers with measure implementation
- Verifying completion of measures
- Providing post-installation documentation and training as well as other activities in support of persistence
- Conducting post-project energy benchmarking

IOUs will discuss and consider various options for customer engagement in energy audits and implementation of energy efficiency, demand response, and distributed generation recommendations. Such options may include co-payments, rewards, and case studies to promote desired outcomes.

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, and demand control ventilation).

b) List of Measures

The Commercial Energy Advisor Program primarily offers non-resource, auditing services. It does not offer incentives, but ultimately influences the customer's implementation of energy efficiency, demand response, and self-generation opportunities in combination with incentive from the core commercial incentive programs (refer to the Commercial Deemed and Calculated Incentives sub-programs for specific information). However, each utility reserves the ability to offer incentives specific to the Energy Advisor Program's individual service offerings.

c) List Non-incentive Customer Services

The Commercial Energy Advisor Program sub-program is designed to deliver a coordinated and customer specific service. The Energy Advisor Program features a statewide integrated demand side management customer specific solution that promotes energy efficiency, demand response, distributed generation and emerging technologies as appropriate to the customer's need(s).

Such activities include, but are not limited to: energy management assessments, energy planning, marketing and outreach, baselining and benchmarking, project implementation support, technical support, energy savings calculations, process evaluations and report generation, and web-based energy resources.

5) Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Indicators (MTIs)

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 3 – Refer to the overarching program for quantitative baseline metrics

b) Market Transformation Indicators (MTIs)

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics and goals are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

c) Program Design to Overcome Barriers

The Commercial Energy Advisor Program offers services that address corporate/management cultures that prevent successful implementation of comprehensive energy policies. These offerings help overcome customers' lack of awareness of DSM opportunities by providing a customer focused, comprehensive package of energy solutions designed specifically to motivate the customer to implement recommendations. Information such as cost/benefit analysis (i.e. ROI or simple payback) and identification of appropriate IOU incentive and/or finance programs, can significantly enhance the financial benefit of the energy saving recommendation. Commercial Energy Advisor Program also provides customers with tools to measure the effects of implemented energy savings actions on their bottom line.

Commercial Energy Advisor Program brings together audits and related services to implement energy saving activities.

d) Quantitative Program Targets

The targets provided herein are best estimates, but nonetheless are forecasts of audits to be performed.

Table 5

	Audits Performed	
	Commercial	
	2013	**2014**
Pacific Gas & Electric	3700	3700

e) Advancing Strategic Plan goals and objectives

The Energy Advisor 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 Strategic Plan that are addressed by the Energy Advisor Program include:

- Facilitate all State-Owned and Leased Buildings having a Retro-Commissioning option

  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.

- Strengthen Tools and Practices for Building Commissioning

  Based on the IOUs' experience with managing the Retro-commissioning program, lessons learned and best practices can be integrated into the 2013-2014 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 and services may be extended to all segments as deemed appropriate by each IOU.

- Identify New and Improved Tools and Strategies to Reduce Energy Consumption in commercial facilities

  Starting with energy conservation and proceeding to distributed generation and demand response opportunities, the benchmarking, CEI, NRA and RCx, 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, commercial customer processes and equipment, facility envelope upgrades and enhancements). Recommendations for retrofit opportunities within existing facilities contribute to California's zero net energy goals. Once implemented, recommendations for operation and maintenance (O&M) practices on on-going commissioning will ensure that customer facilities continue to operate in an efficient manner.

- State/Local Governments and Major Corporations Commit to Achieve EE Targets

  The Energy Advisor Program's offerings will seek 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 an actionable plan to achieve these goals; (4) guide 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 Strategic Plan.

- Develop Tools to Reduce Energy in Commercial Facilities

  As part of the implementation of specific the Energy Advisor Program offerings, the IOUs will partner with energy industry peers, industry associations, and DOE/CPUC-sponsored labs and consultants to enhance the use of existing tools and explore new tools to help commercial customers reduce initial energy usage at their facilities, then continue to operate their facilities in an efficient manner. Current tools used for benchmarking tools and resources include those developed by the EPA for ENERGY STAR and by Lawrence Berkeley National Lab (LBNL) with CEC funding:

  - Management Standard for Energy SME2000-2008.
  - EPIC Superior Energy Performance.
  - ISO-50001.

- Develop Business Models to Deliver Energy Management Solutions

  The Energy Advisor Program's offerings will address the fundamental purpose to influence decision making practices from commercial customers 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 agricultural market sector.

In addition, the Energy Advisor Program's offerings promote acceptable practices of accounting, auditing, and evaluation by:

- Offering integrated and focused audits, benchmarking, savings calculation assistance for retrofit and retro-commissioning opportunities, 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 deeper energy efficiency savings.
- Long term energy planning support.

6) Program Implementation

- Assess and identify the best way to support the use of CEC's BEARS tool.
- Enhanced current benchmarking workshops and continue providing benchmarking and AB 1103 technical support through established and new channels.
- Emphasize and support integration in emerging technologies and deeper energy savings opportunities.
- In coordination with incentive programs, identify ways to streamline the end to end process for customers wanting to participate in utility energy saving programs.

a) State IOU Coordination

i. Program name: Commercial Energy Advisor Program

ii. Program delivery mechanisms

The Energy Advisor Program will employ a variety of delivery mechanisms or channels. Most of Energy Advisor Program's offering will use IOU customer energy efficiency staff and contractors, service and sales representatives, website and/or marketing and outreach efforts. Other delivery channels may also be developed.

In addition, where applicable, Utility customer account representatives or program management staff will support this activity within the statewide commercial sector, as well as third parties, government partnerships, and local programs.

iii. Incentive levels

N/A

iv. Marketing and outreach plans

A comprehensive audit marketing plan will be aligned and coordinated with the marketing plans for each of the IOUs in order to maximize effectiveness, integrate offerings, and as appropriate refer customers to relevant DSM programs.

Additionally, IOUs may investigate piloting alternative channel marketing, such as social media tools, and outreach options that might include community-based organizations and/or third parties to recruit small businesses and influence them to take actions that result in energy efficiency improvements. IOUs may investigate and test efforts to leverage relationships with trade associations as a way to increase cost effectiveness of reaching customer groups.

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

The Energy Advisor Program's energy recommendations will continue to recognize the regulations required by other bodies. For example, information about GHG reductions resulting from AB 32 may be incorporated into the customer recommendations and to factor into the projects cost-effectiveness and water conservation information will be included in the reports as appropriate.

Program offerings will collaborate and support the CEC's AB 1103 mandate by assisting customer with technical and awareness activities. The Energy Advisor Program will advance the introduction of the BEARS and California Rating Tool where reasonable.

The Commercial Energy Advisor Program recognizes the efforts of the CEC's Green Building Initiative programs, DOE's "ISO plant certification" programs, EPA EnergyStar Portfolio Manager benchmarking, EPA Building Performance with Energy Star and other programs, USGBC LEED certification, and local and other government incentive programs and will leverage such activities to the customer's benefit.

b) Program delivery and coordination

The sub-program will be coordinated with the following activities, as applicable:

i. Emerging Technologies (ET) Program

The IOU Energy Advisor Program Management Team will stay abreast of and incorporate relevant emerging technologies into audit recommendations as appropriate.

ii. Codes and Standards Program

The Energy Advisor Program implementation will include information about pending new codes and standards that may affect planning or prioritization of

retrofit or new construction projects. Audits reports will include customer recommendations that are consistent with current governing codes.

iii. WE&T efforts

The Energy Advisor Program implementation will integrate with WE&T efforts, as needed, by providing CSI process, lessons learned, and case study input to energy engineering curriculum designers for community colleges and universities. This activity will be coordinated through the Statewide WE&T program team and will ultimately be integrated into the web portal that team is now developing. IOUs will assess and support specialized WE&T training to help target working energy management professionals, industry professionals, and those pursuing education in universities and colleges.

IOUs will also continue with WE&T coordination to bridge the linkages and integrate sector strategy approaches, as required.

iv. Program-specific marketing and outreach efforts (budget provided in Table 1)

In 2013-2014, the Commercial Energy Advisor Program marketing campaigns will provide a wide range of action-oriented solutions targeted specific segments and sub segments of business customers. In addition, a broad range of marketing activities will be used to promote audits and increase customer engagement, including actions recommended in past EM&V studies to enhance program performance. Such activities include direct personal marketing through Account Representatives and energy efficiency staff--at customer facilities, education and training events, regional meetings, conferences and trade shows--as well as through traditional marketing approaches such as web channels and integrated marketing collateral. Audits will also be an integral piece of Continuous Energy Improvement customer engagement, identifying the technical opportunities that can be used to populate energy action plans. As appropriate, marketing activities will be coordinated between IOUs and between DR and Distributed Generation departments within PG&E.

The central message in promoting audits will be that they provide customers a technical roadmap to reduce costs and improve performance, and that they identify utility and financial resources available to support projects.

To aid in future project targeting and marketing efforts, audit recommendations will be placed in a centralized audit database to enable follow up through appropriate delivery channels. Aggregated audit results and recommendations will also enhance ongoing market segmentation efforts.

v. Non-energy activities of the program

Integrated audits are a key tool for identifying non-energy opportunities for specific customers. These opportunities will be pursued whenever possible.

vi. Non IOU programs

The Energy Advisor Program reports will include information on Non-IOU Programs to expose customers to funding, such as from air or water agencies, to support integrated efforts. The Commercial Energy Advisor Program will partner with programs offered by CEC, ARB, Air Quality Management Districts, ENERGY STAR, and other government and quasi-governmental agencies to capitalize on opportunities to develop co-branded program information and marketing collateral target to commercial sector customers, as opportunities present themselves.

With respect to water conservation, IOU program managers will look for opportunities to partner with the local water districts to co-brand marketing collateral, attend trade shows, co-release notices, for programs with interactive water and energy effects (ESPM, BEARS, California Rating Tool, Water Agencies and others).

vii. CEC work with EPIC

The Energy Advisor Program implementation will continue collaboration efforts with the CEC and seek to promote adoption of new technologies developed through the CEC's processes and to educate customers to demonstration, research and/or pilot projects. Specific Energy Advisor Program offerings will encourage recommendations addressing new technologies, processes, and methods, as identified in CEC projects, which will enable customers to achieve energy efficiency "stretch" goals that produce significant energy savings beyond an established baseline in a cost-effective manner.

viii. CEC work on codes and standards

The Energy Advisor Program will not be implemented with a direct linkage to codes and standards efforts. Although the Energy Advisor Program will reflect code and standards regulation in its energy savings calculations as deemed appropriate.

ix. Non-utility market initiatives

Education about federal tax incentives for energy efficiency investments is an example of non-utility information and guidance that the Energy Advisor Program offerings will provide to customers. In addition, the IOUs will participate in state and national efforts to develop and/or improve benchmarking tools and services that can be used by customers to better facilitate their adoption of sustainable energy management practices.

c) Best Practices

The IOUs will continue to leverage best practices and lessons learned at regularly scheduled statewide program management meetings. These meetings are forums to discuss program design and implementation issues, and as appropriate provide statewide collaborated guidance in RFP solicitations and awareness of program offerings so customers operating multiple facilities across IOU service territories receive the same customer experience.

Other best practices approaches apply the principles of well-known business continuous improvement programs, such as Lean Six Sigma and ISO standards, to facility and plant energy management, in order to achieve widespread adoption of long-lasting sustainable energy management practices in the market sectors. As stated above, these principles are: (1) Commitment, (2) Assessment, (3) Planning, (4) Implementation, (5) Evaluation, and (6) Modification. This approach will continue through the two-year program cycle for 2013-2014, allowing longer-term and deeper project development engagement with customers.

d) Innovation

For 2013-2014, the IOUs are identifying and evaluating program processes to increase effectiveness, simplification and increase the benefits the program delivers. Each IOUs set of lessons learned from these efforts will be shared and implemented to enhance energy savings benefits to all California IOU customers.

The Energy Advisor Program will engage in a process of continuing improve as a new standard way of packaging energy efficiency, demand response and self-generation 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.

Depending on the outcome of the 2012 process evaluation, CEI may consider customer incentives to accelerate project implementation (including IDSM projects), and reward customer for implementing strategic energy management.

e) Integrated/Coordinated Demand Side Management

The Energy Advisor Program will provide a comprehensive approach for integrated audit services. Its services will have the flexibility of meeting every level of a customer's audits needs from integrated comprehensive audits to targeted or focused audits, which centers on specific systems or processes, to assessments or general walk through audits or online "do-it-yourself" audits (currently for small business customers), which when properly applied can assist in identifying the areas of a customer's greatest energy

interest, financial capabilities of the customer's ability to invest in improving its energy use, and identification of other programs that can be brought into the discussion to motivate a customer to move forward with the energy saving plan.

The scope of services offered can coordinate the audit to look for retrofit or retro-commissioning opportunities; with benchmarking tools, or long term planning. Audit reports can present a truly integrated analysis to customers, seamlessly providing them with information and recommendations regarding energy efficiency, distributed-generation, demand response, greenhouse gas emissions and water energy savings, Customers will be referred to other IOU programs that will help them implement the recommendations resulting from the audit report and thus will be given a complete picture of their energy usage and options for reducing costs and using energy more efficiently.

f) Integration Across Resource Types

The Commercial Energy Advisor Program will focus on DSM integration.

The Energy Advisor Program implementation will include information on Non-IOU programs to expose customers to funding, such as from air or water agencies, to support integrated efforts. IOU Energy Advisor Program managers will partner with the appropriate programs, when applicable, with government agencies to capitalize on opportunities to share program information, marketing collateral, and financial incentive analysis with customers.

Conventionally, 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 provide information about the mutual benefit of combining complementary resource programs.

In the effort to promote the Energy Advisor Program offerings, IOUs will seek out customers interested in complementary resource programs such as provided by water and air quality agencies. With respect to water conservation, utility program managers will collaborate with the local water districts to produce marketing collateral, attend trade shows, and co-release brochures, for programs with interactive water and energy effects.

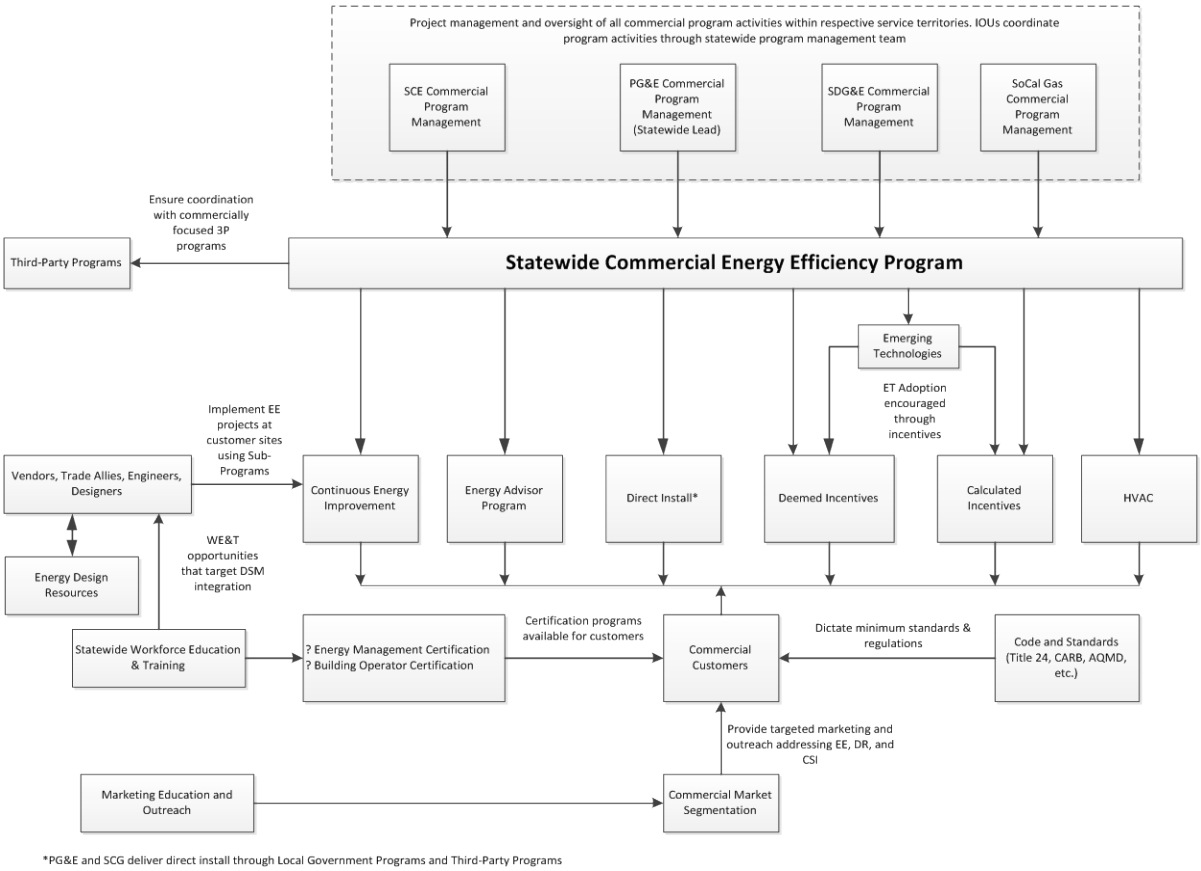
g) Pilots

The Energy Advisor Program services may consider the development of test markets especially in the introduction of new energy benchmarking or saving tools.

h) EM&V

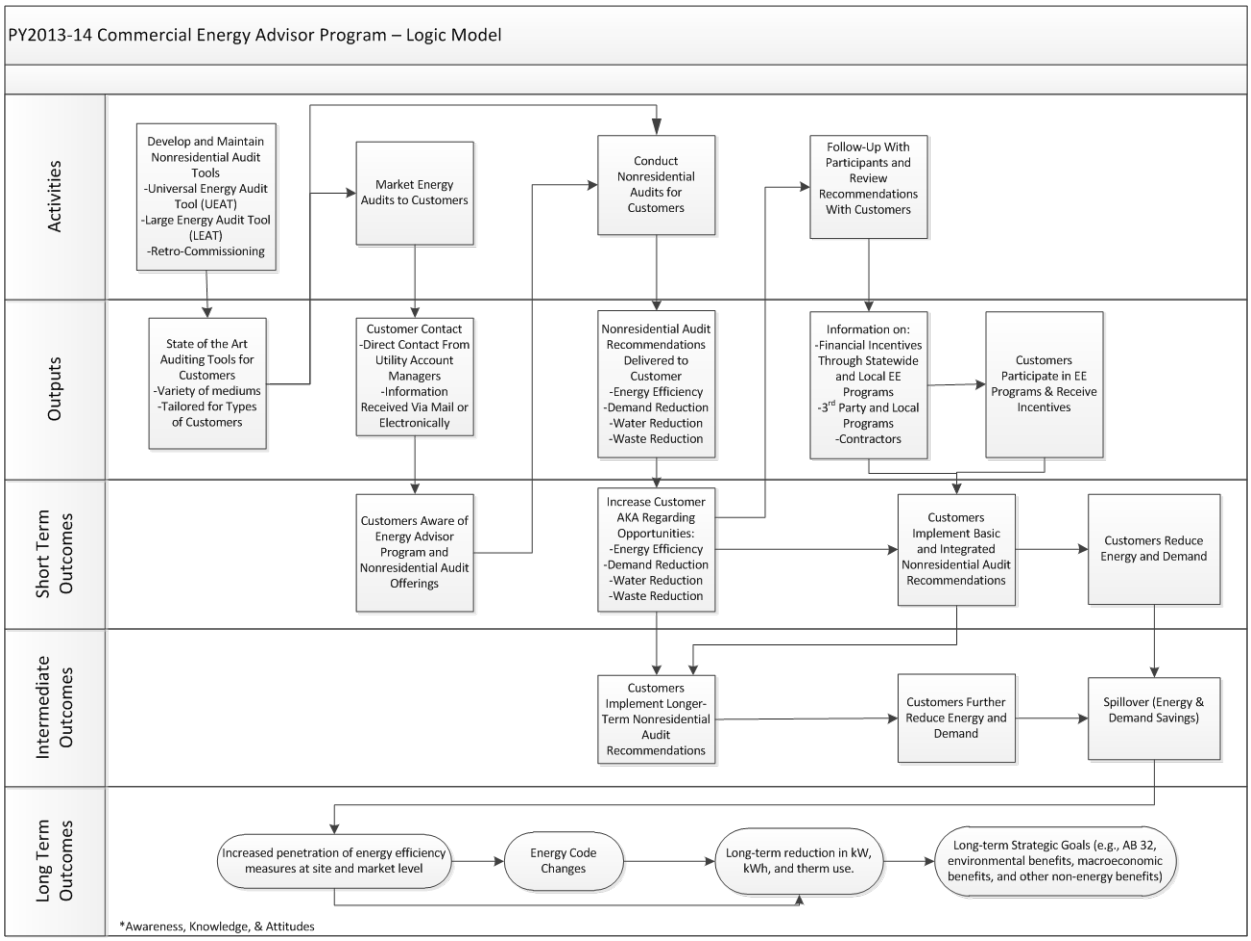
The IOUs will work with the Energy Division to develop and submit a comprehensive EM&V plan for 2013-2014 cycle, after the program implementation plans are filed. This plan will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More details plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the utilities and Energy Division. Development of these plans will occur after the final program design is approved by the CPUC, and in many case, after the program implementation has begun, since the plans need to be based identified program design and implementation issues.

7) Diagram of Program



8) Program Logic Model

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs.



2c) Commercial Calculated Incentives, core sub-program, PGE21011, core

4) Program Description

a) Describe Program

The Statewide Commercial 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, operational measures and systems in both retrofit and added load applications.

The Commercial 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 Commercial 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, CO2 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 Commercial Energy Audit or Energy Advisor Program offerings. 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.

Audits are an important tool for marketing and increasing the uptake of EE measures. An audit is not a prerequisite for calculated retrofit-only incentives, unless three or more EE measures are being implemented for a single application. For calculated RCx incentives, customers are required to get an audit for EE measure identification and post-installation savings verification planning.

Customers and project sponsors (contractors, design teams, vendors, ESCOs) participating in the Commercial Calculated Incentives sub-program may also opt to complete their own calculations for submittal to the IOUs for review and approval for retrofit measures. For this purpose, consistent statewide calculators are publically available to customers for use if desired. The statewide utility-created and maintained CCT Calculator can be used for retrofits and is available online and through CDs. For whole building 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. The RCx Commercial Calculated sub-program will also use a number of publicly available ex-ante savings estimation tools like the BOA and C-BOA tools development of which was funded either by the IOU's or by CEC PIER. These are available for download on the California Commissioning Collaborative website www.cacx.org.

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 and RCx 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) List of Measures

A broad range of measures are eligible for the Commercial Calculated Incentives Program. The incentives for these measures are standard across the utilities participating in the statewide Commercial Calculated Incentives Program.

The following measure categories are eligible for Calculated Incentives:

- Lighting
- HVAC
- Refrigeration
- Controls
- Building Envelopes
- Process
- Other

A listing of measures and services to reduce energy within the Calculated Incentives sub-program may include, but not limited to the following:

#	Measure Name	Maximum Incentive Level
1	Interior linear fluorescent retrofits	$.03-$.25/$100
2	Other interior linear fluorescent lighting	$.03-$.25/$100
3	Bi-level - Interior linear fluorescent retrofits	$.03-$.25/$100
4	Bi-level - Other interior linear fluorescent lighting	$.03-$.25/$100
5	Bi-level- Exterior linear fluorescent retrofits	$.03-$.25/$0
6	Interior HID retrofits	$.03-$.25/$100
7	Other interior HID lighting	$.03-$.25/$100
8	Exterior HID retrofits	$.03-$.25/$0
9	Other exterior HID lighting	$.03-$.25/$0
10	Interior induction retrofits	$.03-$.25/$100
11	Other interior induction lighting	$.03-$.25/$100
12	Exterior induction retrofits	$.03-$.25/$0
13	Other exterior induction lighting	$.03-$.25/$0
14	Interior LED integral lamps—Omnidirectional (A-lamps, etc.)	$.03-$.25/$100
15	Interior LED integral lamps—Decorative lamps	$.03-$.25/$100
16	Interior LED integral lamps—Directional lamps (BR, ER, PAR, MR, etc.)	$.03-$.25/$100
17	Interior LED refrigeration case lighting	$.03-$.25/$100
18	Other interior LED lighting	$.03-$.25/$100
19	Interior LED recessed surface and pendant mounted downlights	$.03-$.25/$100
20	Other interior LED lighting	$.03-$.25/$100
21	Exterior LED advertisement sign/smart sign	$.03-$.25/$0
22	Other exterior LED lighting	$.03-$.25/$0
23	Interior LED fixture replacement (utilizing approved luminaires)	$.03-$.25/$100
24	Interior LED parking garage luminaires	$.03-$.25/$100
25	Interior LED track or mono-point directional lighting fixtures	$.03-$.25/$100
26	Interior LED recessed, surface and pendant-mounted downlights	$.03-$.25/$100
27	Interior LED under-cabinet shelf-mounted task lighting	$.03-$.25/$100
28	Interior LED pool lighting	$.03-$.25/$100
29	Other interior LED lighting	$.03-$.25/$100
30	Exterior LED fixture replacements (utilizing approved luminaires)	$.03-$.25/$0
31	Exterior LED street lighting	$.03-$.25/$0
32	Exterior LED outdoor pole/arm-mounted area and roadway luminaires	$.03-$.25/$0
33	Exterior LED outdoor pole/arm-mounted decorative luminaires	$.03-$.25/$0
34	Exterior LED wall-mounted area luminaires	$.03-$.25/$0
35	Exterior LED wall wash luminaires	$.03-$.25/$0
36	Exterior LED bollards	$.03-$.25/$0
37	Exterior LED advertisement sign/smart sign	$.03-$.25/$0
38	Exterior LED pool lighting	$.03-$.25/$0
39	Other exterior LED lighting	$.03-$.25/$0
40	Interior compact fluorescent fixture retrofits—(excluding screw-in CFL)	$.03-$.25/$100
41	Other interior compact fluorescent fixture lighting	$.03-$.25/$100
42	Exterior compact fluorescent fixture retrofit—(excluding screw-in CFL)	$.03-$.25/$0
43	Other exterior compact fluorescent fixture lighting	$.03-$.25/$0
44	Lighting controls—energy management system (EMS)	$.03-$.25/$100
45	Lighting controls—occupancy sensors	$.03-$.25/$100

46	Day lighting controls—EMS	$.03-$.25/$100
47	Day lighting systems with dimmable ballast	$.03-$.25/$100
48	Other lighting controls	$.03-$.25/$100
49	Dimming Ballasts—20% Tuning	$.03-$.25/$100
50	Dimming Ballasts—20% Tuning + Auto Demand Response	$.03-$.25/$100
51	Dimming Ballasts—20% Tuning + Occupancy Sensor	$.03-$.25/$100
52	Dimming Ballasts—20% Tuning + Occupancy Sensor + Auto Demand Response	$.03-$.25/$100
53	Dimming Ballasts—20% Tuning + Daylight Harvesting	$.03-$.25/$100
54	Dimming Ballasts—20% Tuning + Daylight Harvesting + Auto Demand Response	$.03-$.25/$100
55	Dimming Ballasts—20% Tuning + Occupancy Sensor + Daylight Harvesting with Side Lighting Photo Controls	$.03-$.25/$100
56	Dimming Ballasts—20% Tuning + Occupancy Sensor + Daylight Harvesting with Side Lighting Photo Controls + Auto Demand Response	$.03-$.25/$100
57	Lighting controls—aisle traffic sensor for refrigerated display cases	$.03-$.25/$100
58	New Construction - Above Code Systems Design - Lighting Controls	n/a
59	New Construction - Above Code Systems Design - Lighting	n/a
60	New Construction - Above Code Systems Design - Daylighting Controls	n/a

c) List Non-incentive Customer Services

The Commercial 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 the project through the process.

5) Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Indicators (MTIs)

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 utility program planners have worked closely with their respective EM&V staffs and with each other to identify available information and propose potential metrics. Each utility and each program has some data available, but attempts to distill the limited available information into a common set of agreed-upon metrics have proved far more difficult to accomplish. Offering metrics in which there is not confidence would not be

productive. Therefore, the utilities respectfully exclude "draft" metrics at this time and instead suggest a means of developing meaningful indicators.

The utilities will develop meaningful baseline and market transformation concepts and metrics for programs that do not currently have them, and then propose to 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 after approval of the Application, using funding provided for Evaluation, Measurement & Verification.

We expect that the baseline studies should (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.

b) Market Transformation Indicators (MTIs)

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics and goals are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 4 – Refer to the overarching program for market transformation metrics

c) Program Design to Overcome Barriers

The Statewide Commercial 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 Commercial 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 Commercial 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 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 Commercial Calculated Incentives sub-program helps speed market penetration and associated energy savings for Emerging Technologies by offering, when appropriate, "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).
- Across all nonresidential 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.
- Multi-tenant buildings have a unique and significant barrier. Most typically referred to as the principal-agent or tenant-landlord split incentive, this issue is characterized by the natural separation of tenant energy efficiency savings and capital expenditures by building owners. The commercial program incorporates market research and/or market tests to better understand potential programmatic offerings that can help reduce the barrier. Some examples of strategies that might warrant testing include combinations of education and creative tenant/landlord incentives or credits for centralized system or building shell upgrades.

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 Commercial 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.

The Commercial 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

PG&E's quantitative program targets are included in its Table 2, Projected Program Gross impacts, section 3.

e) Advancing Strategic Plan Goals and Objectives

The unifying objective of the Strategic Plan 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 supports the Strategic Plan's push for "deep comprehensive retrofits" by providing a comprehensiveness bonus for customers that implement 3 different end uses OR that implement measures in 2 end uses and initiate new participation in Demand Response or Retrocommissioning.

The program achieves the following near-term strategic goals as identified in Chapter 3 of the Strategic Plan:

- 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, potentially 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, it is 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 Calculated Incentives sub-program will offer a comprehensiveness bonus to assist in achieving deeper savings.
- 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 developed in 2014.

6) Program Implementation

a) Statewide IOU Coordination

The Statewide IOU Coordination process, described in detail in the Statewide Commercial Energy Efficiency Program, ensures continuous improvement and consistent implementation of all of the sub-programs. The discussion below focuses on how the IOUs coordinate the Commercial Calculated Incentives sub-program specifically.

The Statewide IOU Coordination process for the Commercial Calculated Incentives sub-program will be as follows:

- Hold Regular Program Manager Meetings – The Commercial Calculated Sub-program managers from each of the IOUs meet on a regular basis. The sub-program managers unify, to the extent possible, the implementation of program aspects such as Program name, Program delivery mechanisms, Incentive levels, Marketing and outreach plans, and IOU program interactions. The sub-program managers also discuss new innovations and develop solutions to overcoming implementation challenges. Therefore, the regular meetings will focus on issues specific to the Commercial Calculated Sub-program only.
- Designate an IOU Program "Lead" – One of the sub-program managers that participates in the regular meetings was designated as the Calculated Program IOU "Lead". The IOU lead represents the sub-program at the regular Statewide Steering Committee meetings.
- Participate in Regular Steering Committee Meetings – The IOU lead is responsible for attending the regular Steering Committee Meetings and sharing Calculated Incentives sub-program innovations, experiences and challenges that have the potential to impact multiple sub-programs or the core Commercial Energy Efficiency Program as a whole.
- Adopt Program Enhancements - Once the Steering Committee agrees that a specific innovation or implementation policy has merit on a statewide level; the

IOU lead distributes the information to the Commercial Calculated Sub-program managers by email or at the next regular meeting for adoption and integration. Therefore, the IOU lead acts as a conduit feeding Commercial Calculated Sub-program-specific information up to the statewide Steering Committee and distributing measures for adoption back to the Commercial Calculated Sub-program managers.

- Evaluate Program Enhancements – To complete the adaptive management loop, the Commercial Calculated Sub-program managers tracks the success of the adopted statewide enhancement or implementation policy and report any challenges or concerns at the regular Commercial Calculated Incentives sub-program meeting. The IOU lead reports any challenges that transcend the Commercial Calculated Incentives sub-program to the Steering Committee, who determine whether further course corrections are needed.

By following the process stated above, the Calculated Incentives sub-program managers play a critical role in ensuring unified implementation on a statewide level over the course of the two year implementation cycle. Sub-program innovations and challenges also feed productively into the higher-level Steering Committee process, where the IOU lead will act as participant and conduit between both statewide coordination systems.

The coordination and unity of all program aspects, such as Program name, Program delivery mechanisms, incentive levels, marketing and outreach plans, and IOU program interactions, will be handled through this statewide coordination framework. However, these aspects will start off at a high level of statewide consistency. In rare cases, there will be IOU-specific deviations. Such instances where one IOU will favor a different approach than the other IOUs will be called out in italicized text throughout the Calculated Incentives sub-program.

Additional areas of program coordination include:

i. Program Name

Commercial Calculated Incentives

ii. Program Delivery Mechanisms

The Commercial Calculated Incentives sub-program for will be delivered consistently across IOUs using the same application materials and energy savings calculation to ensure consistency. Both retrofit and added load projects for commercial customers are eligible for incentives.

iii. Updated Incentive Levels

The IOUs have developed a framework for offering higher incentives for emerging technologies. The tiered incentive structure to be offered by the utilities in the 2013-2014 cycle distinguishes between “Basic” measures (generally those

that are less costly and more well-established) and "Targeted" measures (generally those that are new, emerging, costly or hard-to-reach). This structure will allow the utilities to send pricing signals to the market and award a higher incentive rate to new/emerging technologies at the outset of their inclusion within the program. The structure also enables the utilities to shift measures from the Targeted to the Basic category when market conditions have evolved to the point where a measure no longer requires an elevated incentive rate.

Incentives will be as follows:

2010-12 Cycle		**2013-14 Cycle**		
Category		*Category*	Basic	Targeted
Lighting	$.05/ kWh	Lighting	$.03/kWh	$.08/kWh
ACR I	$.15/kWh	Non Lighting	$.08/kWh	$.15/kWh
ACR II	$.09/kWh			
Other/Motors	$.09/kWh			
Peak Demand Reduction	$100/kW	Peak Demand Reduction	$100/kW	$100/kW
Gas	$1/therm	Gas	$1/therm	
RCx	$0.09 /kWh, $1/therm, $100 /kW	RCx	$0.08 /kWh, $1/therm, $100 /kW	

As a general rule, the composition of measures within the incentive categories falls along the following lines:

- **Targeted Lighting** includes LED retrofits and Advanced Lighting Controls measures.
- **Basic Lighting** includes all non-LED lighting retrofits (CFLs, linear fluorescents, etc).
- **Targeted Non-Lighting** rebrands the Air Conditioning and Refrigeration (AC&R) I category (generally, full system replacements or retrofits improving A/C system efficiency).
- **Basic Non-Lighting** rebrands the AC&R II/Other categories (generally, component retrofits or retrofits reducing operating load).

In addition, the IOUs will offer a 20% incentive bonus (the "**Comprehensiveness Bonus**") in response to CPUC direction to incorporate strategies to encourage deeper energy retrofits and packages of measures.

- The 20% incentive bonus will be awarded to for projects that bundle measures from at least three of the following end-use categories:
    - HVAC – Cooling
    - HVAC – Heating
    - HVAC – Ventilation
    - Process – Cooling
    - Process – Heating
    - Process – Pumping
    - Process – Compressed Air
    - Process – Other
    - Lighting
    - Refrigeration
    - Controls
    - Building Envelope
    - New RCx participation
    - New DR participation

- In order to ensure that the bonus truly drives deep retrofits, and that customers do not install small, inconsequential measures simply to access the bonus, each of the three end use-measures must contribute at least 10% of the customer's overall project incentive to count as a qualifier toward the bonus.
- Measures from all programs (e.g., Core Customized, Deemed, 3P, LGP) are eligible to participate. At least one customized measure is necessary in order to qualify. The bonus will be paid as 20% of the sum of the incentive payments associated with the qualifying measures, regardless of which program the measures originate from (Core, Deemed, 3P, LGP).
- Comprehensiveness Bonus payments are capped at $25,000 per project. RCx-only projects, regardless of the number and type of measure installed will not qualify for a comprehensiveness bonus.

The utilities consider the Comprehensiveness Bonus to be a trial of a new approach for encouraging deeper retrofits within the customized retrofit program. The bonus will be evaluated at the end of the program cycle to determine whether the approach shall continue into the 2015-2017 program cycle. A key metric in evaluating the success of the Comprehensiveness Bonus will be the increase in number of deep retrofits and packages of measures resulting from the bonus, which can be measured by comparing historical data with data collected after inclusion of the bonus.

iv. Marketing and outreach plans

In 2013-2014, the IOUs continue to target customers for calculated incentives based upon segmentation research and messaging. Large Commercial customers

make up a significant portion of the audience for Calculated Incentives and these customers will not be targeted by the SW ME&O campaign. Due to the complexity of aligning Calculated Incentives with customer operations and highly individualized energy management needs, the sales cycle for these deeper retrofit measures tends to be longer and require significant one-to-one contact at the local level. Customer workshops and other account management support are all important parts local marketing and the consultative selling process for Commercial Calculated Incentives.

The Commercial Calculated Incentives sub-program is marketed through IOU Account Executives, as well as through third-party programs, trade allies, 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 e-mail support is provided.

The IOUs plan to monitor and optimize local marketing campaigns and when possible, share best practices and coordinate efforts for statewide consistency.

In 2013-2014, the IOUs rely on segmentation research and messaging. Marketing campaigns will provide a wide range of action-oriented solutions targeted to "personas" identified through segmentation research. In addition, marketing efforts are "bundled". That is, a menu of demand response, energy efficiency and conservation programs provide customers a full array of EE and DR options. By providing packaged energy management solutions for each industry segment, the IOUs are better able to communicate with and serve customers.

Marketing efforts incorporate a variety of marketing tactics/activities to promote the Calculated Incentives sub-program. Education, awareness and outreach efforts 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, 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 is coordinated among the IOUs utilizing the statewide coordination process described above.

v. IOU program interactions

The Commercial Calculated Incentives Sub-program managers partner with the appropriate programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to co-brand program information and marketing collateral with this sector's customers. Conventionally, 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, comprehensive information that discusses all resource efficiency issues will benefit the customer to the mutual advantage of the single resource programs.

With respect to water conservation, utility program managers partner with the local water districts to co-brand 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 Commercial Calculated Sub-program incentives for energy efficient equipment that may also reduce air and GHG emissions.

vi. Similar IOU and POU programs

The IOUs deliver many third-party programs that utilize the Commercial Calculated Incentives infrastructure. This ensures a consistent delivery of measure incentives to ensure that programs do not cannibalize each other and detract from achieving cost-effective energy savings.

b) Program Delivery and Coordination

The programs coordinating with the following:

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 sub-program will consider higher initial incentives for technologies being newly introduced to the market place through the Emerging Technologies Program. Once the new products have taken hold in the market, the incentives will be adjusted to reflect market conditions. In addition, portfolio staff actively works to incorporate promising emerging technologies from IOU or CEC-funded projects.

ii. Codes and Standards program

The program relies on the Codes and Standards program to maintain an updated and relevant list of measures that supports savings. As Codes and Standards

impact measures, the program acts to align itself with appropriate offerings. It is important to manage the measure life cycle to take full advantage of providing incentives before moving them into codes and standards. Programs 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) made available as these technologies transition from research and development to mainstream program offerings.

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 in the program. The education and training takes 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 engage the energy efficiency program offerings relative to the class. An Energy Efficiency representative will be present at appropriate classes to provide detailed information on the application process to the relevant Energy Efficiency program.

Specific workforce development efforts supporting the Commercial Calculated Incentives sub-program which include training on topics, not limited to as follows:

- Audits – Development of training is underway to promote a consistent approach and format for facility audits.
- Financing
- Soft skills and Business training (including customer service, sales, and marketing).
- Benchmarking
- Program-specific training – Training will be developed to promote increased familiarity with the program's eligibility requirements, application, processes, etc.).
- IDSM

The IOUs are exploring voluntary incentive-based approaches to encourage contractors and other industry professionals to complete the full bundle of Commercial – Calculated workforce development training. For professionals who complete the pre-requisite courses and pass a high-road skill standards test, such approaches may include (as applicable):

- Allowing marketing or advertising differentiation;
- An incentive bonus; and/or

- Providing preference to these professionals during bid evaluation process.

Commercial – Calculated workforce development training will be coordinated with the statewide IOU WE&T program. In addition to the trainings described above, SW IOU WE&T programs will continue to offer building-block courses that educate professionals on the concepts that form the foundation of Commercial calculated programs. Those concepts include:

- Green building techniques;
- Codes and standards (Title-24);
- Lighting and HVAC technologies;
- Energy cost management; and
- Food service equipment.

Contractor recruitment efforts will be conducted primarily by SW WE&T program implementers through:

- The network of contractors already participating in EE programs;
- Direct outreach through industry organizations with locally active memberships (e.g. IHACI, U.S.G.B.C., IFMA, AIA, BOMA, etc.);
- Workforce development departments (to target unemployed general contractors); and
- Community Based Organizations with a proven track-record of effective outreach to the hard-to-reach workforce.

iv. Program-specific marketing and outreach efforts

Market outreach to raise awareness of EE programs available will use a number of strategies, including:

- Account 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;
- Participation and membership in one or two key trade associations affiliated with each high priority sub-segment within the Commercial Market Sector;
- Attendance at the key trade shows for each high priority sub-segment within the Commercial Market Sector;
- Utility-sponsored training events at the IOUs Customer Training Centers and other convenient locations within the IOUs service territory;
- Online content and integration of marketing materials and campaigns with online tools such as audits and other energy demand and usage assessments

- Hosting of utility-sponsored Webinars that provide sub-segment training and program adoption; and
- Written collateral pieces that provide an overview of the IOUs Energy Efficiency programs will be linked into the appropriate IOU DSM web page.

v. Non-energy activities of program

Integrated Energy Audits (described in the Energy Advisory Program) is the primary vehicle to promote project solutions that look across the various IOU DSM program offerings, as well as complementary options available through other entities (e.g., water agencies).

vi. Non-IOU Programs

The Program will continue to engage with Air Quality Management Districts, CEC, ARB, DOE, water agencies, and other government agencies responsible for regulating the various aspects and operations of customer facilities participating in the programs, as appropriate and feasible.

vii. CEC work with EPIC

As of June 2012, PIER no longer exists. However, 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 projects in coordination with the applied technology research of EPIC.

viii. CEC work on codes and standards

Planned enhancements to Title 20 and 24 will be reflected in incentive levels and in eligible measures and services.

ix. Non-utility market initiatives

The program will support, educate customers, and facilitate such initiatives as AB32, renewables, ANSI certification, facility benchmarking, Continuous Energy Improvement, ISO 50001 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

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 economic benefits and policy restrictions that will be identified as barriers to participation. IOUs are

implementing such process based on market studies conducted on the subject and preceding discussion of the policy change. 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 explore appropriate consolidation of various calculating software such as SPC Software, Engage and other measure specific calculating tools to standardize our calculating methodology. This ensures that calculations will be more uniformed and consistent amongst all stakeholders. This will not limit the use of nationally recognized standard DOE toolsets for certain measures. The IOUs also plan to continue exploration of emerging software tools that have the potential to enable significant advances in comprehensive energy efficiency at both the system and whole building levels.

IOUs are also planning to elaborate and utilize positive experience obtained using Savings By Design and Energy Design Resources tools and extend it to energy efficiency retrofit projects. Such tools substantially reduce application processing and review time, minimize number of hand-offs, not sacrificing accuracy of energy saving calculations.

Leveraging best practices from past program cycles, the Commercial Calculated Incentives sub-program information will also be made available through industry organizations such as The Building Owners and Managers Association (BOMA), and through advertising in industry and trade publications. Trade associations and vendor allies have historically delivered substantial energy savings through previous calculated program models.

d) Innovation

Innovative aspects of the program are aiming major program performance indicators such as accuracy of energy saving calculation, higher realization rate, overcoming energy efficiency barriers, reducing application processing time and administrative costs, and integrated energy management.

For the new program cycle California IOUs have implemented a new incentive structure that emphasizes peak demand reduction, addresses current economic downturn and better motivates customers to participate in energy efficiency incentive programs. During 2013-2014 program cycle new incentive structure will be periodically evaluated and necessary changes may be made in order to enhance program benefits and performance.

An additional example of innovation is aimed at the strategic plan's transformational vision and goals around energy user behavior, market transformation and deeper energy savings. PG&E intends to provide upfront payments for installation of system-level controls (e.g. lighting, HVAC etc.) and/or energy management and information systems (EMIS). Customers receiving the payments would be enrolled in a statistically based pre- and post-measurement evaluation of data, using whole building measurement and verification protocols, from which savings will be determined and claimed.

Where possible, IOUs will use integrated approach to addressing DSM opportunities. Innovative aspects such as merging energy efficiency and demand response analysis and converting recommendations to projects under Retro-commissioning and/or Calculated program, processing and reviewing energy efficiency and demand response measures in a single application, providing analytical information about applicable distributed generation solutions will maximize customer adoption rates for most cost-effective energy management opportunities.

The IOUs are planning to continue and enhance their core Retro-commissioning (RCx) program in multiple target markets. RCx is a systematic process for optimizing an existing building or system's performance by identifying operational deficiencies and making necessary adjustments. 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 4 years.

The RCx program is a key offering in the Calculated Sub-program. The audit components of the RCx program are also described in the non-residential audit section above. Enhanced RCx program elements may include but not be limited to:

- Innovative approaches to measure identification, automated baseline capabilities, and savings quantification;
- Continuous commissioning and monitoring-based commissioning;
- Solutions for small and medium commercial customers;
- Strategies to drive savings persistence;
- Appropriate alignment with retrofit activities;
- Overall program incentives, targeting, and delivery.

After energy audit is complete and applicable no-cost/low-cost measures are identified the scope of work will be handed-off to 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) and report final results to the core program office.

e) Integrated/coordinated Demand Side Management

As the primary incentive vehicle that customers have for implementing efficiency projects, the Commercial Calculated Incentives sub-program is the logical choice for implementing greater demand side integration. Appropriate incentive mechanisms will be developed and implemented during the 2013-2014 program cycle to reward customers who implement comprehensive DSM programs.

The first step on the path towards DSM integration may be to introduce incentives for kW demand reduction, which as shown in Section 4.b. This will provide additional incentives for demand reduction strategies such as lighting controls.

f) Integration Across Resource Types

Examples of integration across resource types (e.g., energy, water, and air quality) include working with Water Agencies to co-promote Food Service 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

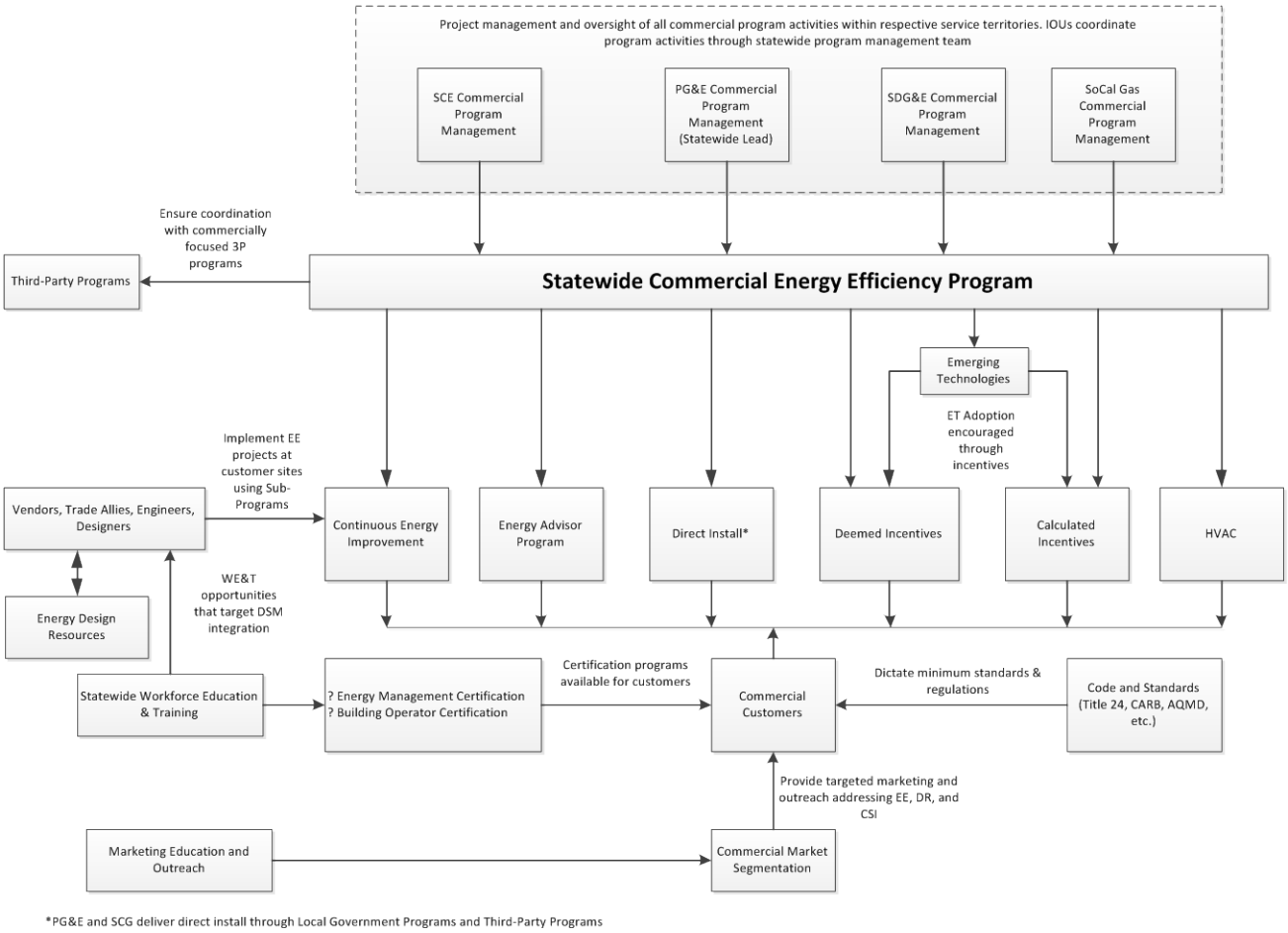
Not applicable

h) EM&V

The IOUs will work with the Energy Division to develop and submit a comprehensive EM&V plan for 2013-2014 cycle, after the program implementation plans are filed. This plan will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More details plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the utilities and Energy Division. Development of these plans will occur after the final program design is approved by the CPUC, and in many case, after the program implementation has begun, since the plans need to be based identified program design and implementation issues. However, a brief description of the current, preliminary plans is provided below:

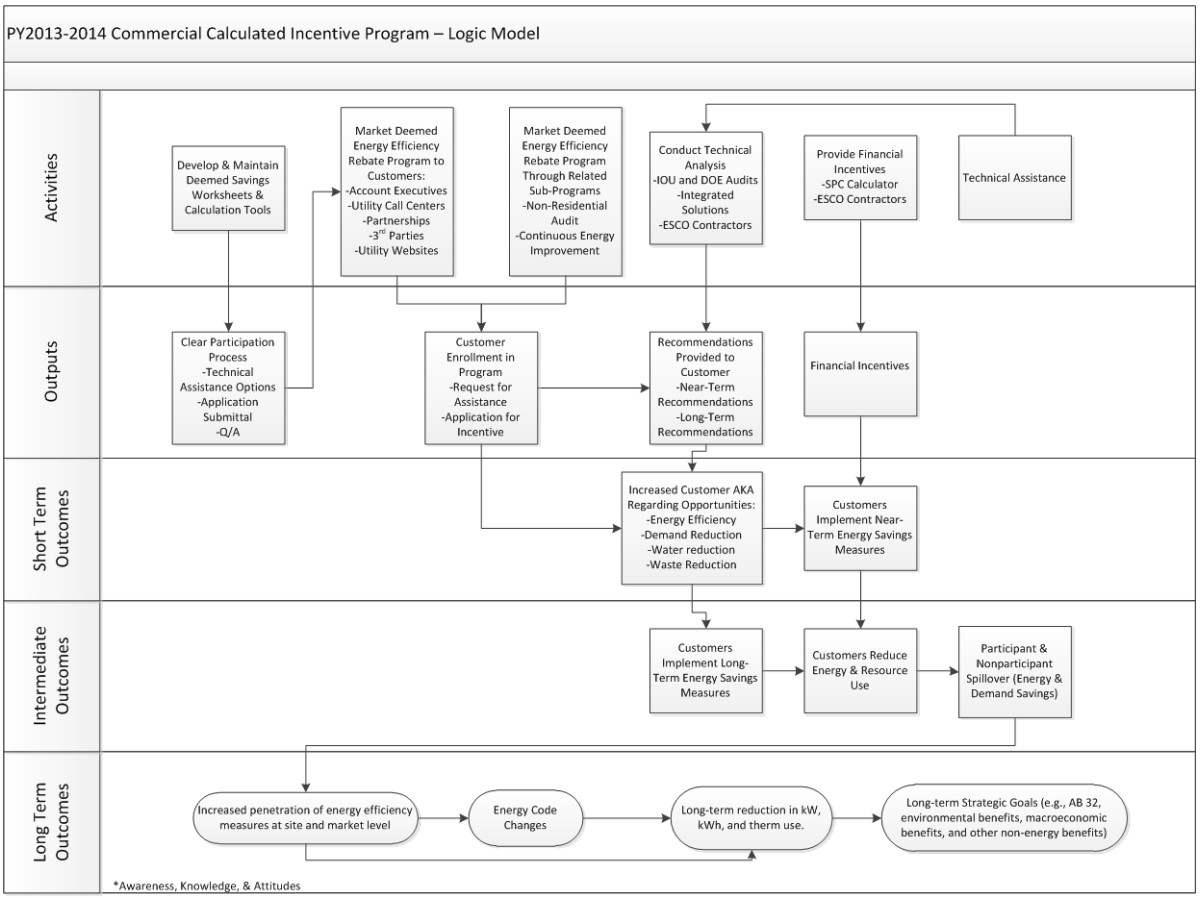
- Conduct evaluation to track the all proposed key metrics,
- Conduct specific process evaluation to improve program design, implementation and market effectiveness.

7) Diagram of Program



8) Program Logic Model

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. As there were no revisions to the original logic model for the Commercial Calculated Incentives Program, this logic model is left unchanged.



Commercial New Construction – Savings By Design

4) Program Description

a. Describe Program

The Savings By Design (SBD) 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. 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.

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 degree 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, including feasibility studies and pilot projects, training and education, conferences and workshops, scholarships, and program marketing activities. In the 2013-2014 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 Strategic Plan.

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 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 perform building commissioning during design and construction, and monitor building performance through End Use Monitoring. 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.

The program will continue to incorporate new approaches for 2013-2014 to advance integrated design and green building certification in support of the Strategic Plan.

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.

Zero Net Energy Design Assistance: To date there are very few Zero Net Energy Buildings in California. According to study published by the New Buildings Institute[20], only twenty one buildings in the United States have a measured performance of zero energy. This information provides ample proof that ZNE buildings are extremely challenging to achieve and will continue to require substantial support from utility incentive programs. Savings By Design is best positioned to accomplish this task by encouraging higher levels of energy efficiency through higher levels of incentives. When successful, these buildings can be labeled as Zero Energy Capable Buildings (ZECB) that is one step from ZNE status. The missing component then is the self-generation component that is encouraged through other programs offered by the utilities. To get buildings to this ZEC state, Savings By Design will offer a soup to nuts whole building integrated design assistance, which would include analysis on natural ventilation, through energy efficiency, Computerized Fluid Dynamics modeling, self-generation cost analyses, plug load analysis, building compliance analyses, and whole building energy modeling services.

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 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

[20] Getting to Zero 2012 Status Update: A First Look at the Costs and Features of Zero Energy Commercial Buildings

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.

b) List of Measures

The Savings By Design Program aims to achieve the deep levels of market transformation described in California's Strategic Plan, primarily by offering meaningful financial incentives directly to key participants in the building community. Incentives and/or assistance may be targeted to builders, designers, and energy analysts. Various organizations involved in developing green building and sustainability standards may also be actively supported.

In addition to providing the traditional sliding-scale incentives calibrated to energy savings exceeding standard energy performance code, SBD will offer a flat incentive for peak kW reduction and financial support for design teams to undertake an integrated design process. Additionally, sustainability incentives will be offered to building owners to perform building commissioning after construction, and/or establish and follow a building measurement and 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.

c) List of Non-Incentive Customer Services

The Saving By Design Program will be active in a number of non-incentive areas as well. Several non-incentive customer service components are incorporated in the sub-

programs, including the following:

- Technical support to energy analysts and design teams
- Economic modeling/measure selection support to builders and construction managers
- 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 (WE&T and Statewide Websites) Conferences and workshops to develop tools and concepts that will help the program
- expand its educational efforts Educational institution collaboration; sustainability lectures to students

5) Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

Market Transformation (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."[21] 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[22].

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[23]. Markets are social institutions[24], and

[21] California Public Utilities Commission Decision, D.98-04-063, Appendix A.
[22] California Public Utilities Commission (2008) *California Long Term Energy Efficiency Strategic Plan*, p. 5. Available at http://www.californiaenergyefficiency.com/docs/EEStrategicPlan.pdf
[23] 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
[24] 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/*

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[25] 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[26]. According to York[27], "Market transformation is not likely to be achieved without significant, permanent increases in energy prices. From an economic perspective, there are three 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[28]. 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[29], 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[30]. 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[31]. The ability to

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[25] 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.

[26] 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.*

[27] York, D., (1999). "A Discussion and Critique of Market Transformation", Energy Center of Wisconsin. Available at http://www.ecw.org/ecwresults/186-1.pdf.

[28] 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

[29] Rogers (1995) Diffusion of Innovations, 5th Ed.

[30] Example in bottom chart of this graphic from NYTimes: http://www.nytimes.com/imagepages/2008/02/10/opinion/10op.graphic.ready.html

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.)[32]" The Strategic Plan recognizes that regulatory policies are not yet in place to support the success of market transformation efforts[33], 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[34]. 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[35] 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.

Program Performance Metrics (PPMs)

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[31] Sebold et al (2001) p. 6-5,
[32] 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.
[33] CPUC (2008) Strategic Plan, p. 5.
[34] Nadel, Thorne, Saches, Prindle & Elliot (2003).
[35] Peloza & York, (1999).

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric

Company for 2010-2012 statewide energy efficiency programs and sub-programs. The Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.

Below are the approved PPMs and metric types for the Savings by Design Sub-program of the New Construction Statewide Program

Table 3 - Refer to the overarching program for quantitative baseline metrics

b) Market Transformation Information

i. Description of the non-residential new construction market

Non-residential new construction is one of the BBEES programmatic initiatives to accelerate market transformation toward greater adoption of energy efficiency. Successful market transformation efforts in the commercial building market must occur at multiple levels across the design and construction supply chain and through building owners and building occupants. This transformation must establish the relevance of energy efficiency among market actors and institutionalize the high efficient building practices[36].

According to a 2001 study on energy efficiency in new construction[37], the non-residential building industry is a series of linked industries arrayed along a value chain. The study identified the following six major industry groups involved in this highly diverse market—providers of capital, developers, design delivery firms, community/political/regulatory interests, real estate service providers, and users. The market structure reflected in this study remains relevant for today's non-residential new-construction market. An emerging group in this market structure is the design build firm. The design build firm offers a complete design and construction package to the entity pursuing a new project. The building development process brings these groups together to deliver a building product that meets capital, land, and user requirements. Developers orchestrate the development process and bring together the disparate groups during the various phases of the project build. Community, political, and regulatory interests shape

[36] http://eec.ucdavis.edu/ACEEE/2002/pdfs/panel04/15_239.pdf
[37] Market Structure and Energy Efficiency: The Case of New Commercial Buildings by Loren Lutzenhiser and Nicole Woolsey Biggart July 2001

what can be built through zoning, codes, review and other public processes. Real estate service providers offer marketing, sales, produced by architects, engineers, and contractors in the design and delivery group. The leasing, investment, management, and operations services represent the interests of many market actors. Building users are the firms and organizations that occupy the buildings on lease or owner-occupied bases.

The complex and interrelated linkages of the market participants need to be studied further as recommended by a recent SCE Savings By Design Market Characterization Study[38] ("CADMUS Study"). The utilities are interested in engaging in such work during this and subsequent program cycles. The utilities also draw upon available information, past Savings By Design evaluation studies, and the long experience of the program managers and staff to articulate the market transformation process for the non-residential new construction market.

Finally, the new construction market value chain is slowly showing signs of interest in Zero Net Energy. As indicated earlier in the SBD PIP, New Buildings Institute (NBI) has found very few buildings in the nation that can be labeled as Zero Net Energy. NBI also found that a slightly larger number, although also very few as compared to existing building stock, can be labeled as ZNE capable (ZECB) buildings. From this perspective, Savings By Design will face ever increasing needs for expert consultations in unique ZNE projects, like Computerized Fluid Dynamics that analyzes a design for its effectiveness in a natural ventilation scenario. The emergence of ZNE in the commercial space will undoubtedly spawn new challenges and barriers in the new construction market.

ii. Market characterization, key barriers and DSM opportunities

Through collaboration with a wide array of market actors and provision of technical support, training, and financial incentives, SBD is positioned to help reduce many of the

most prevalent barriers to building greater levels of high efficiency nonresidential new construction. Although the 2011 Cadmus study referenced in this Market Transformation section was conducted for the Southern California Edison service territory, it is assumed that some of the broader determinations are likely to be common to all IOU service territories. Some key market barriers identified in the 2011 Cadmus study for SCE include the following:

- *Lack of information among new building owners and designers/builders of beyond code energy efficiency benefits and opportunities to achieve such benefits*

[38] Commercial Building Market Characterization for Savings by Design Program Final Report June 20, 2011 Study ID: SCE0312.01

- *Lack of financing options for high efficiency buildings*
- *Uncertainty in projected performance of efficient buildings*
- *Split Incentives*

The Cadmus study also identifies other obstacles to energy efficiency in nonresidential buildings that include the following:

- *Upfront costs, including energy modeling costs and green certification costs*
- *Capital constraints*
- *Lack of sub-metering in multiple tenant buildings*
- *Added difficulty getting plans through review process*

The findings below from the Cadmus study allude to factors that may drive increased DSM opportunities in the nonresidential new building market:

- *Increasing desire among owners to reduce building utility costs as a component of operating costs, particularly in the current market with higher vacancy rates*
- *Building energy codes such as CALGreen and rating systems such as Energy Star and LEED are significant motivators for building owners that want to market the buildings as promoting "sustainability"*
- *Benefit-cost analyses based on energy modeling and economic analysis is often effective in convincing the new building owner of the long-term benefits of energy efficiency*
- *Increasingly building owners and tenants are driven by company core values or views of social responsibility to reduce energy usage and greenhouse gas emissions*
- *Market actors that are developing buildings for their own occupancy or to lease are more likely to invest in highly efficient building.*

Finally, Zero Net Energy projects perhaps present the best opportunity for DSM, because energy efficiency can be driven into all aspects of a building, i.e. lighting, plug loads, HVAC and envelope. While this may be true, there can also be significant challenges, both technological and financial, to encouraging the building community to develop these projects. Some barriers include:

- *Lack of comprehensive software tools to enable design*
- *Lack of expertise in the architectural and engineering community to offer these services to owners and developers*
- *Significant first costs for energy efficiency and for renewable generation*

- *A desire on the owners' or organizations' part to purse a ZNE facility*
- *Overcoming the technological challenges to design and build multi-story and energy intensive ZNE facilities*

iii. Proposed SBD interventions to address market barriers and intended results

While most of the proposed market support mechanisms are well-known SBD approaches, the intent of the SBD market interventions are to redirect its efforts on multiple levels to engage market actors and integrate energy efficiency into the mechanisms the building market is already using. The market-based approach for the program is to focus specifically on targeted sectors in the building industry to understand the sector's business processes, motivations, and barriers and to develop specific strategies to motivate the interest and investment in energy efficiency.

Southern California Edison's 2011 CADMUS Study analysis of 2004-2008 building construction data on square footage of new floor space completions indicates that the SBD has enrolled between 19% and 28% of the new floor space added each year. The program's penetration in the market exceeded 20% for six categories of buildings over the period 2006 through 2008.

Currently, Pacific Gas and Electric is pursuing a market characterization study and its information will added to this MT section if available by the next PIP update.
The program will address the following market barriers:

a) Lack of Information in the building owner community and building industry to pursue EE design and construction practices

The SBD program is well positioned to inform architects, energy analysts, and builders about the benefits of incorporating energy efficiency early into the design process for new buildings. Through design assistance services and training opportunities, the program will work with market actors in the building industry to adopt Integrated Building Design practices and increase the technical knowledge base for energy efficient design across the industry. In addition to the design assistance, SBD provides incentives to building owners and designers to buy down some of the costs of pursuing above code designs and to encourage further use of the efficient design practices.

Lack of information about the energy efficiency benefits also prevails in the renovations and retrofits building market. The building facility manager and building engineer typically pushes for energy efficiency and have a big influence on the owner's decision; however, these market actors are hard to reach for participation in energy efficiency programs. It is much more difficult to get in at the design phase of these projects which, combined with cost,

makes it harder to influence owners to install non-lighting measures. The challenge is finding ways to inform such potential participants early enough about the Program, learn about future projects, and find points of entry. Again, the utilities' SBD staffs will aim to reach these and other hard to reach areas and continue to take steps in 2013-14 to engage in projects earlier.

Another hard to reach segment is the building owners, the majority of whom do not understand the full extent of potential savings, program opportunities, and cost savings that can be achieved. Energy modeling is often what is needed to convince owners to make efficiency changes by educating the owner on the long-term financial benefits and the upfront cost effectiveness after making adjustments for rebates, and showing how energy efficiency affects the bottom line. A collaborative approach is needed between the owner, contractor, and architect early in the design process. The program's outreach efforts can inform these players on the benefits of energy efficiency improvements through focusing on the utility bill savings produced by such improvements and the resulting competitive advantage of energy efficient buildings in the market as the businesses continue to look for ways to trim costs.

b) Uncertainty in projected savings

This barrier is related to lack of information in terms of savings that result from the energy efficient new construction buildings. Through the Design Assistance Services, SBD provides or assists in developing building performance simulations that are capable of estimating lifecycle energy savings benefits of efficient building design. The 2011 Cadmus Study showed that such analysis was beneficial in the early decision making for a new efficient building. This performance uncertainty barrier is also being addressed by the California Energy Commission (CEC) and DOE that has collaborated with other out-of-state research entities to develop and market innovative performance testing and diagnostic tools and training for commissioning agents and building owners. Additionally, rating systems such as LEED and Energy Star work to address this market barrier by setting guidelines that send signals to the market about expected building performance for efficient buildings.

c) Split Incentive

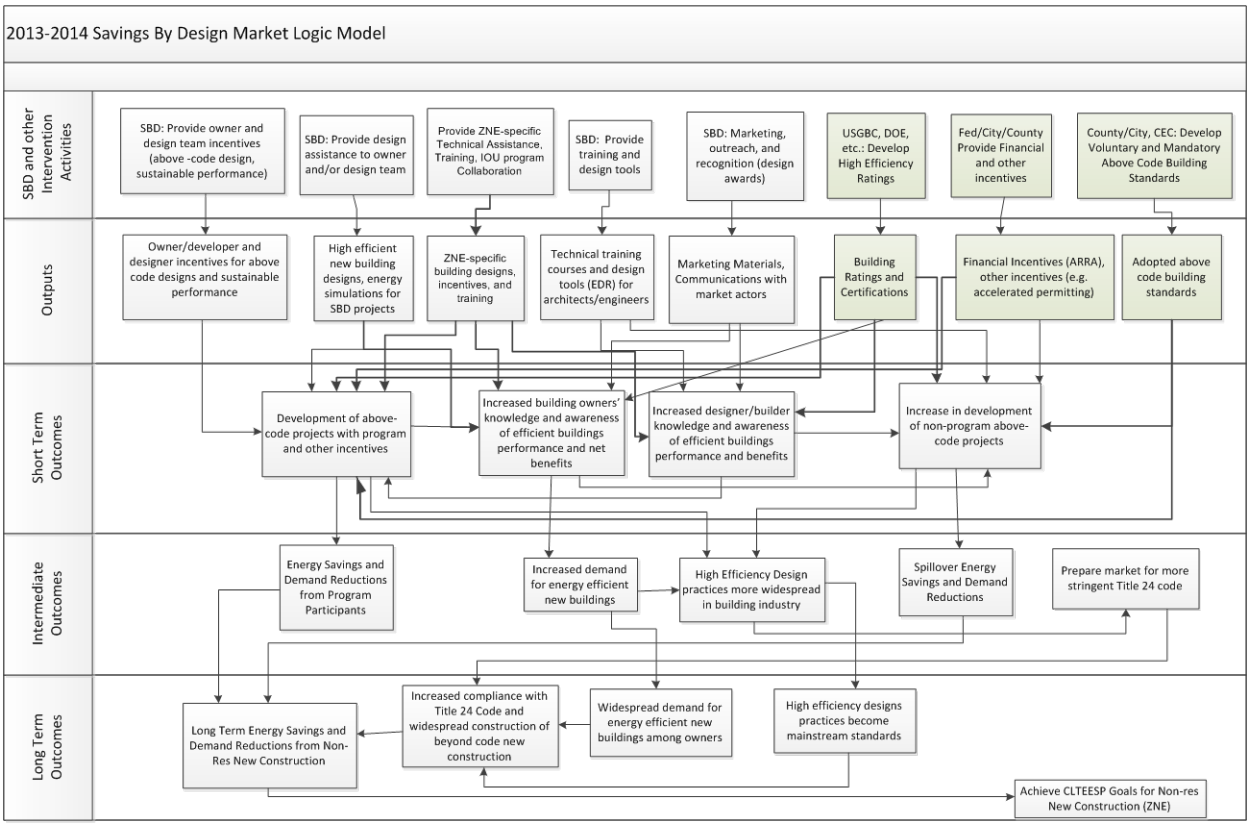
Energy efficiency is often not a priority in buildings built to lease either because of the split incentive between owner and occupant and the situation depends on who pays the utility bills. Leased buildings present barriers to energy-efficient operations and efficiency upgrades and the reason for this lies in the lease structure and issues related to sub-metering. If the tenants split the utility bill or if spaces are sub-metered and paid for by the occupant, the

owner will be less inclined to consider efficient performance of the building in early project decision-making because much of the operations cost is borne by the tenant.

In the 2013-14 transition cycle, IOUs will be engaging in pilot activities within the SBD framework that seeks to uncover innovative ways of addressing the barrier. The "Office of the Future" pilot activities will work with building owners and tenants to identify areas where outreach, training, and incentives – both financial and non-financial – will be offered for motivate investments in reducing the portions of the energy usage paid for by occupants. In an important step, SBD has moved to increase the incentives offered for those projects that include an M&V component in their projects that would entail monitoring end uses.

iv. Program Logic model

Developing a program logic description can assure that everyone concerned with the program has a clear understanding of what the program seeks to achieve. Included below is the program logic that addresses specific program interventions related to market barriers, while acknowledging that multiple interactions in the market of various entities and market actors makes the non-residential new construction market quite complex. The full market depiction for the purpose of understanding the market transformation of this market will need to be developed with the input from the market stakeholders, CPUC, and other entities.



v. Evaluation plans, market transformation indicators and PPMs

Due to the need to comply with the Decision's timeline for filing the 2013-2014 PIP, and our desire to comply with earlier Decisions that call for gathering stakeholder input in informing market transformation efforts, we suggest that a full market effects statewide evaluation plan be developed during the formulation of the Joint EM&V Plan as described in section "18.1. Evaluation Budget" in Decision R.09-11-014. Until then, we suggest the following approach:

Summative evaluation: Market Effects. The market transformation program's theory and logic model will be used to guide the evaluation efforts. The scope of the market effects study should be defined by the MT program's scope. The timeline for specific market effects that are to be evaluated should be defined by the MT program theory. Among other indicators, the program theory may specify changes in market characteristics that can be evaluated, such as 1) Spillover, 2) attitudes, awareness and knowledge, 3) reductions in specific market barrier, 4) current pricing and product availability, and 5) other market milestones. We will make the following distinction between program "spillover" and market effects: spillover is energy savings not directly tracked by the program, whereas market effects are broader and would include spillover as well as meaningful changes in the structure or functioning of the market.

The formative evaluation of a market transformation program is typically performed at the intervention (i.e. program) level. The methods are the same as would be used in a program process evaluation, and would include interviews with program staff, participants and non-participants as well as an assessment of the program's direct outputs.

PROGRAM PERFORMANCE METRIC (PPM)	Metric Type
1. Average site energy install, ex-ante (kBtu/sq ft-yr and demand (kW/sq ft) for participating commercial new construction by building type and climate zone	2b
2. Percentage of committed participating Whole Building Approach projects that are expected to reach a minimum of 40% less energy than 2008 T24 codes requirements	2b

Market Transformation Indicators (MTIs)

Market transformation indicator results shall be reported, as available, by Energy Division or the IOUs, depending upon who conducts the necessary market studies. (Res. 4385, 12/2/10)

As a primer for a MTI, the IOUs are recommending the indicator be similar to "Average site energy install, ex-ante (kBtu/sq ft-yr and demand (kW/sq ft) for commercial new construction by building type and climate zone." The IOUs are committed to perfecting the proposed indicator during the Transition Period. We expect the improvements to come from information developed in evaluation and research conducted during the Transition Period.

Attribution: Outside of California, most guidelines for evaluating market transformation acknowledge that it is very difficult to attribute market effects to any single program, and nearly impossible to partition out the respective contributions of several coordinated programs on market effects and market transformation. In California, the Framework (Sebold et al., 2001) emphasized that attribution of market effects to programs bears further research. Others (Rosenberg & Hoefgen, 2009; Keating & Prahl (MT Workshop, Nov 2011) suggest that declaring the program's strategic intent through the market transformation initiative's theory and logic model is key to establishing future claim on transformation effects. The methods proposed by Rosenberg & Hoefgen (2009) for attributing market effects to individual programs include a number of approaches, all of them qualitative: self-report of spillover and free ridership; cross-sectional comparisons with other geographic regions; structured expert judging; and case studies. But attribution using a "preponderance of evidence" approach would likely be expensive and still yield arguable results. Attribution by nature focuses on individual program efforts, and we

believe the market transformation evaluation discourse should be focused on the overlapping synergy among all programs and influences in the market. We realize we all have a "Shared Mission" of meeting the CPUC's very aggressive Strategic Plan goals. We do not wish to not invest resources in teasing apart which program entity contributed how much, but instead will plan to focus on whether all the market forces across the State of California have succeeded in transforming the market.

c) Program Design to Overcome Barriers

The Savings By Design program will address the following barriers, some of which are common across the different market segments:

- Building Code Changes: Effective January 1, 2010, California's Title 24 standards have been revised and updated. 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 begin to explore ways to leverage the EE Statewide Financing Program established in the 2013–2014 Transition Period.
- Small-Project Market Penetration: SBD has historically achieved very high penetration rates with mid-sized and especially large new construction projects. However, barriers continue to exist to deeply penetrating the small-project market due to extensive level of design assistance required in SBD projects. To help overcome this, SBD will expand the use of a web-based simplified system for projects that meet the above criteria.
- Program Presentation: Gaining a full understanding of program offerings can be difficult for some customers, especially in the case of nonresidential 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 continues to be pinned down 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 Savings By Design 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 greenhouse gas emissions and utility source demand.

d) Quantitative Program Targets

PG&E's quantitative program targets are included in its Table 2, Projected Program Gross impacts, section 3.

e) Advancing Strategic Plan goals and objectives

The SBD Program is designed to enable the achievement of several goals and strategies identified in the Strategic Plan. Additionally, the SBD 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. The State of California's Green Building Initiative[39] 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 Strategic Plan 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 End Use Monitoring
- Support training activities

With respect to commercial new buildings, the Strategic Plan calls for laying out a path to zero net energy by 2030; it envisions a dramatic growth of innovative technologies, and 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 Strategic Plan lays out the following goal for Commercial New Construction.

[39] Per Executive order S-20-04, dated December 14, 2004, http://www.energy.ca.gov/greenbuilding/documents/executive_order_s-20-04.html

- 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.

SBD utilizes a holistic integrated design approach that reduces market barriers and results in high performance buildings. Examples of this integrated design include:

- Architect and engineer training;
- Energy Design Resources;
- Case studies;
- Energy efficiency integration awards;
- Design team incentives;
- Commissioning and End Use Monitoring Kickers

Further, the elements of SBD are designed to advance the Strategic Plan'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. SBD will partner with green focused organizations and local governments to advance the ZNE concept. The IOUs will leverage the IOU partnership programs to meet with, inform and advise local governments and other key entities of activities and opportunities to participate in ZNE pilots, as well as lessons learned. These strategies and the IOU action plans are further elaborated in the SBD PIP for Savings By Design), as well as in the Statewide Commercial PIP

The State of California's Green Building Initiative[40] 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

[40] Per Executive order S-20-04, dated December 14, 2004, http://www.energy.ca.gov/greenbuilding/documents/executive_order_s-20-04.html

Initiative through improved new construction in the commercial sector as well as the mandates in the government sector.

6) Program Implementation

SBD plans to undertake a variety of marketing and outreach activities, which could include the following:

Cross Promotion
For 2013 - 14, SBD program information will be included with marketing materials of other programs/services as appropriate. 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 Sates Green Building Council (USGBC)
- Green Building Consultants
- Collaborative for High Performance Schools (CHPS)
- California Commissioning Collaborative (CCC)
- California Energy Commission (CEC)

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
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. In addition, SBD case studies are posted on the Energy Design Resources

(energydesignresources.com) 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 Utility specific 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 and attending conferences to promote and build awareness surrounding their energy efficiency programs, although this might only be offered when resources permit.

i. Non-energy activities of the program

SBD will be engaged in a number of non-energy activities, including the following.

- Market characterization studies conducted through the Evaluation, Measurement and Verification programs
- 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 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. In addition, as part of this conference, SBD will sponsor a student design competition through funding from Energy Design Resources.
- 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. 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 Strategic Plan.

a) Statewide IOU Coordination

The IOUs will jointly participate in California's efforts to achieve real market transformation in the commercial 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 two-year implementation cycle. The process will include the following key elements:

- Designate an IOU Program Lead: Each IOU will designate a Lead for Savings by Design. a. The leads will investigate new innovations, special accomplishments and challenges faced by the Sub-program within their own IOU. Where such innovations or challenges offer some potential for improving the Savings By Design Program, the Program Leads will present such information in regularly scheduled New Construction Program Management Team meetings.
- Hold Savings By Design Program Management Team Meetings: At this regularly scheduled meeting, individual innovations and accomplishments experienced in one IOU will be presented to all IOUs. The team will evaluate the innovations and accomplishments of the individual IOUs, consider ideas for course corrections and overcoming challenges, measure the Savings By Design Program's progress against statewide metrics and goals.
- Adopt Program Enhancements: Once the Savings By Design Program Management Team agrees that a particular idea or innovation has merit on a statewide level, the leads will disseminate the information to their constituents for adoption and integration.

- 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 the following:
    - Program names: The Savings By Design name will continue to be used 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.
    - Program delivery mechanisms: The SBD Program is deployed through the sub-program activities discussed in more detail later in this PIP and summarized above in Section 4.a. The IOUs will deliver these SBD through a combination of delivery channels such as account executives/managers, third-party vendors and internal program management staff. The program will be delivered using existing industry infrastructure and the individual utility's organizational structure, in order to enhance their local effectiveness.
    - Incentive levels: To the extent possible, the IOUs will retain uniformity in the incentive structure of the sub-programs.
    - IOU program interactions: Strategy [1-2] outlined in the Strategic Plan 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 Strategic Plan, 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 Savings By Design 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 Savings By Design 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 regular basis to discuss program integration and implementation issues. The SBD sub-program is expected to interact extensively with the ET Program to ensure new and emerging technologies are showcased and/or piloted, including any ZNE promoting technical potential studies and roadmaps.

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 Savings By Design 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. Savings By Design, Codes and Standards and Emerging Technologies activities will be coordinated through the Program Management Team.

iii. Workforce Education & Training efforts

The workforce education and training (WE&T) needs for the Savings By Design program are unique to the industry and close coordination with 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. Program-specific marketing and outreach efforts

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 designers, exchange of builder contact information, joint presentations at trade shows, expos, and other industry events.

v. Non-IOU Programs

The Program will remain engaged with CEC, DOE and other government agencies responsible for various aspects of New Construction in California.

vi. Non-utility market initiatives

California utilities have established relationships with a number of other groups in the building industry. The Savings By Design Program will continue to seek out and coordinate synergies with, but not limited to, the following groups:

- 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 organization s to ensure appropriate standards are developed and adopted.

c) Best Practices

The Statewide Savings By Design Program demonstrates several examples of programmatic best practices. The team continues to utilize information from the process evaluations of the 2006-08 programs. Interviews with various market actors and focus groups from the design community had yielded several recommendations to improve the program. Based on that feedback, several enhancements will continue to be offered in the 2013 – 2014 Transition Period. Some of these are 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, and expanding the incentives for commissioning and M&E projects.

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.

The Statewide Savings By Design team has completed process evaluations of the 2006-2008 programs and is currently participating in the 2013-2014 process evaluation. Based on interviews with various market actors and focus groups from the design community in the 2006-2008 program cycle, several consistent themes emerged on recommendations to improve the program. Consequently, several enhancements were added to the program.

Process Evaluation Recommendations:

a) 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.

b) Promote High Efficiency - Participants were skeptical about LEED and its value, yet they all acknowledged that higher levels of energy efficiency were valuable.

c) Expand Credit for Unconventional Efficiency Measures - As SBD becomes increasingly ambitious, it will become necessary to update the analysis methods to

credit measures that lie outside the T-24 compliance domain, for example, natural ventilation and un-air-conditioned buildings.

d) 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.

e) 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.

f) Expand Incentives - Incentives could encourage both commissioning activities and the end use monitoring of projects. Commissioning especially is perceived as adding costs, so incentives are offered to offset the perception.

g) Benchmarking – Newly constructed buildings do not have one year's worth of data to effectively utilize the Energy Star Portfolio Manager benchmarking tool. Consequently, SBD will funnel completed projects into benchmarking programs that exist at individual IOUs, where the buildings will be queued for benchmarking after one year's data are available. Feedback from these follow-up evaluations will be shared with the building owner and the other IOUs.

Implementation of some of these recommendations is discussed below or in the Innovations section.

Other SBD best practices include the following:

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.

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 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 2013-2014, SBD will continue to offer the same incentives by measure end-use as the non-residential calculated retrofit program (known in 2006-2008 as Standard Performance Contract, or SPC).

Traditional Incentives
For 2013-2014, 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 $150,000, whichever is lower. For a limited number of projects, Utilities may decide to pay larger incentives if the projects are deemed worthy to receive the larger incentive.

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.

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 2013 - 14, the program will continue to 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.

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 as part of the design this activity will continue to grow during the 2013-2014 Transition Period.

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

The Statewide New Construction Program features a number of new program elements that reflect innovative out-of-the box thinking. These 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 include:

- Simplified SBD for smaller projects, which will offer web-based advice on common energy saving strategies.
- Performance Bonus adders for sustainability measures designed to move the market towards very high levels of energy efficiency.
- Program implementation that will emphasize fuel neutrality: a whole building, performance-based incentive approach that focuses on overall building efficiency rather than individual measures.
- On the basis of recommendations resulting from the EM&V review and other experience, SBD will initiate a number of innovations, including the following:

The Zero Net Energy Campaign
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%[41] of the square footage of new building stock participates in the SBD program (according to SDG&E data) – the program is reaching the customers. Now, using Zero Net Energy (ZNE) benchmarks, SBD will work closely with each IOU's internal sustainability and Zero Net Energy 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, e.g. Sustainability PIP at SCE. 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.

[41] Data from San Diego Gas and Electric

Program Goals Pertaining to Zero Net Energy
Creating a demand in the marketplace for super-efficient, green, LEED+ and/or solar ready, high-performance buildings will 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
- A new kBTUs per sq. ft. by building type performance metric will be adopted (e.g.) 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 may range up to $0.50 per kWh plus the standard kW incentive.

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 design – either utility- or customer-owned.

Training
The SBD Program, through the WE&T Program will offer advanced design training for architects, lighting designers, to advance the opportunities in Zero Net Energy. The training, covering subjects including natural ventilation systems and daylight lighting, will take place in workshops and "lunch and learns."

Program Evaluation Through End Use Monitoring and Benchmarking
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.

Newly constructed buildings do not have one year's worth of data to effectively utilize the Energy Star Portfolio Manager benchmarking tool. Consequently, SBD will funnel completed projects into benchmarking programs that exist at individual IOUs, where the buildings will be queued for benchmarking after one year's data are available. 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
- 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 SBD program may offer incentives towards the cost of installing metering to measure energy use in these areas or for sub metering tenant spaces.

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.

Market Transformation
The ZNE program seeks to encourage high-performance building and transform the market by:

- 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
SBD ZNE activities will be coordinated very closely with Emerging Technologies (ET) Programs to profile their technologies. ET will help fund the monitoring, verification and provide studies related to 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.

Peak Reduction Incentives
SBD will offer an incentive for peak demand reductions, consistent with the CPUC's methodology for determining peak kW reductions. The rationales for directly incentivizing peak reductions are two-fold:

- 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.
- A flat incentive for peak demand reductions, in addition to the energy incentive, addresses two industry concerns. 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 achieving the state's aggressive goals will require increased incentive levels to offset the effects of diminishing returns.

Design Team Incentives
SBD 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 2013-2014, the Design Team 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 approach on a WBA project, SBD will 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. If design assistance services are provided, Design Teams become ineligible for incentives or their own.

Simplified Approach for Small Projects

Continuing into 2013-2014, SBD will further develop and if ready 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

internet 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.

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
SBD offers additional financial incentives beyond direct energy and demand reduction incentives to systems approach and WBA projects that perform building commissioning (Cx) during design and construction, and/or install end use monitoring equipment to trend building performance in the lighting, plug load and HVAC areas.

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, i.e. Commissioning incentive is 1.1 and End Use Monitoring incentive is 1.2, to be applied to the owner's base incentives. Whole Building Approach and Systems Approach projects are eligible for these incentives. Projects participating in the Simplified Approach method are not eligible for Sustainability incentives.

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 program will explore leveraging the Statewide EE Financing program as directed by the CPUC in 2013-2014.

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 two-year program cycle to evaluate closer linkages between EE and DR.

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.

f) Integration across resource types

The Savings By Design 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. SCE and SCG have signed a joint agreement to exchange therms and electricity savings derived from projects they have been able to secure, so lost opportunities are minimized.

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 day lighting 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 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

Not applicable

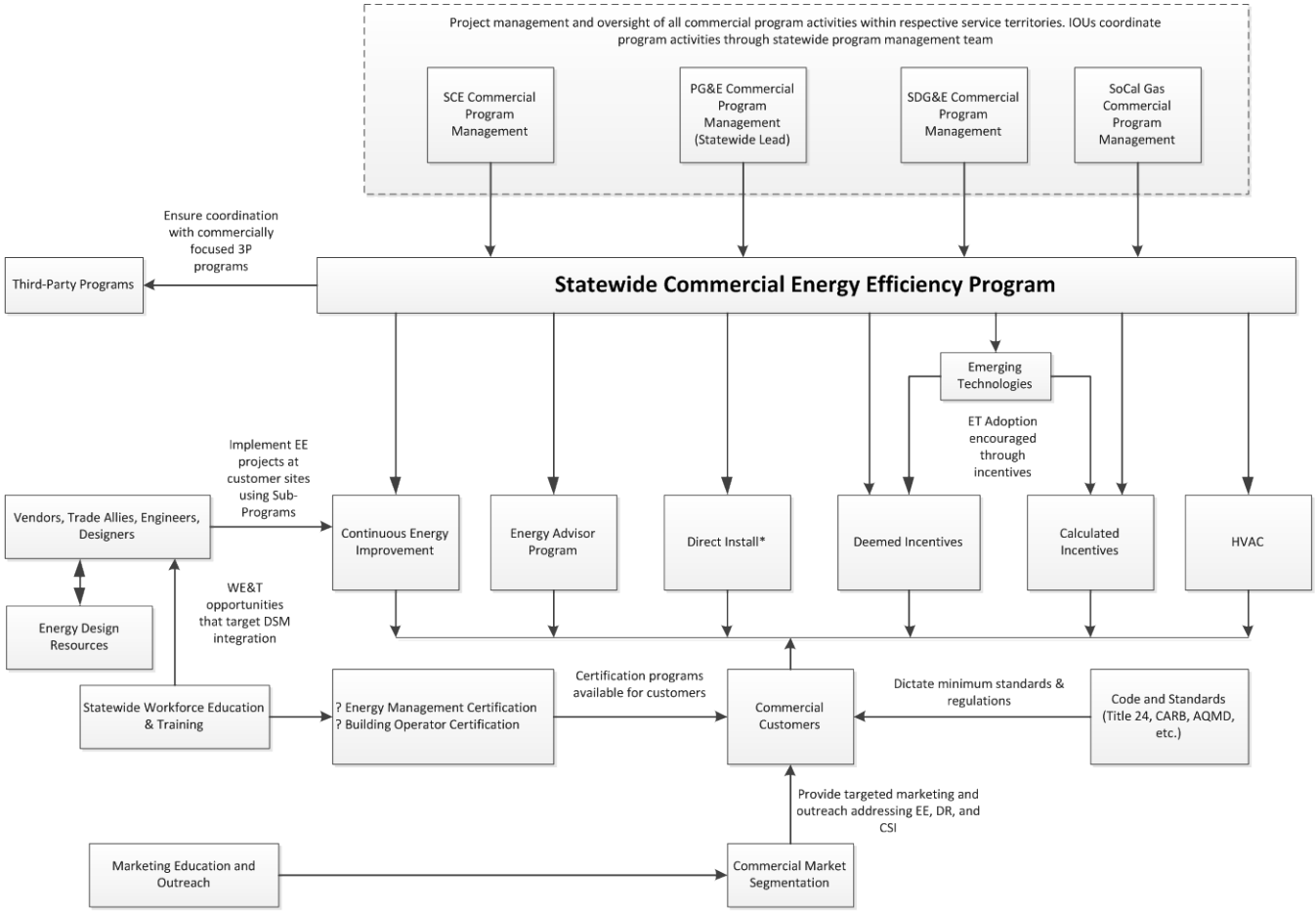
h) EM&V

The IOUs will work with the Energy Division to develop and submit a comprehensive EM&V plan for 2013-2014 cycle, after the program implementation plans are filed. This plan will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More details plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the utilities and Energy Division. Development of these plans will occur after the final program design is approved by the CPUC, and in many case, after the program implementation has begun, since the plans need to be based identified program design and implementation issues. The utilities plan to work together and with the Energy Division to develop a complete plan for 2013-2014 studies and budgets after the program plans are finalized and filed. EM&V efforts will be an important component as the IOUs move forward with the demonstrations of deeper energy efficiency, whole building demonstration projects. In an effort to explore the appropriateness of various measures of whole building savings – many using interval meter data – the IOUs will consider parallel EM&V with such demonstration projects; a key component to successful evaluation of these new approaches.

Detailed plans for process evaluations and other evaluation efforts specific to this program will be developed after final program design is approved by the CPUC and program implementation has begun, since final plans will be based on identified program design and implementation issues and questions. However, a brief description of the current, preliminary plans is provided below:

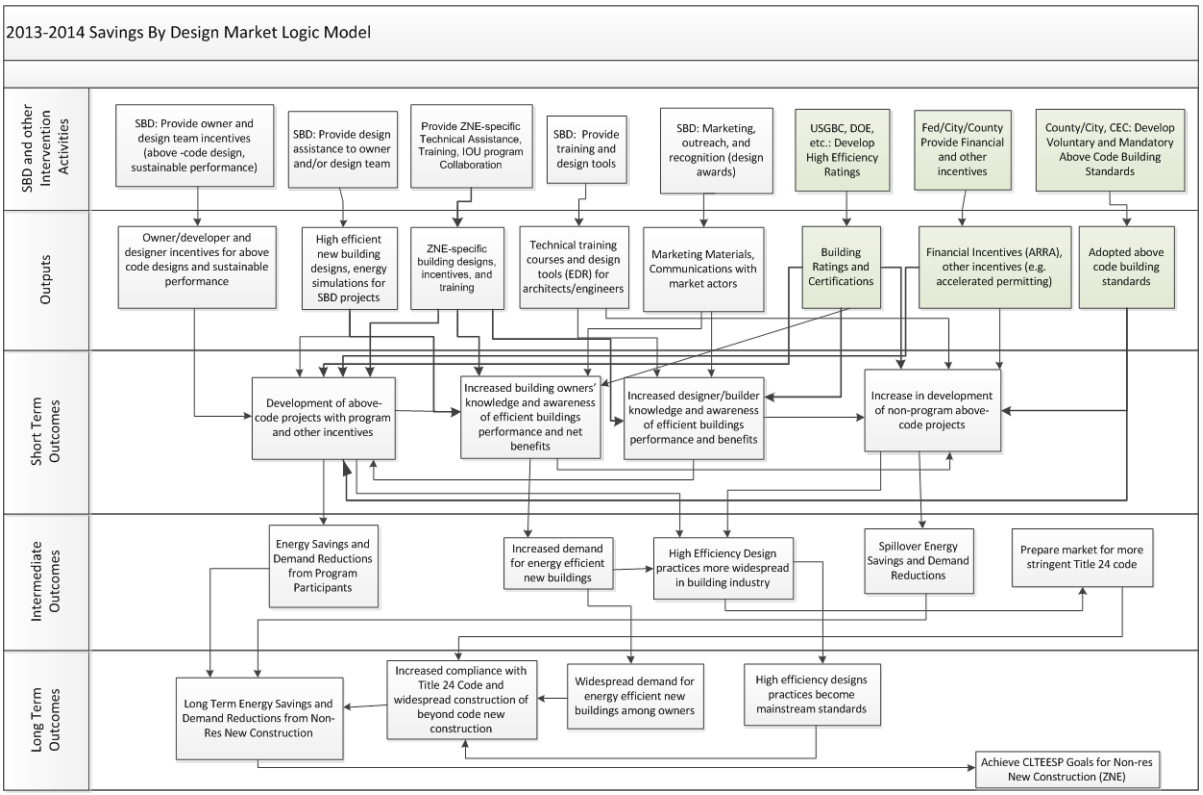
- Conduct evaluation to track the all proposed key metrics,
- Work with ED to resolve market baseline and transformation issues.
- Conduct specific process evaluation to improve program design, implementation and market effectiveness.

7) Diagram of Program



8) Program Logic Model

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. As there were no revisions to the original logic model for the Commercial Savings By Design, this logic model is left unchanged.



2d) Commercial Deemed Incentives, PGE21012, core subprogram

4) Program Description

a) Describe program

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 Commercial 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 Commercial 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-widget" 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) List of Measures

The following measure categories are eligible for Commercial Deemed incentives:

- Lighting
- Air conditioning equipment
- Food service equipment
- Refrigeration
- High efficiency water heating
- Plug load

#	Measure Name	Maximum Incentive Level
1	High Performance Linear Fluorescent Fixtures & Retrofit Kits	$17.50-$20
2	Linear Fluorescent T-8 Lamp 32 watts to 28 watts	$1.00
3	Linear Fluorescent T-8 Lamp 32 watts to 25 watts	$1.50
4	Linear Fluorescent Fixture - T8 (including dimmable)	$35.00
5	Linear Fluorescent Fixture - < 100-watt lamp existing, up to 64-watt replacement fixture	$25.00
6	Linear Fluorescent Fixture - Linear Fluorescent Fixture - 101- to 175-watt lamp existing, up to 128-watt replacement fixture	$35.00
7	Linear Fluorescent Fixture - 176- to 399-watt lamp existing, up	$50.00

	to 192-watt replacement fixture	
8	Linear Fluorescent Fixture - 400-watt lamp existing, 245- to 360-watt replacement fixture (Tier 2)	$50.00
9	Linear Fluorescent Fixture - 400-watt lamp existing, up to 244-watt replacement fixture (Tier 1)	$100.00
10	Linear Fluorescent Fixture - > 400-watt lamp existing, up to 600-watt replacement fixture	$200.00
11	Exterior Metal Halide (PSMH / CMH) - < 100-watt lamp existing, up to 70-watt replacement	$15.00
12	Exterior Metal Halide (PSMH / CMH) - 101- to 175-watt lamp existing, up to 100-watt replacement	$20.00
13	Exterior Metal Halide (PSMH / CMH) - 176- to 200-watt lamp existing, up to 125-watt replacement	$25.00
14	Exterior Metal Halide (PSMH / CMH) - 201- to 399-watt lamp existing, up to 175-watt replacement	$25.00
15	Exterior Metal Halide (PSMH / CMH) - 400-watt lamp existing, up to 250-watt replacement	$45.00
16	Exterior Metal Halide (PSMH / CMH) > 400-watt lamp existing, up to 750-watt replace	$75.00
17	Interior Induction Fixture - < 100-watt lamp existing, up to 70-watt induction lamp	$35.00
18	Interior Induction Fixture - 101- to 175-watt lamp existing, up to 120-watt induction lamp	$60.00
19	Interior Induction Fixture - 176- to 399-watt lamp existing, up to 180-watt induction lamp	$75.00
20	Interior Induction Fixture - 400-watt lamp existing, up to 250-watt induction lamp (Tier 1)	$125.00
21	Interior Induction Fixture - 400-watt lamp existing, up to 360-watt induction lamp (Tier 2)	$60.00
22	Exterior Induction Fixture - < 100-watt lamp existing, up to 70-watt replacement fixture	$25.00
23	Exterior Induction Fixture - 101- to 175-watt lamp existing, up to 100-watt replacement fixture	$45.00
24	Exterior Induction Fixture - 176- to 200-watt lamp existing, up to 120-watt replacement fixture	$50.00
25	Exterior Induction Fixture - 201- to 399-watt lamp existing, up to 180-watt replacement fixture	$50.00
26	Exterior Induction Fixture - 400-watt lamp existing, up to 250-watt replacement fixture	$100.00
27	LED Fixtures & Retrofit Kits - surface, accent, track, pendant, and recessed downlight: ≤ 25 watts	$15-$25
28	Bi-Level Stairwell/Hallway/Garage Fixtures	$15.00
29	Screw-in compact fluorescent reflector lamp, 14–28 watts	$7.00
30	Wall-box lighting sensor	$20.00
31	Wall- or ceiling-mounted lighting sensor < 500 watts controlled	$35.00
32	Wall- or ceiling-mounted lighting sensor > 500 watts controlled	$55.00
33	Aisle traffic sensor for reach-in refrigerated case door lighting	$100.00
34	Integrated sensor: < 150 watts	$15.00
35	Integrated sensor: > 150 watts	$40.00
36	Photocell	$11.00
37	Time clock	$36.00

Audits are an important tool for marketing and increasing the uptake of EE measures. An audit is not a prerequisite for deemed incentives, unless three or more EE measures are being implemented on a single application.

Deemed energy efficiency rebates for businesses will be part of the integrated strategy to promote energy efficiency with non-residential customers. The Statewide Commercial Deemed Team will hold regular conference calls and in-person meetings to share successes challenges, and best practices in delivering energy efficiency via deemed incentives. When appropriate, the Commercial, Industrial, and Agricultural segments will meet as a statewide entity to share successes challenges, and best practices in delivering energy efficiency to each market sector and associated sub-segments.

Commercial Deemed Incentives 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.

c) List Non-incentive Customer Services

The Commercial 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 Indicators (MTIs)

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 3 – refer to the overarching program for quantitative baseline metrics

b) Market Transformation Indicators (MTIs)

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 4 – refer to the overarching program for quantitative baseline metrics

c) Program Design to Overcome Barriers

The Statewide Commercial 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 commercial deemed incentives, where engineering calculations and pre- and post-monitoring may be required.

Furthermore, to ensure equity to all business 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.

Incentives and savings payouts will be based upon deemed measures in the DEER database or through work papers.

The Commercial 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 Commercial 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 efficiency opportunities to be "lost." The Commercial 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).

d) Quantitative Program Targets

PG&E's quantitative program targets are included in its Table 2, Projected Program Gross impacts, section 3.

e) Advancing Strategic Plan goals and objectives

The unifying objective of the Strategic Plan 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 Strategic Plan. 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 Strategic Plan:

- 2-3: Ensure compliance with minimum Title 24 codes – The Commercial 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 Commercial 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 Commercial 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.
- 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 CEC, the Office of the Future Consortium.

6) Program Implementation

a) Statewide IOU Coordination

The Statewide IOU Coordination process, described in detail in the Statewide Commercial Energy Efficiency Program, will ensure continuous improvement and consistent implementation of all of the sub-programs. The discussion below will focus on how the IOUs will coordinate the Commercial Deemed Incentives sub-program specifically.

The Statewide IOU Coordination process for the Commercial Deemed Incentives sub-program will be as follows:

- Hold Regular Program Manager Meetings – The Deemed sub-program managers from each of the IOUs will meet on a regular basis. The sub-program managers will unify, to the extent possible, the implementation of program aspects such as Program name, Program delivery mechanisms, Incentive levels, marketing and outreach plans, and IOU program interactions. The sub-program managers will also discuss new innovations and develop solutions to overcoming implementation challenges. Therefore, the regular meetings will focus on issues specific to the Deemed sub-program only.
- Designate an IOU Program "Lead" – One of the sub-program managers that participates in the regular meetings will be the designated Deemed Program IOU "Lead". The IOU lead will represent the sub-program at the regular Statewide Steering Committee meetings.
- Participate in Regular Steering Committee Meetings – The IOU lead will be responsible for attending the regular Steering Committee Meetings and sharing Commercial Deemed Incentives sub-program innovations, experiences and challenges that have the potential to impact multiple sub-programs or the core Commercial Energy Efficiency Program as a whole.
- Adopt Program Enhancements - Once the Steering Committee agrees that a specific innovation or implementation policy has merit on a statewide level; the IOU lead will distribute the information to the Deemed sub-program managers by email or at the next regular meeting for adoption and integration. Therefore, the IOU lead will act as a conduit feeding Deemed sub-program-specific information up to the statewide Steering Committee and distributing measures for adoption back to the Deemed sub-program managers.
- Evaluate Program Enhancements – To complete the adaptive management loop, the Deemed sub-program managers will track the success of the adopted statewide enhancement or implementation policy and report any challenges or concerns at the regular Commercial Deemed Incentives sub-program meeting. The IOU lead will report any challenges that transcend the Commercial Deemed Incentives sub-program to the Steering Committee, who will determine whether further course corrections are needed.

By following the process stated above, the Commercial Deemed Incentives sub-program managers will play a critical role in ensuring unified implementation on a statewide level over the course of the two 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 both statewide coordination systems.

The coordination and unity of all program aspects, such as Program name, Program delivery mechanisms, incentive levels, marketing and outreach plans, and IOU program interactions, will be handled through this statewide coordination framework. However, these aspects will start off at a high level of statewide consistency. In rare cases, there will be IOU-specific deviations. Such instances where one IOU will favor a different approach than the other IOUs will be called out in italicized text throughout the Deemed Incentives sub-program.

i. Program name: Deemed Incentives

ii. Program delivery mechanisms

Deemed Incentives will be primarily delivered via paper or online application. Measures and incentive levels will be the same across IOUs, unless markets in the individual IOUs require adjustments based on research, communication with industry, and/or changes in the economic landscape.

iii. Incentive Levels

Incentive levels vary by measure type, but will be offered consistently across IOU service territory except where local market conditions necessitate different amounts. Higher incentive levels will be provided for Emerging Technologies to spur traction in the market as feasible. The level of increased incentive for emerging technologies will be evaluated on a measure by measure basis dependent on kW, kWh, equipment cost, other market factors and cost effectiveness.

iv. Marketing and outreach Plans

The Deemed Incentives sub-program will be marketed through IOU account executives, as well as through third-party programs, trade allies, 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 e-mail support will be provided.

In 2013-2014, the IOUs will implement segmentation research and messaging. 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 solutions in the Deemed Incentives sub-program. Education, awareness and outreach efforts will rely on a combination of mass media 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, 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.

Additionally, IOUs may investigate piloting alternative channel marketing and outreach options that utilize community-based organizations and/or third parties to recruit small businesses and influence them to take actions that result in energy efficiency improvements. Local government partnerships, regional and community entities tend to interface with small businesses with some regularity; therefore, partnering with these organizations could prove to be a viable delivery option. A marketing and outreach campaign with Business Improvement Districts through our Local Government Partnerships, will serve to educate and increase engagement in a segment that is hard to reach.

v. IOU program interactions

The Deemed Incentives sub-program managers will partner with the programs as appropriate offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to co-brand program information and marketing collateral with this sector's customers, to the extent possible. Conventionally, 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, comprehensive information that discusses all resource efficiency issues will benefit the customer to the mutual advantage of the single resource programs.

With respect to water conservation, utility program managers will partner with the local water districts to co-brand marketing collateral, attend trade shows, and co-release brochures, for programs with interactive water and energy effects. Similarly, with ARB and Air Quality Management Districts, IOUs will offer customers Deemed

sub-program incentives for energy efficient equipment that may also reduce air and GHG emissions.

vi. Similar IOU and POU programs

The IOUs will be delivering many third-party programs that utilize the Deemed Incentives sub-program infrastructure. This will help ensure a consistent delivery of measure incentives and protect programs from undermining each other and detracting from achieving cost-effective energy savings.

b) Program delivery and coordination

i. Emerging Technologies program

To meet California's future energy efficiency goals, both in terms of overall usage and peak demand usage, new technologies and new applications of technology are needed. The Commercial Deemed Incentives 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 the Commercial Deemed Incentives sub-program 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.

Deemed incentives will be primarily delivered 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.

ii. Codes and Standards program

The Commercial Deemed Incentives sub-program relies on codes and standards to help maintain an updated and relevant list of measures that support savings. As codes and standards impact measures, the Commercial Deemed program will act to align itself with appropriate offerings. It is important to manage the measure life cycle to take full advantage of providing incentives before moving them into codes and standards. 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 research and development to mainstream program 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 Commercial Deemed Incentives 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 to participate. In 2013-2014, a program representative will be available to deliver the EE message and answer questions.

iv. Program-specific marketing and outreach plans

The Deemed Incentives sub-program will be marketed through IOU Account Executives, as well as through third-party programs, 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 e-mail support will be provided.

The IOUs will continue to build on and refine marketing plans and strategies used in past portfolios in the 2013-2014 cycle. This will involve developing marketing plans to deliver targeted messages to specific customers that resonate with their values and needs with the goal of increasing the market uptake of deemed incentives. These plans will coordinate and create timelines for activities, present strategic campaigns, establish targets and metrics, and include a performance monitoring strategy.

The following will be used as marketing and outreach channels:

- Non-contracted equipment vendors are a key delivery channel of the Commercial Deemed Incentives sub-program. Emphasis will be placed on building awareness with more vendors in the territory and training vendors on how to participate effectively in the program.
- Community-based organizations (CBOs), faith-based organizations (FBOs), non-profit organizations, and non-government organizations (NGOs) with unique access and following are expected to be emphasized as delivery channels.
- Trade associations and industry networks
- Enabling partners (financial institutions, trade associations, service providers, law firms, environmental organizations)
- Unique channels that offer complementary value propositions from the customers' perspective (e.g., energy, water, materials management, recyclables, corporate citizenry).

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

Integrated Energy Audits (described in the nonresidential Audit sub-program) is the primary vehicle to promote project solutions that look across the various IOU DSM program offerings, as well as complementary options available through other entities (e.g., water agencies). The results of the ongoing Water Efficiency Pilot Program will identify 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 program interactions

The Commercial Deemed Incentives sub-program managers will partner with the programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to co-brand program information and marketing collateral with this sector's customers. Conventionally, 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, comprehensive information that discusses all resource efficiency issues will benefit the customer to the mutual advantage of the single resource programs.

With respect to water conservation, utility program managers will partner with the local water districts to co-brand 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 Commercial Deemed Incentives sub-program incentives for energy efficient equipment that may also reduce air and GHG emissions.

vii. CEC work with EPIC

As of June 2012, PIER no longer exists. However, 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 project in coordination with the applied research of EPIC.

viii. CEC work on codes and standards

Planned enhancements to Title 20 and 24 will be reflected in incentive levels and in eligible measures and services.

ix. Non-utility market initiatives

The sub-program will support, educate customers, and facilitate such initiatives as 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

To maximize program effectiveness, best practices in Program Design and Implementation will be employed and shared amongst IOUs. Areas of best practices for the Commercial Deemed Incentive sub-program approach include:

- Best practices in Program Design:
  - Regular communication amongst IOUs is critical to effective program design.
  - Identify qualifying products simply and effectively (Examples; ENERGY STAR®, CEE).
  - Seek input from industry in the development of new programs. The IOU programs are trying to change how an industry operates from manufacturer design to the customers purchasing and maintenance practices.
  - Industry participation increases program volume and speeds market transformation.
- Best practices in Program Implementation:
  - Strive to simplify messaging and participation for the customer. (Look for the ENERGY STAR label, purchase from a qualifying products list)
  - Understand the key motivators that drive an industry and use that information to market your program. Make certain outreach efforts make your program visible to your customers and the market that is catering to your customers.
  - Always communicate program marketing and advertising plans in advance to appropriate industry channels. Advanced notice allows industry partners an opportunity to leverage off of utility marketing efforts and reinforce the messaging we are trying to get across.
  - Statewide coordination is important as it makes 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 administrative expenses through cost sharing arrangements.

d) Innovation

Innovative aspects of the program for 2013-2014 include persistent integration of new and emerging technologies into the program processes. This will manifest itself in an increased emphasis on plug load technologies (in support of the Strategic Plan) and by aligning rebates with the recommendations of the Office of the Future Consortium to help make their "25% Solution" a reality.

Additionally, incentive mechanisms that emphasize peak demand reduction, addresses current economic downturn and better motivate customers to participate in energy efficiency incentive programs will be pursued. During 2013-2014 program cycle new incentive structures will be periodically evaluated and necessary changes may be made in order to enhance program benefits and performance, including measure bundling incentives. The IOUs will explore offering an audit to customers considering three or more measures in an effort to determine if the audit itself leads to implementation of deeper energy savings.

Where possible, IOUs will use integrated approach to addressing DSM opportunities. Innovative aspects such as merging energy efficiency and demand response analysis and converting recommendations to projects under Retro-commissioning and/or nonresidential Audits, processing and reviewing energy efficiency and demand response measures in a single application, providing analytical information about applicable distributed generation solutions will maximize customer adoption rates for most cost-effective energy management opportunities.

e) Integrated/coordinated Demand Side Management

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 Deemed Incentives sub-program will leverage lessons learned from SDG&E's DSM 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 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 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 programs in addition to energy efficiency programs.

The integration of energy efficiency and demand response programs presents several issues and, as stated previously, the sub-program seeks to overcome these issues 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);
- Provide unified technical assistance through enhanced EE/DR Audits through the TA/TI Program to allow for cross-harvesting opportunities;
- Integrated presence on utility websites; and
- Regular coordination meetings between energy efficiency and demand response program management.

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 Food Service 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

Not applicable

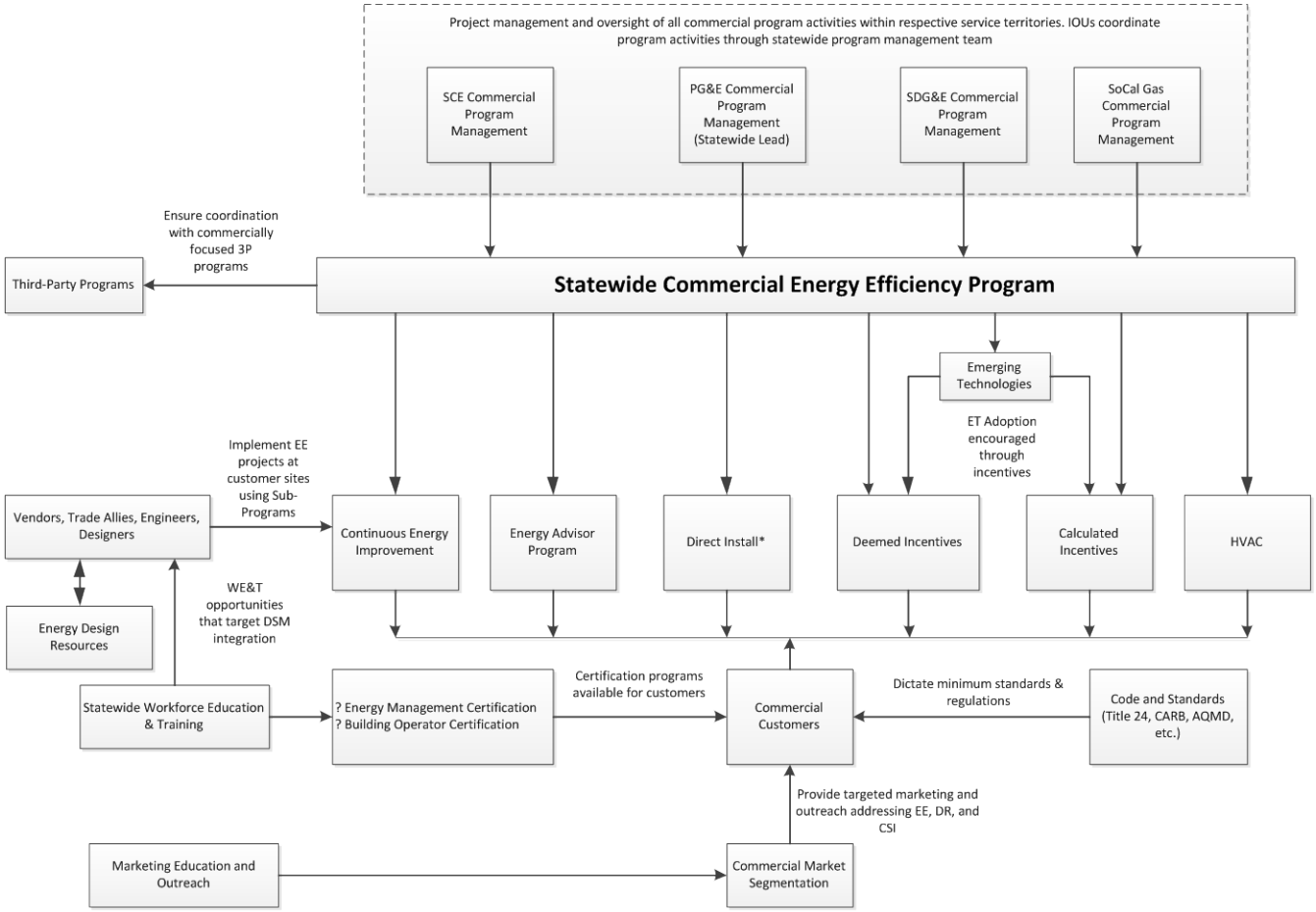
h) EM&V

The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V plan for 2013-2014 cycle, after the program implementation plans are filed. This plan will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More details plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the utilities and Energy Division. Development of these plans will occur after the final program design is approved by the CPUC, and in many case, after the program implementation has begun, since the plans need to be based identified program design and implementation issues.

Detailed plans for process evaluations and other evaluation efforts specific to this program will be developed after the final program design is approved by the CPUC and program implementation has begun, since final plans will be based on identified program design and implementation issues and questions. However, a brief description of the current, preliminary plans is provided below:

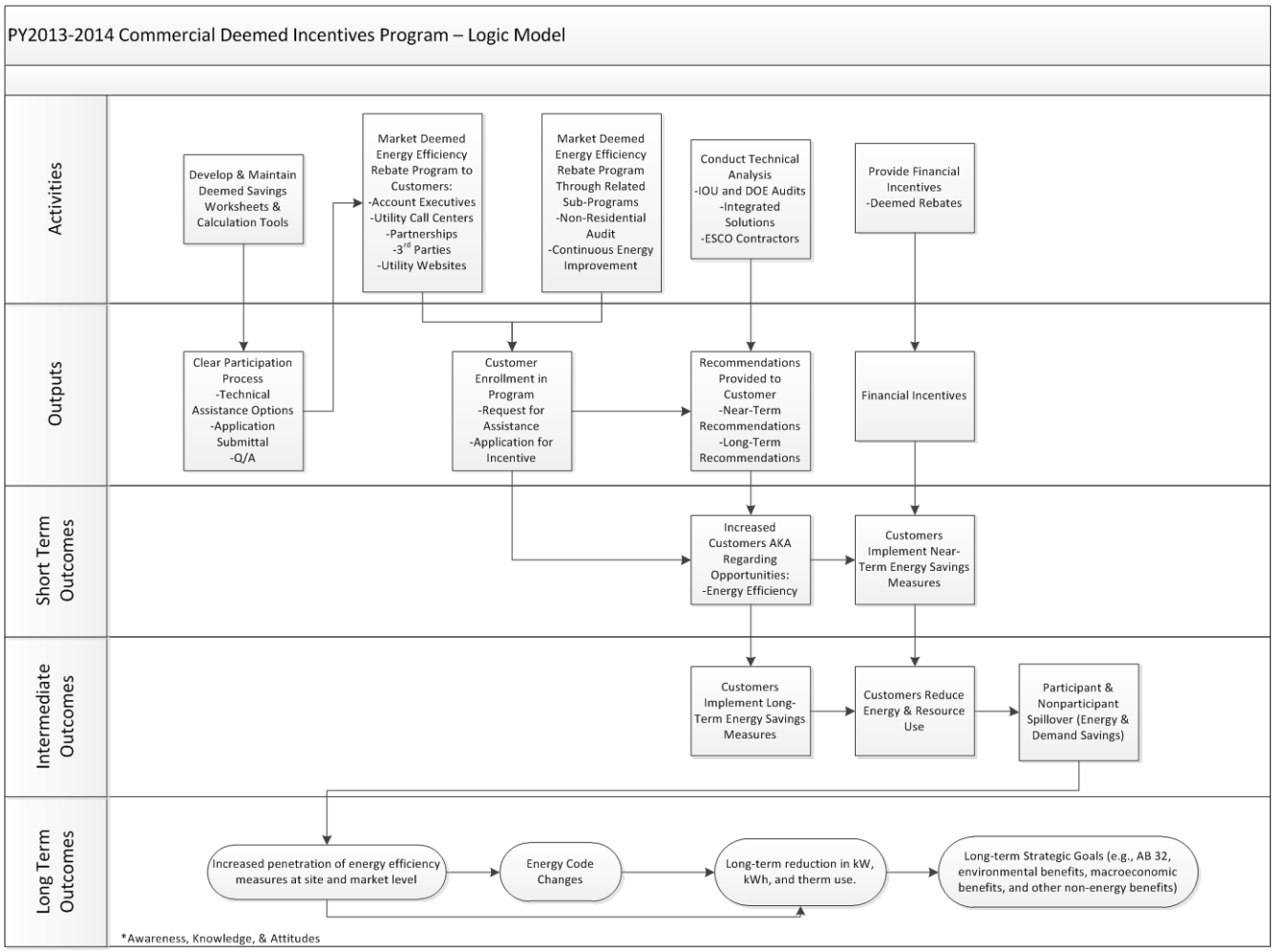
- Conduct evaluation to track the all proposed key metrics,
- Conduct specific process evaluation to improve program design, implementation and market effectiveness.

7) Diagram of Program



8) Program Logic Model

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. As there were no revisions to the original logic model for the Commercial Deemed Incentives Program, this logic model is left unchanged.



2e) Continuous Energy Improvement, PGE21013, core subprogram

2) Projected Program Budget Table

Table 1 – reference the overarching program for budget details

3) Projected Program Gross Impacts Table – by calendar year

Table 2 - reference the overarching program for gross impact details

4) Program Description

a) Describe Program

The Commercial Continuous Energy Improvement (CEI) is a consultative service aimed at helping 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. 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 principles of well-known business continuous improvement programs, such as Six Sigma and International Standards Organization (ISO) standards, to facility and plant energy management. These principles are: (1) Commitment; (2) Assessment; (3) Planning; (4) Implementation; (5) Evaluation; and (6) Modification. At each stage of customer engagement, a variety of complementary utility and non-utility products and services can be customized to fit different customer profiles and optimize the cost-effectiveness of the delivered energy management solution.

In 2013-14, CEI will be expanded to include select group of mid-sized non-residential customers. Available options to help target these customers may include an individualized, a small group, or a mass-market, remote deployment approach.

CEI will coordinate its services with the Energy Advisor Program offerings. CEI offers customers what can be considered the pinnacle of audit offerings guiding senior management to instill energy considerations in all management/business operational decisions and in long term energy planning.

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 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 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. A component to the assessment will also include tools to help identify Energy Efficiency (EE), Distributed Generation (DG), and Demand Response (DR) opportunities.

Based on screening criteria, utilities will offer comprehensive energy assessment services using vetted sources like (but not limited to) those described below, to develop a customer specific strategic energy plan.

- ENERGY STAR's Guidelines for Energy Management, housed on the ENERGY STAR website, provide step-by-step guidelines to support CEI in general, and also guide 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, or 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 Energy Advisor Program plan.

Benchmarking can measure the energy performance of a company, building, process, or piece of equipment against 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 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 time. Benchmarking can also be applied to other resources and environmental issues such as water use, CO_2, and emissions.

CEI Planning
Strategic energy planning involves setting energy goals and action plans around energy efficiency, demand response, and generation as appropriate. Planning for customers will typically involve Account Representatives and/or consultants. As is discussed in the Strategic Plan and in the Statewide Integration PIP, strategic planning can also include complementary non-energy considerations as well, such as GHG reduction, water efficiency, and waste-stream minimization, all 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 its overall energy intensity by 3% over the next 3 years"), carbon reduction goals ("Company X will be carbon neutral by 2014"), or management oriented goals ("Company X will implement energy teams by 2013"). Goals can be stated in 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, and
- Developing project justification and incentive application documentation lists and detailed schedules.

CEI 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 Commercial Deemed Incentives
- Statewide Commercial Calculated incentives for new construction/tenant improvement, retrofit and retro-commissioning and/or repair

- Third-Party and Government Partnership programs (described in the statewide and local third-party filings)
- Utility and non-utility financing options
- External and Internal engineer support

CEI Evaluation and Modification

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) List of Measures

CEI does not provide incentives to customers, but ultimately facilitates the customer's implementation of energy efficiency projects through incentive programs. However, depending on the outcome of the 2012 process evaluation, customer incentives may be offered.

c) List Non-incentive Customer Services

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

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics and goals are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 3 –Refer to the overarching program for quantitative baseline metrics

b) Market Transformation Indicators (MTIs)

By its nature, market transformation occurs as a result of numerous factors and programs, not single sub-programs. Therefore, all metrics and goals are proposed at the program level. Please refer to the quantitative baseline and market transformation discussion, presented in the overall program PIP.

Table 4 – Refer to the overarching program for market transformation metrics

c) Program Design to Overcome Barriers

CEI is intended to address several market barriers that prevent wider adoption of energy efficiency practices. These barriers and the strategies to overcome them 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.

d) Quantitative Program Targets

The CEI targets provided herein are best estimates for the 2013-14 program cycle that are combined for the statewide Commercial, Industrial and Agricultural Programs.

Continuous Energy Improvement (CEI)	**Program Target for 2013-2014**
Large/Midsize Participants to Meet Short-Term Milestones	13
CEI Participants that will create an Energy Plan	13

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 Strategic Plan:

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 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 Strategic Plan.

2-2: 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 Department Of Energy/CPUC sponsored labs and consultants, to enhance the use of existing tools, and develop new tools to assist commercial customers reduce initial energy usage at their facilities, then continue to operate their facilities in an efficient manner. Current tools used for benchmarking tools and resources include those developed by the EPA for ENERGY STAR and by Lawrence Berkeley National Lab (LBNL) 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_2/yr.
- Management Standard for Energy SME2000-2008
- DOE Superior Energy Performance
- ISO-50001

2-3: 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

a) Statewide IOU Coordination

The Statewide IOU Coordination process will ensure continuous improvement and consistent implementation of all sub-programs. The discussion below will focus on how the IOUs will coordinate the CEI sub-program specifically. The Statewide IOU Coordination process for the CEI sub-program will be as follows:

- **Hold Regular Sub-program Manager Meetings** – The CEI sub-program managers from each of the IOUs will meet on a regular basis. The sub-program managers will unify, to the extent possible, the implementation of program aspects such as program name, program delivery mechanisms, incentive levels, marketing and outreach plans,

and IOU program interactions. The sub-program managers will also discuss new innovations and develop solutions to overcoming implementation challenges.

- **Input to Program Sector Lead Meetings** – The CEI sub-program managers will communicate to their Program Sector Leads the CEI sub-program innovations, experiences, and challenges that have the potential to impact multiple sub-programs or the Program as a whole. When a specific innovation or implementation policy has merit on a Statewide-level, the Sector Lead will distribute the information to the CEI sub-program managers by e-mail for adoption and integration.
- **Evaluate Program Enhancements** – To complete the adaptive management loop, the CEI sub-program managers will track the success of the adopted Statewide enhancement or implementation policy and report any challenges or concerns at the monthly CEI sub-program meeting.

By following the process stated above, the CEI sub-program managers will play a critical role in ensuring unified implementation on a statewide level over the course of the 2013-2014 program cycle. Sub-program innovations and challenges will also feed productively into the higher-level Program Steering Committee process, where the IOU lead will act as participant and conduit between both statewide coordination systems.

The coordination and unity of all program aspects will be handled through this statewide coordination framework. However, these aspects will start off at a high-level of statewide consistency. In some cases, there will be local IOU-specific deviations. Instances where certain IOUs favor a different approach than the other IOUs will be called out in italicized text.

i. Program name: Commercial Continuous Energy Improvement Program

ii. Program delivery mechanisms

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 delivery channels may also be developed.

Where applicable, the Utility's account representatives will support this activity within the statewide industrial sector, as well as third parties, government partnerships, and Utility local programs.

iii. Incentive levels - N/A. (CEI is a non-resource program).

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

CEI will be available to all commercial customers meeting certain eligibility criteria to justify the cost of the offering. Criteria will include, but not be limited to, customer energy use, complexity, number of facilities, energy decision-making structure, and environmental commitment or demonstrated motivation. Collateral materials such as fact sheets, how-to documents, Power Point slides, case studies, etc., will be produced and distributed during sales calls, public events, association meetings, and/or trade shows. In addition, sponsoring and/or holding recognition events that present customers with awards for achieving specific levels of efficiency, sustainability and/or integration will be explored as a means to promote greater levels of participation.

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

CEI will include the CEC's Environmental Protection Indicators for California (EPIC) and Green Building Initiative programs, DOE's "ISO plant certification" programs, EPA EnergyStar Portfolio Manager benchmarking, EPA Building Performance with Energy Star and other programs, USGBC LEED certification, and local and other government incentive programs as applicable.

vi. Similar IOU and POU programs

Over the next two years, the IOUs will seek to increase their interactions with the POUs as applicable to promote the CEI concept throughout the state. This may involve the creation of periodic California energy efficiency program summits that seek to increase awareness of the Strategic Plan and how programs could/should be designed to help meet its aggressive targets.

b) Program delivery and coordination

CEI includes the following coordination efforts:

i. Emerging Technologies (ET) program

CEI implementation will include identification and project development at specific customer sites with potential for Emerging Technologies program participation and demonstrations.

ii. Codes and Standards program

CEI implementation will include information about pending new Codes and Standards program that may affect planning or prioritization of retrofit or new construction projects.

iii. WE&T efforts

CEI implementation will integrate with WE&T efforts by providing CEI process, lessons learned, and case study input to energy engineering curriculum designers for community colleges and universities. This activity will be coordinated through the Statewide WE&T program team and will ultimately be integrated into the web portal that team is now developing. IOUs will assess and support specialized **WE&T** training to help target working energy management professionals, industry professionals, and those pursuing education in universities and colleges.

IOUs will also continue with **WE&T** coordination to bridge the linkages and integrate sector strategy approaches. Program costs will be shared with WE&T.

iv. Program-specific marketing and outreach efforts

CEI will be marketed through utility 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 e-mail support will be provided.

In 2013-2014, 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 help 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, 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 above.

v. Non-energy activities of program

CEI implementation will include non-energy activities such as recognition awards, local area or sector competitions, awareness campaigns, education about non-energy related LEED points and definitions, and use of computerized financial analysis tools and cost estimating and forecasting tools.

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 integrated efforts. The utility managers will partner with programs offered by CEC, ARB, Air Quality Management Districts, and other government agencies to capitalize on opportunities to develop co-branded program information and marketing collateral target to commercial-sector customers. Conventionally, 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. Closer alignment with these other programs will be achieved in order to deliver the customer a more comprehensive solution. With respect to water conservation, utility program managers will partner with the local water districts to co-brand 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 Commercial Calculated sub-program incentives for energy efficient equipment that may also reduce air emissions.

vii. CEC work with EPIC

CEI implementation shall continually seek to promote the adoption of new technologies developed through the EPIC process and to expose customers to demonstration, research and/or pilot projects. The continuous improvement process envisioned by CEI will provide new equipment/processes, and methods that will enable customers to achieve energy efficiency “stretch” goals in a cost-effective manner.

viii. CEC work on codes and standards

The program will not be implemented with a direct linkage to codes and standards efforts. However, see Section 6.b.ii., above.

ix. Non-utility market initiatives

CEI will support Energy Management certification efforts (ANSI, ISO), engaging at the material level. 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 CIE sub program will provide customers.

c) Best Practices

CEI's approach applies the principles of well-known business continuous improvement programs, such as Lean Six Sigma and ISO standards, to facility and plant energy management, in order to achieve widespread adoption of long-lasting sustainable energy management practices in the commercial market sector. As stated above, these principles are: (1) Commitment, (2) Assessment, (3) Planning, (4) Implementation, (5) Evaluation, and (6) Modification. This approach can now be successfully implemented given the two-year program cycle for 2013-2014, allowing longer-term and deeper project development engagement with customers.

d) Innovation

CEI is a new way of packaging energy efficiency, demand response and self-generation 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.

Depending on the outcome of the 2012 process evaluation, CEI may consider customer incentives to accelerate project implementation (including IDSM projects), and reward customer for implementing strategic energy management.

e) Integrated/coordinated Demand Side Management

CEI includes project analysis and implementation support of recommendations of Statewide Integrated Energy Audits which provide customers with an inventory of facility end-use breakdown and 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 similar related programs, but because of siloing – thinking of programs as separate, unrelated efforts – this has proved difficult. To overcome the historic this, the CEI sub-program will leverage lessons 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 incentives are based on. 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 support and services 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 consolidated applications, collateral, web sites, and events, where applicable, which will give customers the opportunity to enroll in demand response programs as well as energy efficiency programs.

To support the integration of energy efficiency and demand response programs, the sub-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

CEI is recognized as an integrated element by supporting the statewide IDSM program's goals and objectives, and the IOUs will increase IDSM messaging and coordination within CEI.

PG&E will develop and promote integrated-measure offerings that include EE, DR, or DG technologies. These "bundles" will be tailored based on customer segment and offered in the CEI program. In order to promote integrated projects, increased incentives or incentive adders for bundled DSM offerings will also be explored. The CEI team will work with the IDSM Task Force on eventually optimizing/incorporating DSM bundles into integrated projects. Once DSM bundles have been piloted and optimized in the CEI program, they can then be considered for inclusion in other programs in support of PG&E's IDSM vision. Any additional best practices and lessons learned from the CEI program's IDSM-centric approach will also be shared with IDSM Task Force members and incorporated into current programs or future program designs where applicable.

As part of the shift to a relationship marketing strategy, PG&E will integrate relevant DSM solutions into its marketing and outreach activities for CEI. Marketing and outreach activities will be targeted to provide customer-specific solutions that reflect the DSM programs and services that are appropriate for the customer segment. Therefore, the marketing mix for promoting EE, DR, and DG will vary within the CEI program, based upon what is appropriate and relevant for the customer.

PG&E's CEI Program will coordinate with the statewide IDSM Task Force by providing program and integrated project updates and sharing lessons learned in PG&E's internal IDSM meetings.. CEI activities, accomplishments, and lessons learned will also be recorded in PG&E's quarterly IDSM Compliance and Tracking Report submitted to Energy Division. The objective of such close coordination is to pilot and optimize integrated program practices, activities and offerings in the CEI Program for ultimate adoption into other program areas where appropriate. The table detailing the DSM resources is available below:

TABLE A-7
PACIFIC GAS AND ELECTRIC COMPANY
DEMAND-SIDE MANAGEMENT PROGRAM PROMOTION MATRIX

	DSM Program Promotion Matrix		
Utility	**Energy Efficiency**	**Demand Response**	**Distributed Generation**
PG&E	• Utilize technical audits program to allow for the proper identification of DSM resources. • CEI Providers will promote EE, DR, and DG in every engagement	• Utilize technical audits program to allow for the proper identification of DSM resources. • CEI Providers will market and promote EE, DR, and DG in every engagement • CEI to build additional incentives/promotions for providers to seek out DR and DG opportunities	• Utilize technical audits program to allow for the proper identification of DSM resources. • CEI Providers will market and promote EE, DR, and DG in every engagement • CEI to build additional incentives/promotions for providers to seek out DR and DG opportunities

The CEI program inherently takes a customer-specific approach to identifying measures in Energy Efficiency, Demand Response, and Distributed Generation which are identified on a case-by-case for each customer. Therefore, it is ultimately up to the customer to decide what measures to install for any given project.

f) Integration Across Resource Types

CEI implementation shall include information on Non-IOU Programs to expose customers to funding, such as from air or water agencies to support integrated efforts. IOU CEI sub-program managers will partner as appropriate with 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. Conventionally, 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 provide information about the mutual benefit of combining complementary resource programs.

In the effort to promote CEI, IOUs will seek out customers interested in complementary resource programs such as provided by water and air quality agencies. With respect to water conservation, utility program managers will partner with the local water districts to produce co-branded marketing collateral, attend trade shows, and co-release brochures, for programs with interactive water and energy effects.

g) Pilots

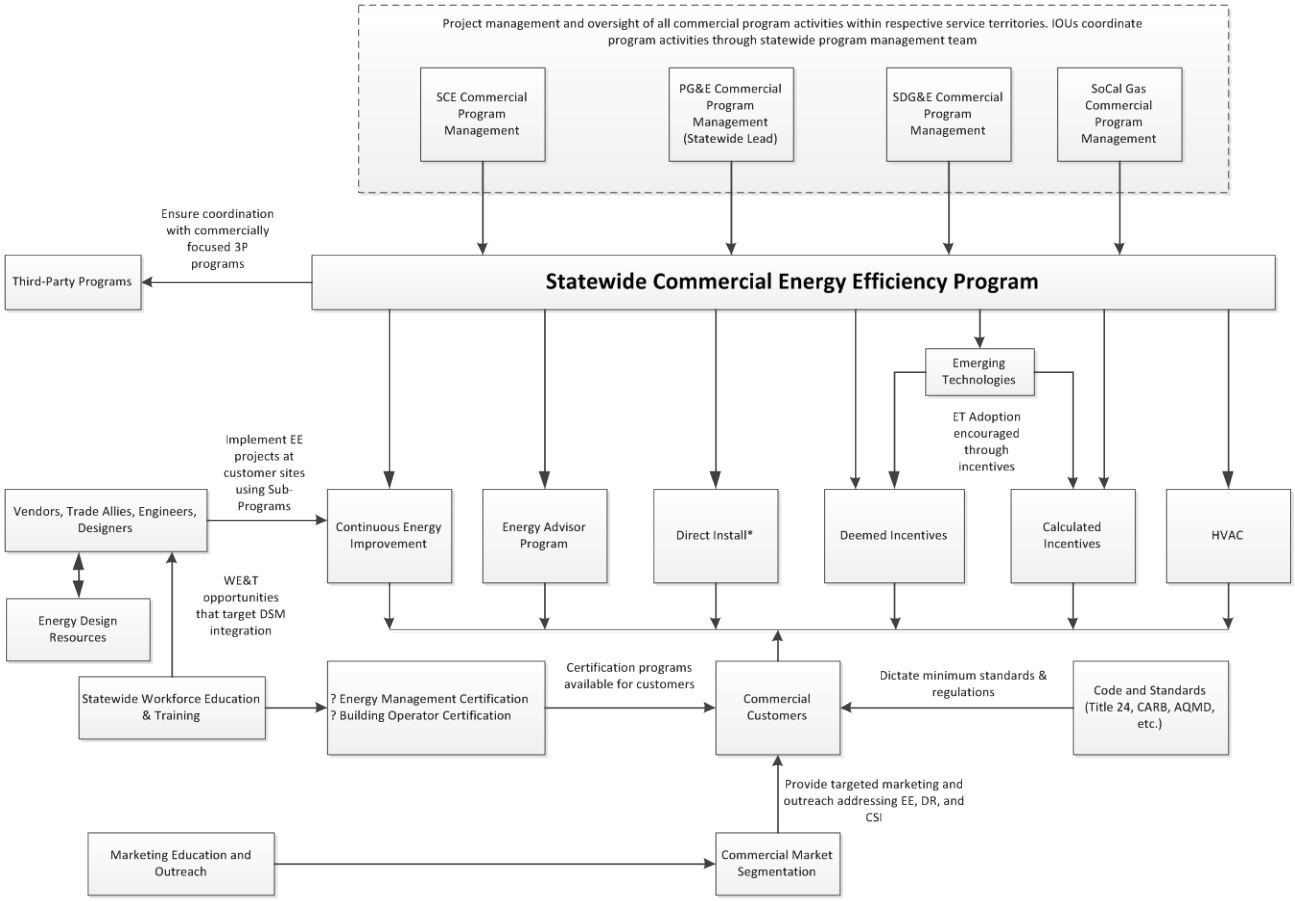
N/A

h) EM&V

The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2013-2014 after the program implementation plans are filed. This may 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.

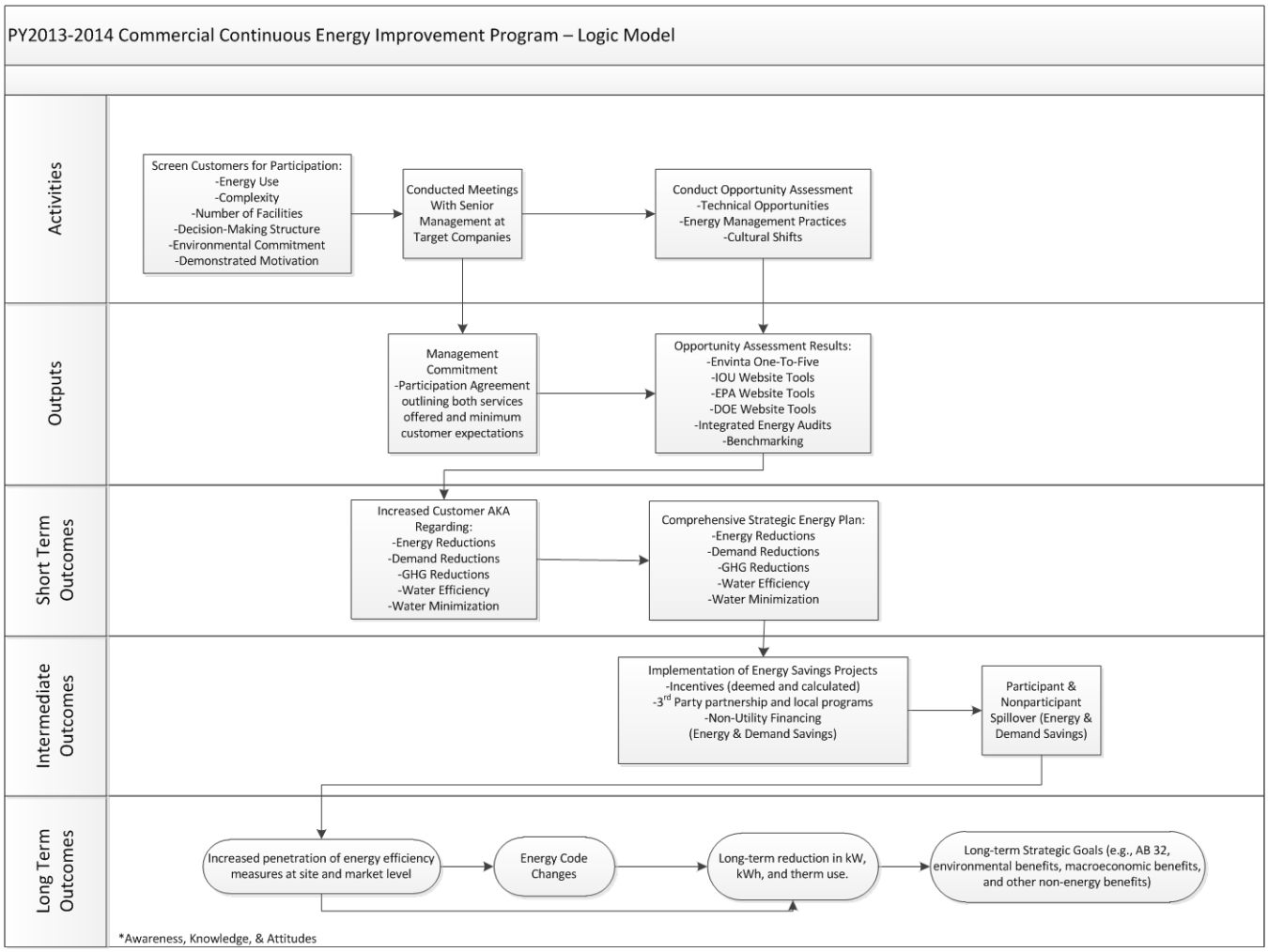
Once results of the 2010-2012 evaluations are ready, recommendations will be reviewed for modifying the CEI PIP accordingly.

7) Diagram of Program



8) Program Logic Model

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. Below is the approved logic model for the Continuous Energy Improvement Sub-program.



2f) Nonresidential HVAC, PGE21015, core subprogram

4) Program Description

a) Describe program

The Nonresidential HVAC Sub-program is a statewide program that will continue the transformation process of California's HVAC market to ensure that:

- HVAC technology, equipment, installation, and maintenance are of the highest quality;
- Quality installation and maintenance practices are easily recognized and requested by customers;
- The HVAC value chain is educated and understands their involvement with energy efficiency and peak load reduction; and
- HVAC market business models for installing and maintaining heating and cooling systems change from commodity-based to value-added service business.

The IOUs are building towards this vision for HVAC by implementing a comprehensive set of strategies that builds on existing program, education, and marketing efforts and leverages relationships within the HVAC industry to transform the market towards a sustainable, quality driven market. Through this state-wide HVAC Sub-program and the Western HVAC Performance Alliance group of industry stakeholders, we will continue to gain a better understanding of the market response to our programs as well as the behavioral implications of the various market participants, and then actively revise/update strategies and programs accordingly, as guided by the California Long Term Energy Efficiency Strategic Plan (Strategic Plan).

Market transformation and direct energy savings and demand reductions will be achieved through a series of Sub-program elements that are summarized below:

Upstream HVAC Equipment Distributor Incentive

This sub-program element offers incentives to upstream market actors who sell qualifying high efficiency HVAC equipment. The logic that underscores this sub-program's design is that a small number of upstream market actors are in a position to impact hundreds of thousands of customers and influence their choice of equipment by increasing the stocking and promotion of high efficiency HVAC equipment. The upstream model cost-effectively leverages this market structure and existing relationships. The sub-program element also provides an online rebate application system to facilitate program participant sales and invoice tracking, which further reduces administrative costs as compared with paper application processing.

For the Upstream HVAC Equipment Incentive program, PG&E has added new HVAC technology categories and incentives to improve the market penetration of new technologies. In the 2010-12 cycle, Variable Refrigerant Flow (VRF) equipment was added and it is expected that in 2013-14 cycle the annual volume of that advanced technology will double. The Nonresidential HVAC program will be closely collaborating with the ET program to validate manufacturer savings claims for VRF equipment via tests in a PG&E lab. Additionally, water-cooled chiller equipment incentives and air-cooled, a new higher-efficiency Tier 3 incentive will be launched in Q2-2013.

The upstream sub-program element is designed to adapt to market changes, and therefore the IOUs will continue working with relevant industry players to continually enhance the program to include new beyond-code upstream incentives.

Nonresidential Quality Installation

This sub-program element is applicable to installations of packaged HVAC systems, with a rated capacity up to 760,000 BTU/H. This sub-program element is based on the assumption that energy and demand savings are achievable through the application of QI in accordance with appropriate industry standards (e.g., ACCA, SMACNA and ASHRAE) applied to new commercial HVAC equipment.

For Commercial Quality Installation, program design changes that are under exploration and joint-development with the HVAC industry are to ensure that the program can scale to meet market transformation and Strategic Plan goals which are expected to be finalized in Q2-2013. The key objectives of these design changes, such as leveraging the Quality Assured Initiative of the Air Conditioner Contractors of America (ACCA) that was presented to Energy Division staff in Oct., 2012, are not only to ensure an accelerated number of Quality Installation jobs occur in the CA market, but also to better leverage ratepayer funds than the earlier program design, which simply cannot scale to enough volume to meet Strategic Plan goals.

This sub-program element intends to:

- Collaborate with EM&V efforts to quantify potential savings;
- Develop and implement a sub-program element focused on comprehensive, continuously improving installation activities that capture those savings and provide a high return on investment (ROI) to the end-user, thus driving the intense level of market transformation of the HVAC industry envisioned by the Strategic Plan.

Nonresidential Quality Maintenance

This sub-program element may represent one of the more creative aspects of the HVAC "Big Bold Energy Efficiency Strategy." It is based on the assumption that there are energy and demand savings achievable through the regular application of quality maintenance

(QM) procedures applied to existing nonresidential HVAC equipment. This sub-program element intends to implement a commercial maintenance program focused on comprehensive, continuously improving O&M activities that capture those savings and provide a high return on investment (ROI) to the end-user, thus driving the intense level of market transformation of the HVAC industry envisioned by the Strategic Plan.

Equipment efficiencies are improved by applying diagnostic methods and the detailed HVAC inspection and maintenance tasks of American National Standards Institute (ANSI)/American Society of Heating, Refrigerating and Air Conditioning (ASHRAE)/Air Conditioning Contractors of America (ACCA) Standard 180.

The QM sub-program element is driven by Service Agreements between customers and contractors. The program incorporates training, marketing and incentives to help contractors understand and communicate the value of HVAC quality maintenance and energy efficiency. The program is also supported by commercial customer referrals from utility Sales and Service Representatives.

The 2013-14 HVAC QM efforts will focus on continuous improvement, design enhancements, implementation barriers and collecting program data to help improve savings estimates. PG&E is collaborating with the other IOUs and our implementer on the following improvements:

- Volume of Commercial HVAC Systems serviced for PG&E customers will be ramped up from about 150 systems in 2012 to 1000 systems in 2013, and then to 2200 in 2014.
- New EE service and retrofit tasks eligible for incentives starting in Q1-2013 will include a notched-belt retrofit and enhanced ventilation controls, including CO2 sensors, modern digital economizer controllers, variable frequency drives and high-efficiency motor retrofits. Additional EE task incentives, such as thermostat set-point enforcement and dead-band adjustment will be explored during 2013 for possible addition to the program in 2014.

The Maintenance Planning System (MPS) web portal tool will be revised and enhanced as of Q1-2013 with a new question bank for service technicians.

b) List of Measures

To achieve energy savings and the market transformation desired by the Strategic Plan, a variety of appropriate incentives is required to influence specific market actions. Incentives will be targeted to all levels of the HVAC value chain and will be available for equipment (Upstream) and services (Quality Installation and Quality Maintenance).

Additionally, in coordination with the Emerging Technologies Program, the Nonresidential HVAC QM program will continue to consider higher initial incentives for any HVAC emerging technologies that may be newly introduced to the marketplace via

this sub-program. Once the new products have taken hold in the market place, any such incentives would be adjusted to reflect market conditions.

Upstream HVAC Equipment Incentive
Eligible measures may include packaged and split system air conditioners and heat pumps and other commercial HVAC equipment. Packaged units less than 65,000 Btu/hour are rated according to seasonal energy-efficiency rating (SEER) or steady state energy efficiency rating (EER). Units greater than 65,000 Btu/hour are rated according to EER or integrated part-load value (IEER). See the tables available on the program website www.cainstantrebates.com for current minimum qualifying efficiency ratings for each size category and corresponding incentive values.

Measure Category	**Incentive Level** (Not to Exceed)
Air-Cooled Packaged and Split Systems < 5.4 Tons of Cooling Capacity	$40 - $450/ton
Air-Cooled Packaged and Split Systems >= 5.4 Tons of Cooling Capacity	$20 - $150/ton
Water- or Evaporative-Cooled Systems < 5.4 Tons of Cooling Capacity	$75 - $500/ton
Water- or Evaporative-Cooled Systems >= 5.4 Tons of Cooling Capacity	$25 - $200/ton
Air-Cooled Chiller Equipment	$25 - $90/ton
Water-Cooled Chiller Equipment	$30 - $300/ton
Variable Refrigerant (VRF/VRV) Equipment	$100 - $1,530/ton

Additional gas savings measures may be included in the program upon further evaluation of their viability and cost-effectiveness. New offering development evaluations will occur through ongoing IOU product development efforts and such continuous national efforts as the Consortium for Energy Efficiency's Commercial HVAC efforts.

Nonresidential Quality Installation

At this point, providing a list of measures and incentive levels is premature, as a valid Quality Installation based Sub-program must be more fully planned and vetted through the Western HVAC Performance Alliance (WHPA), and since EM&V research under discussion through the HVAC EM&V Project Coordination Group (PCG) is needed to clarify a market-realistic baseline for the level of quality of HVAC installation services. This Sub-program will continue to be designed in 2013 for the 2013-2014 program cycle and therefore will not be providing incentives, at least not initially.

Nonresidential Quality Maintenance

Measure	Purpose	Incentive Level
Customer Service Agreement Incentive	Decrease customer's additional cost to upgrade to a QM Service Agreement. Keep the Service Agreement in place and units maintained by Contractor for 3 years	Up to $3,836 per HVAC unit covered by agreement
Contractor Service Agreement Incentive	Compensate Contractors' for overhead costs related to Service Agreement sale and unit inventory.	$75
Contractor QM Tasks Incentive	Reduce some of the additional costs of minor repairs that are required but don't receive incentives.	$50
Contractor EE Tasks Incentive	Compensate Contractors' for completion of a specific set of tasks (see 4.1) required to bring the unit to minimum performance level (within 6 months of Service Agreement approval). **EE Tasks Eligible for Incentives** Coil cleaning Fan Maintenance Refrigerant system test Refrigerant system service Economizer functional test Integrate economizer wiring Replace damper motor Replace controller/sensor Renovate linkage & other components Replace thermostat Adjust thermostat schedule Notched-belt retrofit Enhanced ventilation controls, such as set-point enforcement and Dead-band adjustment	Up to $6,000 per HVAC unit

c) List Non-incentive Customer Services

The Nonresidential HVAC sub-program will include a variety of non-incentive program services intended to support customers and contractors in achieving greater energy efficiency from HVAC upgrades and quality installations and quality maintenance. The list of such service includes:

- Education of the market on the value of selecting high-efficiency systems.
- Reports for customers of estimated energy savings, cost savings and carbon reductions for their HVAC systems treated under the program.
- Training for contractors on HVAC industry standards, sales and marketing of the value of those standards, and their implementation in the field.

- Education for customers on how HVAC industry standards can help them compare bids of contractor services and select those with high-road skills.
- Customer education about the benefits of establishing a long-term trust relationship with a qualified contractor, which can lead to future energy and cost savings, such as from better planning for future HVAC system replacements and the quality installation of those systems when replaced.
- Participating contractors can receive new business sales leads from utility company customer representatives.
- Improved comfort and indoor air quality for customers.

5) Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

The Nonresidential HVAC subprogram is a market transformation oriented program.

See Section 7. below for market transformation information about the subprogram for 2013-2014 that replaces and enhances sections 5.a., 5.b. and 5.c. of the HVAC Program plan from 2010-2012, which had covered quantitative baseline and market transformation information, as well as program design to overcome barriers.

b) Market Transformation Information

See Section 7. below.

c) Program Design to Overcome Barriers

See Section 7. below.

d) Quantitative Program Targets

The program will achieve the following program targets:

Table 5

	Program Target for 2013	Program Target for 2014
Upstream HVAC Distributor Equipment Incentive		
Tons of Equipment Cooling Capacity Incentivized	30,000	40,000
Nonresidential Quality Installation (QI)		
Participating Contractors (cumulative total)	20	40

Nonresidential Quality Maintenance		
Commercial HVAC Systems Serviced	1,000	2,200
QM-Standard Service Agreements Signed	100	220
Participating Contractors (cumulative total)	60	80

e) Advancing Strategic Plan Goals and Objectives

Upstream HVAC Equipment Incentive
Support for Strategic Plan, HVAC Goal 1 to improve code compliance (and related SB454, which is now codified at Public Utilities Code Section 399.4)

HVAC distributors and manufacturers are not directly involved in the relevant code compliance market processes. However, they are supplying and helping with training contractors who are in the best position to ensure that quality installations occur, and who are often in a central role regarding permit compliance. The program will continue to engage these market actors for ideas and possible program modifications to enhance support of quality installations and permit compliance.

Support for Strategic Plan, HVAC Goal 4 to improve market penetration of new climate-appropriate HVAC technologies

The Upstream HVAC sub-program element can serve as an incubator program for increasing the market penetration of promising HVAC technologies, in coordination with HVAC elements of the Emerging Technologies program.

The sub-program element will support improvement to HVAC equipment by providing incentives for various high-efficiency HVAC equipment categories. The eligible equipment categories are based primarily on the Consortium for Energy Efficiency HVAC specifications, which have multiple tiers designed to increase the market share of high-efficiency equipment. Furthermore, by leveraging the geographic area of the Upstream HVAC sub-program throughout California and other parts of the West, the result will be increased participation, which will lead to increased market share of high-efficiency equipment sufficient to argue for standards changes.

Both SMUD and NV Energy currently offer a similar Upstream HVAC program. The California Upstream HVAC Program will look to leverage these existing relationships in addition to engaging the DOE, Southwest Energy Efficiency Project (SWEEP), Western Cooling Efficiency Center (WCEC), Western HVAC Performance Alliance (WHPA) and manufacturers to create a regional strategy to develop and increase the commercialization of new climate-appropriate HVAC technologies.

Nonresidential Quality Installation
The program will help to achieve the following near-term strategic goals as identified in Chapter 6 of the Strategic Plan:

- 2-3: Provide expanded QI/QM training – In order to participate in the program, contractors will be required to attend specific training sessions that introduce them to the appropriate industry standards.

- 2-4: Implement contractor accreditation program – Additional support will be made available through the sub-program to reinforce the WE&T Program's efforts toward increasing the level of technician certification.

Nonresidential Quality Maintenance
The program will help to achieve the following near-term strategic goals, as identified in Chapter 6 of the Strategic Plan:

- 2-1: Create a Statewide QI/QM Brand – QM will support the Energy Upgrade California branding as applicable.

- 2-2: Launch Statewide Brand – QM will support the Energy Upgrade California branding as applicable.2-3: Provide expanded QI/QM training – HVAC service technicians will continue to be fully trained on the delivery of the measures promoted by the Program. Furthermore, feedback mechanisms will be utilized to continually evaluate technician performance to ensure that they are applying the information they are being taught in the QI/QM training. Nearly all economists and government leaders agree that negative impacts of the current worldwide financial crisis are likely to linger for years. Thus, the IOUs will work closely with the industry to reduce (and wherever possible eliminate) the direct costs of this transformative training to technicians and contractors who are willing and able to apply their skills and new tools to the task at hand.2-4: Implement contractor accreditation program – Efforts will be made to promote NATE certification.

- 2-5: Develop standards for on-board diagnostic functionality – Evaluating the use of hand-held and other types of diagnostic systems in the field will help determine viable protocols for commercial applications.

- 2-6: Prioritize in-field diagnostic approaches – Conducting the appropriate level of research into existing diagnostic and verification approaches will provide the IOUs and the HVAC industry with the information necessary to target future efforts based on quantifiable energy efficiency benefits.

6) Program Implementation

a) Statewide IOU Coordination

The IOUs will jointly participate in California's nonresidential HVAC efforts to achieve real market transformation. 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 program throughout the two-year implementation cycle. The process will be as follows:

- Designate an IOU Program Lead – The process for adaptive management will begin with each IOU designating an HVAC Program Lead. The lead will be the conduit through which information between IOUs will flow and will investigate new innovations, special accomplishments and challenges faced by sub-program managers and the managers of cross cutting statewide programs within their own IOU. Where such innovations or challenges intersect HVAC and show potential for improving the HVAC program, the Program Lead will present such information to a quarterly HVAC Program Management Team meeting.
- Hold HVAC Program Management Team Meetings – Meetings will be held at least quarterly, individual innovations and accomplishments experienced in one IOU will be transmitted to all IOUs. The HVAC Program Management Team will evaluate the innovations and accomplishments of the individual IOUs, hear ideas for course corrections and overcoming challenges, measure the HVAC program's progress against statewide metrics and goals and prepare summations for presentation to the Western HVAC Performance Alliance.
- Adopt Program Enhancements – Once the HVAC Program Management Team agrees that a particular idea or innovation has merit on a statewide-level, each IOU program lead will distribute the information to their sub-program element managers for adoption and integration as appropriate. In some cases, it may be necessary to invite the sub-program element managers to the HVAC Program Management Team to get their feedback and ensure they receive the same message.
- Evaluate Program Enhancements Against Statewide Targets – To complete the adaptive management loop, the HVAC 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[42]. The HVAC 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 name: Nonresidential HVAC Sub-program

ii. Program delivery mechanisms

The Nonresidential HVAC Sub-program is the umbrella activity that encompasses the three sub-program elements summarized above in Section 4.a. The IOUs will deliver the Sub-program through a combination of third-party vendors and internal administrative staff. The Sub-program will be delivered in collaboration with existing industry infrastructures in order to increase its overall effectiveness. Program guidance will be provided to the CPUC/IOUs through the Western HVAC Performance Alliance as described below. The program will be targeted to consumers, contractors and distributors to create a push/pull dynamic that influences sustained market changes.

iii. Incentive levels

See Section 4.b above for more information on sub-program measures.

iv. Marketing and outreach plans

Specific outreach efforts will be made to the industry to keep them engaged with IOU programs and in the Strategic Plan process. On a macro level, this outreach will occur through the Western HVAC Performance Alliance. On a micro level, each sub-program element has specific tactics in place to engage the industry in its own particular demand reduction, energy savings and market transformation objectives

The Upstream sub-program element will explore outreach activities to upstream market actors in other geographic areas that ship into and across service territories and will continue communication with the industry to see where additional collaboration can occur to maximize marketing and outreach resources.

The IOUs will continue to develop common outreach materials, with feedback from market actors to enhance their effectiveness. These marketing materials will only be available to participating contractors, and will leverage IOU and other statewide branding efforts.

v. IOU program interactions

The IOUs are engaged in ongoing collaboration with the CEC and other agencies via the Codes and Standards process and will be able to coordinate and communicate voluntary programs and incentives with mandatory codes that become

enacted for the future. Increasing the communication regarding the Strategic Plan will allow all entities to move and plan towards the same objectives.

In order to support the need for increased code compliance, the sub-program will continue to cooperate with CEC training and other compliance support activities targeted at local building departments. Such activities will also be used to promote the economic and performance benefits of QI/QM. The sub-program will also continue to coordinate its activities with IOU local government partnerships, third-party programs and Codes and Standards activities to ensure that code compliance becomes fully integrated into these programs.

vi. Similar IOU and POU programs

As mentioned in Section 5.e. above, the three IOUs and SMUD implement the same or very similar Upstream HVAC Equipment Incentive Program.

As a result of increased federal equipment efficiency standards, many utilities across the country have begun to offer service-based programs that independently offer measures such as RCA and Duct Sealing. It is expected that the HVAC QM Program could stimulate a paradigm shift by delivering a comprehensive suite of maintenance services that comply with ASHRAE/ACCA/ANSI Standard 180, designed to address the full range of efficiency measures available for commercial HVAC systems.

POUs manage many different types of HVAC programs. However, none of them seek to accomplish the aggressive market transformation goals being proposed by the IOUs. Via the Western HVAC Performance Alliance, the IOUs will continue seek to increase their interactions with the POUs to better align IOU and POU HVAC programs. This may involve increasing awareness of the Strategic Plan and how programs could/should be designed to help meet its aggressive targets.

b) Program Delivery and Coordination

The program will be coordinated with the following activities:

i. Emerging Technologies (ET) program

The program is expected to interact extensively with the ET Program to ensure the proper focus on remote and on-board diagnostic equipment and the advancement of energy efficient climate-appropriate HVAC technologies.

ii. Codes and Standards program

The responsibility for HVAC codes and standards issues has been given to the Statewide Codes and Standards Program. This ensures that the code-based solutions are consistent with that program's other activities. The Codes and Standards PIP describes the specific actions that the Program will employ to address HVAC.

As technologies advance and market penetration increases to an acceptable level, the minimum threshold for eligibility in California can increase to lock in the higher efficiency levels and continue an upward level of efficiency for HVAC equipment.

Coordination of HVAC, Codes and Standards and Emerging Technologies activities will be realized through regular interactions of statewide program teams to discuss program integration and implementation issues.

vii. WE&T efforts

The workforce education and training needs for the HVAC industry will be managed through the Statewide IOU Workforce Training and Education (WE&T) Program umbrella. However, the WE&T activity will be coordinated with the statewide HVAC Sub-program activity to ensure that the individual efforts are complementary.

Participating contractors in the HVAC sub-program will be required to attend program-specific QM training in order to participate in the programs.

The IOUs will leverage relationships with upstream market actors established through this sub-program to extend the delivery of training modules developed through the HVAC elements of the statewide WE&T Program.

viii. Program-specific marketing and outreach efforts

The primary outreach vehicle between the Upstream sub-program element and program participants is via the website: www.cainstantrebates.com and other electronic communication (e.g., e-mail and newsletters). The cost of operating this website is shared between the participating IOUs and POUs. Additional marketing and outreach activities exist through personal contact between the program staff and program participants. Targeted QI/QM marketing materials can be distributed to contractors via these established upstream channels.

Marketing support will be available for participating HVAC service contractors in order to promote the Statewide QI/QM efforts. Such support may include exclusive promotion on IOU websites, brochures and other leave-behind materials that contractors can use to promote QI/QM and their involvement with the sub-program.

The Nonresidential HVAC sub-program will coordinate marketing activities with other offerings within the Commercial program to create a seamless customer experience.

ix. Non-energy activities of program

The direct energy benefits of the program result from promotion of high efficiency HVAC systems and the quality installation and maintenance of new and existing systems. Other activities will be required to support these energy savings goals. These activities include significant efforts in program design enhancements and coordination, technology evaluation and integration, contractor training and consumer marketing.

The program will continue to be active in a number of non-resource and market transformation activities that are required to ensure that the HVAC industry is fully involved in the development and implementation of the many tactics required to address the short and long term goals of the Strategic Plan. One such activity is the Western HVAC Performance Alliance (WHPA). The WHPA is necessary to keep the industry engaged in the Strategic Plan process and to provide guidance and support for the implementation of the various tactics required to transform the industry. Mindful that HVAC industry organizations are not traditionally structured, staffed or allocate resources to contribute the level of involvement envisioned by the Strategic Plan, the HVAC Convener's Report concluded that: *"The agencies and utilities should work together to ensure the working group is adequately funded to meet its responsibilities"*

The WHPA involves high-level HVAC industry stakeholders—such as manufacturers, distributors, contractors, associations, organized labor and influential end user/customers—to coordinate industry sponsorship of and participation in HVAC strategies. Membership also includes and is targeted at other key players, such as the CPUC, California Energy Commission, utilities, building owners/managers, university researchers, consumers, and the Federal Government.

As a communication and coordination entity for HVAC energy-saving collaboration among IOUs, ED, other state and local government entities, and a broad set of HVAC industry and market stakeholders, the WHPA is chartered 1) to champion (coordinate, guide, prioritize, track and facilitate the implementation and evolution of) the HVAC Action Plan in support of the Strategic Plan and 2) to provide thoughtful input into IOU HVAC Energy Efficiency (EE) Program efforts.

x. Non-IOU Programs

The Upstream sub-program element, in collaboration with the ET Program, will leverage its involvement with the U.C. Davis Western Cooling Efficiency Center

and other industry and academic efforts to continually evaluate and include new equipment technologies as they become more commercially viable.

The IOUs will take an active role in Consortium for Energy Efficiency (CEE) activities to ensure that California's quality needs are appropriately reflected in the ongoing CEE specification-setting efforts.

The program will interact with the HVAC industry to develop and introduce increasingly stronger QM standards that ensure systems are operating in their most efficient state.

The Program will remain engaged with CEC, CARB, DOE and other government agencies responsible for regulating various aspects of HVAC equipment, services and training.

xi. CEC work on EPIC

The Program will interact extensively with the ET Program to ensure the proper focus on remote and on-board diagnostic equipment and climate-appropriate HVAC technology advancement and market adoption.

xii. CEC work on codes and standards

See Section 6.b.ii. above.

xiii. Non-utility market initiatives

The tenets of QI and QM are being actively pursued by leaders in the HVAC industry itself. Air Conditioning Contractors of America (ACCA) has taken the lead in this national effort by developing various ANSI- recognized QI and QM standards. These standards have been widely adopted throughout the industry (e.g., AHRI, ASHRAE, CEE, ENERGY STAR, Utilities). Other organizations have also developed processes designed to improve the operating efficiency of HVAC systems (e.g., SMACNA, NCI). The IOUs will remain engaged in these efforts and work to influence the development of increasingly higher standards that drive increased energy savings for customers.

c) Best Practices

The Statewide HVAC Program demonstrates several examples of programmatic best practices. First, the Program involves the HVAC industry in all aspects of the program including public policy, program design and implementation – both formally through the Western HVAC Performance Alliance and informally through various ad-hoc working

groups. Industry involvement is a crucial step in achieving the desired market transformation goals. Second, the Program uses an adaptive management process, as described in Section 6.a, to ensure that the Program is responsive to the changing market environment. Included under this process are inter-utility coordination meetings between HVAC, Emerging Technologies and Codes and Standards program managers to ensure these three programs are well coordinated and implemented consistent with the goals of the Strategic Plan. The Program includes the appropriate level of focus on technology issues through the close involvement with the Emerging Technologies program to advance the various technological and policy issues required to meet the deep energy savings and demand reduction goals desired by the Strategic Plan.

The use of industry-accepted design, construction and maintenance standards represents a quality-oriented best practice in air conditioning system installations and maintenance. Industry standards have been developed and vetted by national committees of industry experts and represent the best available information to use for program design. Additionally, networking through organizations such as CEE and the WHPA will provide opportunities for frequent feedback on QI and QM efforts being implemented within California and across the country.

In the Fall of 2007, ACEEE awarded the "Exemplary" Award to this Upstream sub-program element design. This essentially designated this Upstream program model as the highest performing program to promote HVAC equipment as compared to all programs across the United States.

d) Innovation

The Statewide Nonresidential HVAC Sub-program takes an innovative approach to program design through its implementation of a multi-faceted effort to engage all levels of the HVAC value chain. Each sub-program element under the umbrella and in those within the Residential HVAC Sub-program is designed to influence specific market changes. Within the sub-program elements, innovative techniques such as co-branded marketing and workforce training through existing industry channels will be employed to increase the program's effectiveness. In addition, technical innovation is achieved specifically through the HVAC sub-program's coordination with a dedicated advocacy effort to advance the state-of the-art in vapor compression cooling and fault detection and diagnostics within the Emerging Technologies program.

A critical component of the Upstream sub-program element is its use of a web-based application and participation tool that provides transparency to both the program participants as well as the host IOU to be able to see what is occurring for applications that involve them. That this system allows participants to know the status in aggregate or down to a customer application level makes participation easy and efficient. For program participants, a paperless system is critical for ease of participation and for utilities there is reduction in cost per kWh saved from administrative costs over a paper review process. Designing and delivering the QI sub-program program element through active partnership

with the industry will increase the likelihood of its success, as will the use of industry-accepted standards for QI as the foundation for activities.

The innovation of the QM sub-program element exists through the adoption of a comprehensive maintenance approach based on industry-accepted standards. A more comprehensive maintenance effort that delivers well-documented energy savings sets the standard for HVAC efficiency programs. Furthermore, delivering this program through active partnership with the industry will increase the likelihood of its success. Finally, innovation results through a continuous improvement process that will be employed to evaluate the viability of offering additional incentives for installations that exceed established program standards.

e) Integrated/coordinated Demand Side Management

As with most HVAC oriented programs, the primary source of integration exists between energy efficiency and demand response activities. At a minimum, all marketing materials developed to support QI and QM sub-program elements will cross promote DR to educate customers on the availability of IOU DR programs. Required contractor training will be designed to include a discussion on DR programs and participating contractors will be required to deliver DR information as part of their customer sales efforts. The IOUs will also explore combined EE and DR opportunities within various HVAC distribution channels.

f) Integration Across Resource Types

The program can be designed to support CARB's efforts to regulate GHGs by providing consumer information on the phase-out of existing refrigerants and the move to zero ozone depletion potential (ODP) refrigerants with the customers maintenance invoice. Such information will seek to influence the customer's adoption of newer equipment by explaining the likelihood of increased maintenance costs as existing refrigerants become less available.

g) Pilots

No pilot programs are planned as part of this sub-program effort, though activities associated with improving QI and/or QM may be piloted before full implementation to ensure more coherent market adoption on roll-out.

h) EM&V

The IOUs will work with the Energy Division to develop and submit a comprehensive EM&V plan for 2013-2014 cycle, after the program implementation plans are filed. To support the continuous improvement envisioned by the adaptive management process and to fully address the intricacies of the program design, appropriate EM&V activities will be

conducted as coordinated by the HVAC EM&V Project Coordination Group (PCG) and overseen by the CPUC.

Routine evaluation: the Upstream sub-program element will utilize the online incentive application system to track the sale of high-efficiency equipment from year to year. Reports can then be created to show the percent of equipment incentivized in tons based on SEER or EER. These reports will be prepared every year and compared to the previous accomplishments, and will determine whether the program is achieving goals.

7) Market Transformation Information

The Nonresidential HVAC subprogram is a market transformation oriented program. The following information replaces and enhances Sections 5.a., 5.b. and 5.c. above of the HVAC Program plan from 2010-2012, which had covered quantitative baseline and market transformation information, as well as program design to overcome barriers.

a) Summary of the market transformation objectives of the program:

The Nonresidential HVAC Sub-program will continue the transformation process of California's HVAC market to ensure that:

- HVAC technology, equipment, installation, and maintenance are of the highest quality;
- Quality installation and maintenance practices are easily recognized and requested by customers;
- The HVAC value chain is educated and understands their involvement with energy efficiency and peak load reduction; and
- HVAC market business models for installing and maintaining heating and cooling systems change from commodity-based to value-added service business.

b) Description of the market, including identification of the relevant market actors and the relationships among them:

The three central functions of heating, ventilating, and air-conditioning (HVAC) are interrelated, especially with the need to provide thermal comfort and acceptable indoor air quality within reasonable installation, operation, and maintenance costs. In modern buildings the design, installation, and control systems of these functions are integrated into one or more HVAC systems.

The HVAC industry is a worldwide enterprise, with roles including operation and maintenance, system design and construction, equipment manufacturing and sales, and in education and research. The HVAC industry was historically regulated by the manufacturers of HVAC equipment, but regulating and standards organizations such as

HARDI, ASHRAE, SMACNA, ACCA, Uniform Mechanical Code, and International Mechanical Code have been established to support the industry and encourage high standards and achievement.

For very small buildings, contractors normally "size" and select HVAC systems and equipment on behalf of end-use customers. For larger buildings, building services designers and engineers, such as mechanical, architectural or building services engineers analyze, design, and specify the HVAC systems, and specialty mechanical contractors build and commission them. Distributors stock equipment from manufacturers in local regions and sell HVAC systems to contractors or building services companies. Building permits and code-compliance inspections of the installations are normally required for all sizes of buildings.

c) Market characterization and assessment of the relationships/dynamics among market actors, including identification of the key barriers and opportunities to advance demand side management technologies and strategies:

Successful market transformation programs first and foremost 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.)[43]" The Strategic Plan recognizes that regulatory policies are not yet in place to support the success of market transformation efforts[44], 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 market transformation programs have involved multiple organizations, providing overlapping market interventions[45]. The Strategic Plan calls for coordination and collaboration throughout, and in that spirit the utilities will continue to work with the CPUC and all stakeholders to help achieve market transformation while meeting the immediate energy, demand, and environmental needs.

Provided that HVAC is allotted sufficient EM&V funds, the statewide team will build on the growing body of HVAC research in California to ensure the relationships/dynamics among market actors, including identification of the key barriers and opportunities to advance demand side management technologies and strategies have been studied to inform future program decision-making.

[43] 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.
[44] CPUC (2008) Strategic Plan, p. 5.
[45] Nadel, Thorne, Saches, Prindle & Elliot (2003).

Key Barriers:

- Lack of value proposition awareness
  - Performance uncertainties: Previous research has been conducted on the energy savings achievable through HVAC system maintenance measures such as RCA and Duct Sealing, but despite all this research many performance uncertainties still exist, and furthermore, this research has not been able to effectively demonstrate the full energy savings benefits of QI/QM;
  - End-use customers do not clearly recognize the loss of energy efficiency performance benefits of a HVAC system if it is not properly installed and maintained, and do not recognize without assistance the value over time of purchasing a high-efficiency system versus a standard-efficiency one.
- Availability of higher-efficiency equipment
  - Stocking patterns of equipment follow demand, and since customers do not yet well appreciate the value of energy efficiency, HVAC equipment stocking in local distribution centers tends toward lower price, standard-efficiency systems. Without program intervention until market transformation occurs, customers who want to purchase higher-efficiency systems suffer delays from waiting for systems to be shipped from other locations, or just select standard-efficiency systems to avoid delay.
- Search costs for qualified QM and/or QI contractors
  - Customers do not appreciate the energy efficiency benefits of QI and QM, and suffer from a lack of information, time, and resources to assess their own energy efficiency opportunities.
- Commoditized business model practices
  - Bounded rationality: It is logical to assume that the HVAC industry would want to take the necessary training required to deliver high quality service; however, market dynamics have not supported such logic as the industry has largely become commoditized and low price/low quality typically wins out. Equipment stocking patterns have followed this same dynamic, such that customers who may seek high-efficiency systems have had to wait for systems to be shipped from outside of California;
  - Organizational customs: The HVAC industry has largely become commoditized into an industry driven by low costs and quality where quality is assumed but not understood or valued by the customer. This is a result, in part, of contractors having minimal success in communicating the value of QI/QM to consumers and consumers not understanding the linkages between comfort and energy use.

d) Description of the proposed intervention(s) and its/their intended results, including which barriers the intervention is intended to address:

Historically, the nonresidential retrofit programs directed toward customers and contractors have had very low uptake rates on high-efficiency HVAC systems, plus there is very little understanding in the market of the value of quality maintenance and installation services. Consequently, the critical foundation required for achieving HVAC market transformation consists of two main strategies:

- Continue to leverage the high level of participation in the Upstream sub-program element to ensure availability in the market and drive sales of high-efficiency equipment, and

- Build customer and contractor participation in the HVAC Quality Maintenance program element, since it is designed to provide an evergreen foundation across a broad customer base of existing HVAC users for achieving deep energy savings across HVAC and other programs.

- The QM program element incorporates training, marketing and incentives to help contractors understand and communicate the value of HVAC quality maintenance and energy efficiency.

- This program element is driven by Service Agreements between customers and contractors, establishing an on-going relationship of trust that also then enables better decisions to be made about replacement of equipment with high-efficiency systems and the proper quality installation of those systems.

- The resulting increase in market share of high-efficiency equipment and quality installation and maintenance services then allows increased levels of customer, installer, and distributor/manufacturer knowledge and interest in these systems, which should then make it easier to achieve further increases in the market share of these energy saving practices.

Program Intervention to Overcome Barriers

Lack of value proposition awareness

- By quantifying the energy efficiency benefits of QI/QM, the benefits of QI/QM (as well as those “premium” HVAC services that prove to exceed the ANSI QI/QM standards) will be better understood by program participants. It is our goal to discover the evidence, and expected return on investment (ROI), that customers will require to authorize payment for these measures when subsidies are removed. Via the Upstream sub-program element, the delivery process of information about high-efficiency units is streamlined. Delivery from distributors and manufacturers through contractors will provide consistent information on the benefits of energy efficiency and reduces the need for end user analysis, thus allowing more customers to see the benefits of implementing energy efficiency projects/measures;

Performance uncertainties:

- The innovative diagnostic methods and technologies used by the QM program element set it apart from tune-ups and other HVAC maintenance efforts. Program measures include a thorough site assessment and repairs well above and beyond routine HVAC unit maintenance. The methods provided allow contractors enrolled in the program to precisely evaluate commercial customers' HVAC units and subsequently improve unit efficiency and realize energy savings.

Availability of higher-efficiency equipment

- The Upstream incentives ensure product availability to influence the decision maker at the time of purchase or service.

Search costs for qualified QM and/or QI contractors

- By encouraging contractors to promote the concepts and value of quality maintenance at the time of system installation, customers will be more likely to regularly maintain the system and be assured that the energy efficiency performance benefits of their new system will continue throughout the life of their system.

Commoditized business model practices

- Bounded rationality: The sub-program incentives and promotion of qualified participating contractors encourage the HVAC industry to want to take the necessary training required to deliver high quality service;

Organizational customs:

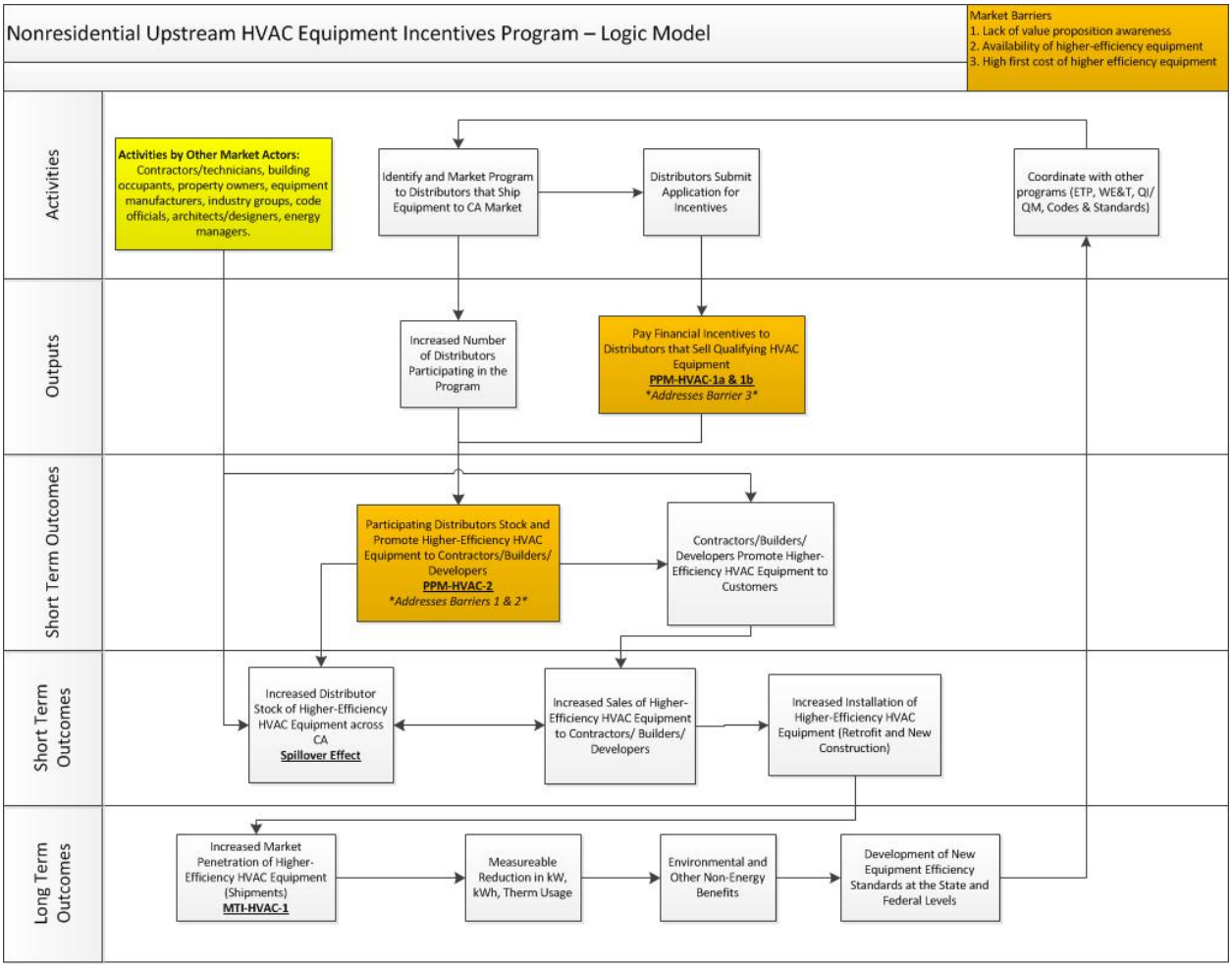
- The program effort is designed to help demonstrate the value proposition of a high quality contracting business and educating consumers on the energy benefits of QI/QM. Additionally, incentives to upstream market actors encourage the development and promotion of new energy-efficiency technologies and tiered incentive structure to build towards meeting future codes and standards changes.

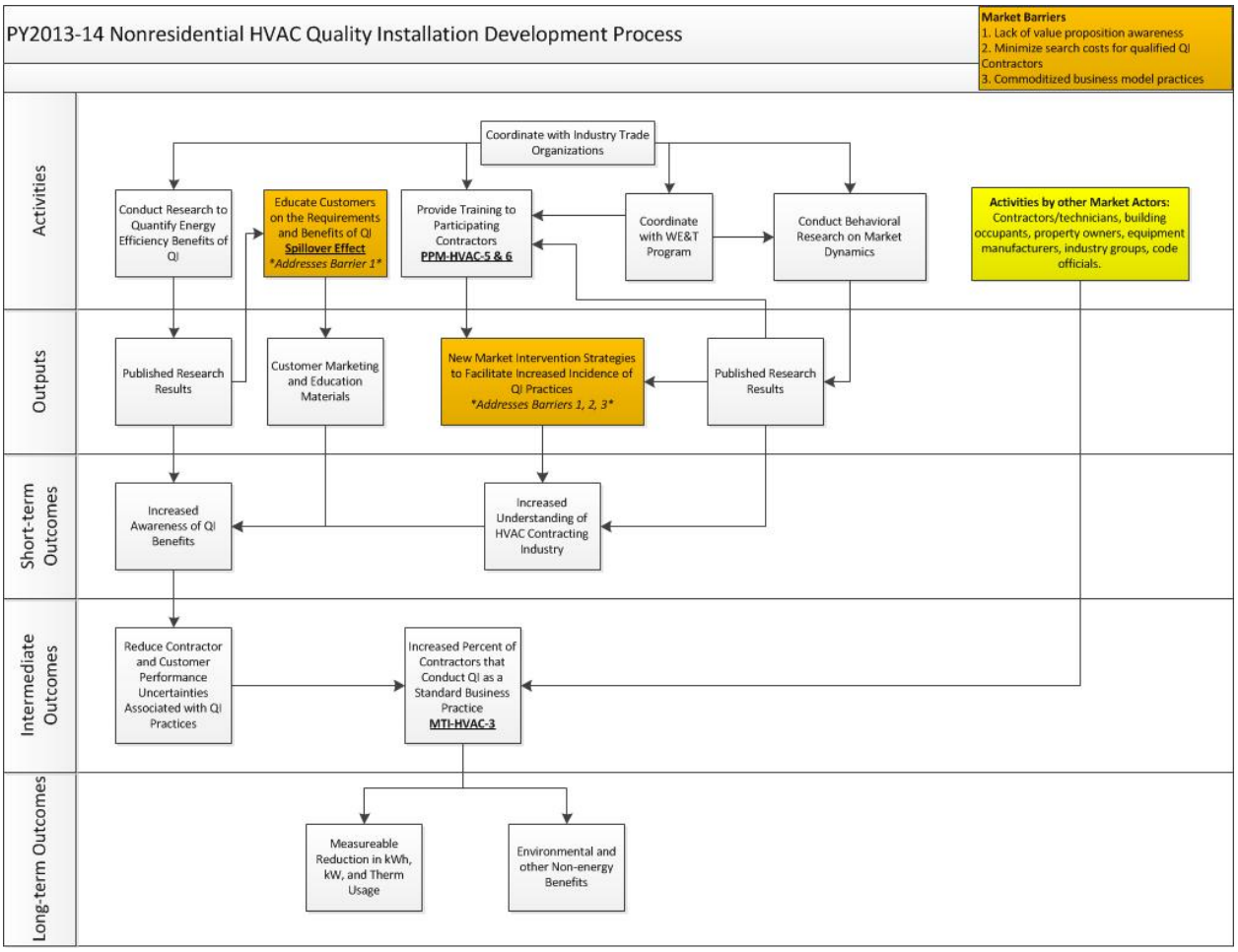
Additionally, several other issues could potentially influence sub-program design for Quality Installation, including:

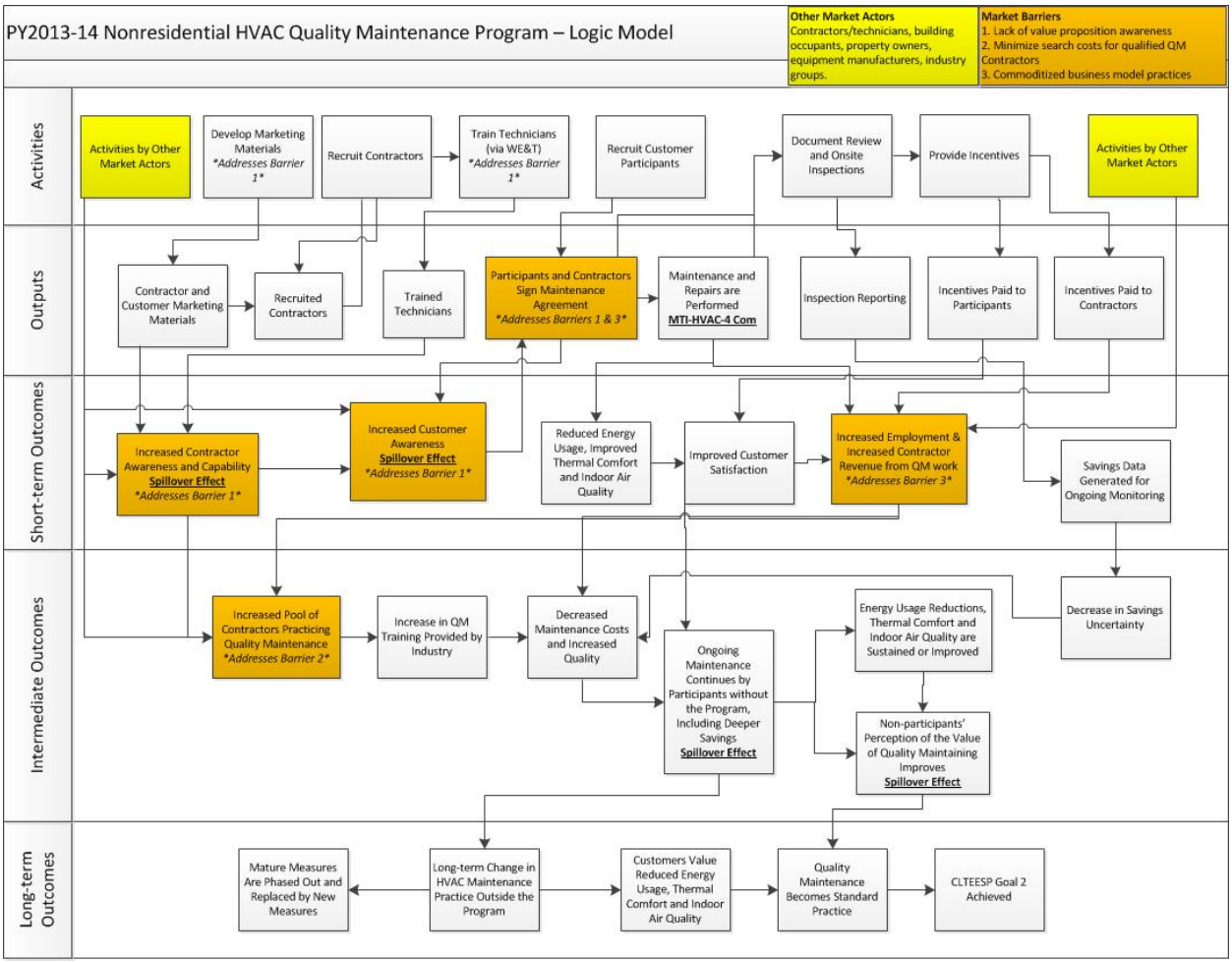
- Other organizations have established processes and procedures for QI. These processes should be evaluated to determine how well they perform in comparison to minimum QI standards.
- Lack of industry consensus on QI standards and technical protocols
- Overcoming market barriers to exceeding Title 24 Standards
- Cost-effective constraints arising from limited savings for QI measures exceeding Title 24.
- Forging sustainable HVAC industry and market actor support.
- Addressing challenges in standard applicability across a range of commercial building types and HVAC systems.
- True energy savings measurement procedures.

- The WHPA "Road Map" noted that while of both the Title 24 and ACCA standards mandate distribution system evaluation and specify limits for allowable leakage, the Nonresidential QI committee concluded that:
- "To date, no satisfactory method for performing these examinations has been found for a wide range of non-residential installations." (WHPA Non-Residential Quality Installation Road Map, 2010, p. 2)

e) Program or market logic model that ensures a solid causal relationship between the proposed intervention(s) and its/their intended results:




PY2013-14 Nonresidential HVAC Quality Installation Development Process
Market Barriers
1. Lack of value proposition awareness
2. Minimize search costs for qualified QI Contractors
3. Commoditized business model practices
Activities
Outputs
Short-term Outcomes
Intermediate Outcomes
Long-term Outcomes
Coordinate with Industry Trade Organizations
Conduct Research to Quantify Energy Efficiency Benefits of QI
Educate Customers on the Requirements and Benefits of QI
Spillover Effect
Addresses Barrier 1
Provide Training to Participating Contractors
PPM-HVAC-5 & 6
Coordinate with WE&T Program
Conduct Behavioral Research on Market Dynamics
Activities by other Market Actors:
Contractors/technicians, building occupants, property owners, equipment manufacturers, industry groups, code officials.
Published Research Results
Customer Marketing and Education Materials
New Market Intervention Strategies to Facilitate Increased Incidence of QI Practices
Addresses Barriers 1, 2, 3
Published Research Results
Increased Awareness of QI Benefits
Increased Understanding of HVAC Contracting Industry
Reduce Contractor and Customer Performance Uncertainties Associated with QI Practices
Increased Percent of Contractors that Conduct QI as a Standard Business Practice
MTI-HVAC-3
Measureable Reduction in kWh, kW, and Therm Usage
Environmental and other Non-energy Benefits



f) Evaluation plans and corresponding Market Transformation Indicators and Program Performance Metrics based on the program logic model:

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and sub-programs. The Commission gave each PPM a metric type which indicated the reporting frequency: Metric type 2a indicates that the IOUs should report on the metric on an annual basis (unless indicated otherwise). Metric type 2b indicates the IOUs should report on the metric at the end of the program cycle.

Below are the approved PPMs and metric types for the three elements of the Nonresidential HVAC Sub-program (Resolution E-4385, Appendix A, pp 35-36):

Table 3 – Refer to the overarching program for quantitative baseline metrics

Market Transformation 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."[46] 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[47].

Markets are social institutions[48], 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[49] 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[50]. According to York[51], "Market transformation is not likely to be achieved without significant, permanent increases in energy prices. From an economic perspective, there are three ways to achieve market transformation: (1) fundamental changes in behavior, (2) provide proper price signals, and (3) permanent subsidy."

Resolution E-4385 identified a preliminary list of objectives and market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms, and these MTIs were presented at a public workshop to allow for public comments and discussion before being finalized. Consistent with the outcome of that public workshop, MTIs for this subprogram are below.

[46] California Public Utilities Commission Decision, D.98-04-063, Appendix A.
[47] California Public Utilities Commission (2008) *California Long Term Energy Efficiency Strategic Plan*, p. 5. Available at http://www.californiaenergyefficiency.com/docs/EEStrategicPlan.pdf
[48] 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/
[49] 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.
[50] 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.*
[51] York, D., (1999). "A Discussion and Critique of Market Transformation", Energy Center of Wisconsin. Available at http://www.ecw.org/ecwresults/186-1.pdf.

Table 4 – Market Transformation Indicators

HVAC-1	Market share of energy efficient climate appropriate HVAC equipment.
HVAC-3	Percentage of all California Commercial HVAC installation contractors using Quality Installation guidelines (weighted by size).
HVAC-4-Commercial	Percentage of Commercial HVAC units (systems) serviced in IOU service territory under a QM Service Agreement.

The IOUs will work with the Energy Division to develop and submit a comprehensive EM&V plan for 2013-2014 cycle, after the program implementation plans are filed. To support the continuous improvement envisioned by the adaptive management process and to fully address the intricacies of the program design, appropriate EM&V activities will be conducted as coordinated by the HVAC EM&V Project Coordination Group (PCG) and overseen by the CPUC.

2g) Commercial Direct Install, implemented by third parties

2) Projected Program Budget Table

Noted: PG&E's Direct Install efforts are delivered by third party bidders whose efforts are included in its 3rd Party Program implementation plans.

3) Projected Program Gross Impacts Table

Note: PG&E's Direct Install efforts are delivered by third party bidders whose efforts are included in the 3rd Party Program implementation plans.

4) Program Description

a) Describe Program

The Direct Install sub-program delivers free and low cost energy efficiency hardware retrofits through installation contractors to reduce peak demand and energy savings for small commercial customers. The program targets small businesses 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.

Note: PG&E's Direct Installed (DI) sub-program is delivered through LGP and Third Party Channels. Specific descriptions and details of its DI program and offerings can be found in its respective LGP and Third Party PIPs.

b) List of Measures

Direct Install will implement selected measures at reduced or no or low cost to the customer. Low cost measure opportunities will be targeted to small commercial customers. Eligible measure types include but are not limited to:

- Lighting
- HVAC
- Refrigeration

c) List Non-incentive Customer Services

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 Indicators (MTIs)

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 utility program planners have worked closely with their respective EM&V staffs and with each other to identify available information and propose potential metrics. Each utility and each program has some data available, but attempts to distill the limited available information into a common set of agreed-upon metrics have proved far more difficult to accomplish. Offering metrics in which there is not confidence would not be productive. Therefore, the utilities respectfully exclude "draft" metrics at this time and instead suggest a means of developing meaningful indicators.

The utilities will develop meaningful baseline and market transformation concepts and metrics for programs that do not currently have them, and then propose to 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 after approval of the Application, using funding provided for Evaluation, Measurement & Verification.

We expect that the baseline studies should (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.

b) Market Transformation Indicators (MTIs)
See Section 1a.5.a.

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 language and cultural barriers.

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, or vice versa). The program makes every effort to address this situation with both the owner/property management company and the tenant to communicate the benefits and gain approval for program services. The no cost offering makes this acceptance of the retrofit easier for the tenant.

While these small 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/Low Cost Installation element addresses these barriers by providing all equipment and installation services at no or very little charge to the customer.

The program utilizes a collaborative team of internal and external stakeholders to conduct strategic program outreach and marketing. Working with our External Affairs Outreach group the Direct Install program has worked actively with a number of Business Improvement Districts and local governments during the current cycle to increase local community involvement and raise the program's profile among BID businesses. This effort will continue during the 2013-2014 cycle with a concerted effort to partner with Local Government Programs and multiple BIDs to increase the number of BID customers involved in the Direct Install program.

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 Commercial Direct Installation Program has program targets defined within each direct install vendor contract.

e) Advancing Strategic Plan goals and objectives

In accordance with the Strategic Plan, 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

a) Statewide IOU Coordination

All California IOUs offer The Direct Install efforts. Specific areas of coordination include:

i. Program name

Commercial Direct Install

ii. Program delivery mechanisms

Third-party contractors will be used to perform program services such as customer outreach, survey existing equipment, explain and promote retrofits, and perform retrofit installations for customers and coordinates services performed by the Community-Based Organizations (CBOs).

iii. Incentive levels

The sub-program does not pay a rebate or incentive to the direct install customer. Payments are made to the direct install vendor who employs said incentives to reduce the cost of delivering energy efficiency services. The products and installation of products are at reduced cost or free to the customer.

iv. Marketing and outreach plans

The sub-program is designed to increase the adoption of energy-efficient measures by small and hard-to-reach commercial customers through offering energy efficiency assessments, energy efficient equipment and installation to small business customers at no or low cost. Marketing efforts undertaken will be targeted based on customer size and demographics. Program interactions include working closely with Faith Based and Community Based Organizations as job development partners, creating and providing jobs in addition to the contract deliverables. This provides a partnership in the community that otherwise would not have engaged.

Additionally, the Program utilizes a collaborative team of internal and external stakeholders to conduct strategic program outreach and marketing. Working with our External Affairs Outreach group the Direct Install program has worked actively with a number of Business Improvement Districts and local governments during the current cycle to increase local community involvement and raise the program's profile among BID businesses. This effort will continue during the 2013-2014 cycle with a concerted effort to partner with Local Government

Programs and multiple BIDs to increase the number of BID customers involved in the Direct Install program.

v. IOU program interactions

The sub-program will coordinate its activities with local government partnerships and External Affairs in order to leverage existing infrastructures (e.g., Chambers of Commerce and Business Improvement Districts) that provide outreach to small business customers.

vi. Similar IOU and POU programs

Not applicable

b) Program delivery and coordination

Direct Install contractors are selected using a competitive bid process to ensure cost-effective delivery of services. All customer outreach, existing equipment surveys, explanation and promotion of retrofits and installation of retrofits for customers will be delivered by the contractors.

The IOU Program Management staff provides a customer contact list to the Direct Install contractors. Using this list the contractors will contact the customer to set up an appointment to assess and install the recommended measures at no cost to the customer. In cases where a customer name is not shown on the list (for example, a new business that opened after the list was generated), the contractor confirms their eligibility before performing a survey. Contractors have the main responsibility for contacting eligible customers, but also work with appropriate CBO/FBO and local government partnerships to reach customers.

After completing the energy survey, the contractors must discuss the recommendations with the customer and explain which fixtures and/or lamps recommended for upgrade and/or replacement. The contractor must then ask the customer whether to proceed with the retrofit:

The contractor typically installs the equipment within a few days of obtaining permission to proceed. After completing the installation, the contractor must do three things:

1. Perform an on-site post-verification of the installation. The test must ensure that all retrofit work is completed and in compliance with all applicable statutes, acts, ordinances, regulations, codes and standards of the federal, state and local governmental agencies having regulatory jurisdiction.
2. If a customer has any complaint about work done through the Program, the Contractor is ultimately responsible for handling it.

Any advertising or marketing material that the contractor uses must be approved by the Program manager in advance. All customer communications must be presented in the customer's primary language whenever possible and appropriate categories).

i. Emerging Technologies program

Not applicable; this program does not seek to influence emerging technologies.

ii. Codes and Standards program

Not applicable; this program is not directly involved with the Codes and Standards, but is indirectly involved insofar as Title 20/24 requirements dictate minimum efficiency standards.

iii. WE&T efforts

Direct Install contractors will be required to provide customers with informational materials on statewide and local WE&T opportunities. In addition, the Direct Install program (through its contractor delivery network) offers an opportunity for achieving one of the primary goals of Workforce Education & Training – providing energy efficiency jobs for low income and disadvantaged workers. The linkage between Direct Install and the Statewide WE&T efforts will be made stronger as the WE&T program coalesces.

iv. Program-specific marketing and outreach efforts

Program outreach occurs by working closely with local governments, Faith Based and Community Based Organizations. Marketing and outreach efforts focus on the energy efficiency benefits of the equipment installed, proper operation and maintenance and cross-promotion of DR activities. (Specific IOU budget information for this marketing activity is provided in Table 1.)

v. Non-energy activities of program

As a turnkey program, Direct Install contractors are responsible for outreach efforts, equipment specification, equipment procurement, equipment installation, job-site clean-up, equipment disposal and post-installation inspection.

vi. Non-IOU Programs

Direct Install will leverage the efforts of other philanthropic, faith-based and community-based organizations to achieve additional energy savings. These efforts will be further defined as the program design details are developed and third-party contracts are negotiated.

vii. CEC work on EPIC

Not applicable; see Section 6.b.i.

viii. CEC work on codes and standards

Not applicable; see Section 6.b.ii.

ix. Non-utility market initiatives

Not applicable

c) Best Practices

Direct Install Programs were successfully offered during the 2010-2012 program cycle. Best practices were derived from these programs and include:

- Keep messaging and participation simple for the customer.
- Understand the key motivators that drive an industry and use that information to market the program.
- Make the program visible to targeted customers.
- Contact targeted customers through identified organizations and associations,
- Maintain a high level of customer service by providing customers with assistance with vendor management and other no cost, low cost recommendations.
- Identify qualifying products simply and effectively.

d) Innovation

As the market matures with information regarding energy efficiency, many small businesses are expressing an interest in the adoption of emerging technologies, such as solid state lighting, and demand response enabling technologies. The IOU Direct Install Program Management team will continually evaluate these technologies and incorporating them into the program delivery model including potential customer co-pay into the program.

IOUs will explore offering an audit to customers considering three or more measures in an effort to determine if the audit itself leads to implementation of deeper savings.

e) Integrated/coordinated Demand Side Management

The Direct Install model provides a great opportunity to market other DSM (i.e., DR and CSI) to traditionally hard-to-reach customers. The program will make every effort to do so; however, it is acknowledged that these small business customers likely do not have the resources (both financial and personnel) to actively pursue participation in such programs (especially CSI). To help bridge this resource gap, DSM promotional materials will describe all known non-IOU programs that offer tax credits/rebates/financing for solar PV systems. Information on DR programs and rate alternatives/changes appropriate to the small-business customer class will also be provided.

f) Integration across resource types

Promotional materials described in Section 6.e will also include information on water energy savings. In addition, such water savings measures (e.g., low flow faucets) may be evaluated for inclusion in the program delivery.

g) Pilots

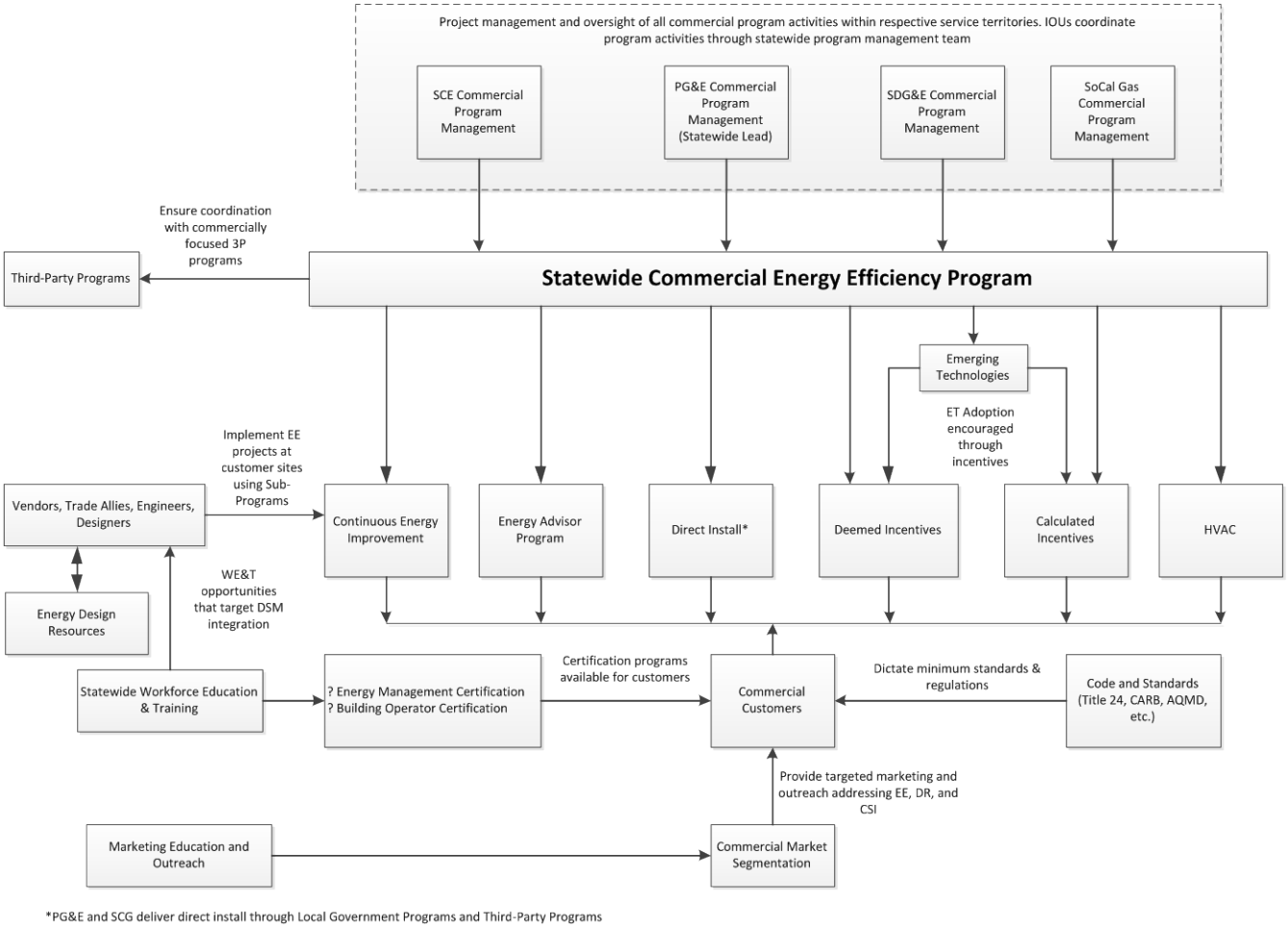
Not applicable

h) EM&V

The IOUs will work with the Energy Division to develop and submit a comprehensive EM&V plan for 2013-2014 cycle, after the program implementation plans are filed. This plan will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More details plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the utilities and Energy Division. Development of these plans will occur after the final program design is approved by the CPUC, and in many case, after the program implementation has begun, since the plans need to be based identified program design and implementation issues. However, a brief description of the current, preliminary plans is provided below:

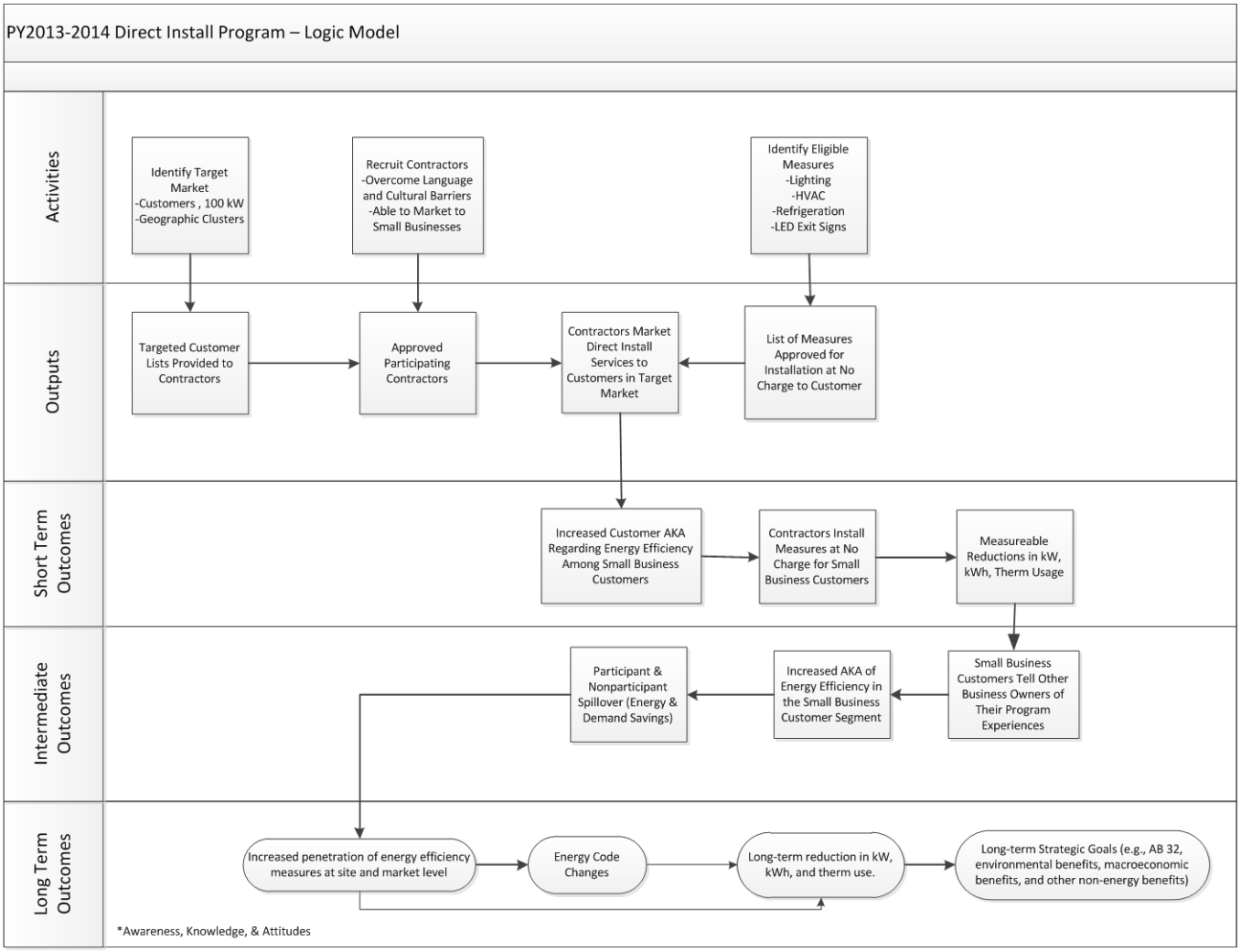
- Conduct evaluation to track the all proposed key metrics,
- Conduct specific process evaluation to improve program design, implementation and market effectiveness.

7) Diagram of Program



8) Program Logic Model

On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas and Electric Company for 2010-2012 statewide energy efficiency programs and subprograms. In addition, this Resolution approved updated logic models for the statewide programs. Below is the approved logic model for the Direct Install Sub-program.



Attachment A: IOU Strategy for Overcoming the Tenant-Owner "Split Incentive" Barrier in Multi-Tenant Buildings

Achieving deep energy savings in commercial buildings has historically been a difficult task, partly due to the tenant-owner "split incentive" barrier. Significant research[52,53] has been conducted on the "split incentive" barrier, which indicates it is a complex challenge that often requires the development of customized solutions on a case-by-case basis. The challenges with split incentives are largely due to the complexity of the commercial building industry itself, which includes unique lease arrangements and tenant/owner relationships, a diverse array of market actors with motives frequently at cross-purposes (including sole building owners, partial building owners, fee-based property managers, investment fund portfolios, engineering and maintenance service firms, short/long term lessees, leasing agents, etc.), and a broad array of energy efficiency projects. Because the split incentive problem is, by nature, irregular and defined by case-specific intricacies, solutions to the problem need to be customized and case-specific as well.

Given these challenges, a new strategic approach is required for tapping the unrealized energy savings potential in commercial buildings. This new approach would likely involve sales personnel trained specifically on developing projects in the multi-tenant commercial building space. These individuals would be skilled in navigating the various permutations of tenant-owner relationships and other industry-specific complexities, and would be empowered to offer customized solutions on a case-specific basis. The primary sales focus would be less on individual buildings and more on influencing high-level decision makers in multi-property firms to undertake energy efficiency upgrades across their portfolio of buildings.

PG&E proposes to take initial steps toward realigning its commercial buildings strategy along these lines during 2013-2014. Specifically, PG&E will execute the following activities during the 2013-2014 cycle:

- Identify and training a small group of in-house leads as "field experts" on the tenant-landlord issue in commercial buildings;

[52] Reed, John H. July 2007. *Strategies and Tactics for Promoting Energy Efficiency for Portfolios of Commercial Office Buildings.*

[53] Cortese, Amy, et al. 2010. *Harnessing Market Forces to Address the Landlord Tenant Split Incentive in the Commercial Building Market.*

- Work with this team to deliver 1-3 pilot/demonstration projects by the end of the cycle. Sub-metering and plug load control technologies will be also be evaluated as tools to modify customer practices that overcome the tenant side of the tenant/owner barrier. PG&E expects to implement projects primarily in strip mall properties and multi-tenant commercial buildings, and will select customers that represent the various tenant/owner scenarios (e.g., single owner, sub-metered property, etc.). The tests will be designed to determine the drivers of decision makers, the unique barriers of each stakeholder, and ultimately to determine methods to induce property owners and tenants to participate in EE; and
- Use lessons learned in the field, along with available research, to determine the applicability, cost-effectiveness, and potential design for a scaled tenant/owner-focused offering for inclusion in the 2015-2017 portfolio within the statewide Commercial EE Program or other program area; and
- In Q3, 2014, submit a two-part report to Energy Division including:
    - Part 1: The successes, challenges and lessons learned over the course of the pilot/demonstration project.
    - Part 2: PG&E's specific plans for addressing multi-tenant commercial buildings in a scaled fashion during the 2015-2017 program cycle, dependent on the results of the tests conducted through 2014.

Attachment B: IOU Strategies for Sub-Metering and Plug Load Control Technologies

Decision 12-05-015[54] defines sub-metering as monitoring individual buildings or commercial spaces to create awareness of energy usage by individual tenants or buildings where previously disguised by a master meter. This decision also directs the IOUs to promote the installation of plug load control technologies. PG&E will address promotion of sub-metering and plug load control technologies through the tenant/owner test projects described above under the "IOU strategy for overcoming the tenant-owner "split incentive" section of this PIP.

Additionally, PG&E currently offers several other programs outside of the Statewide Commercial EE Program that monitor energy usage at the end use level or that pull data from a customers' existing energy control and management system (ECMS) for the purpose of analysis and energy efficiency measure recommendation. While there have been significant advances in end-use monitoring in facilities, it is still an expensive process that requires third party monitoring and data handling contracts to be put in place. These incentives are available for both new construction and existing buildings through the following programs:

- **UC/CSU Statewide Monitoring Based Retrocommissioning Program –** The UC/CSU MBCx program is run as a statewide offering and provide incentives for the UC/CSU's to implement an M&V plan to install whole building metering to measure all electric, gas, steam, hot water and chilled water inputs to the building. Campuses are also advised to meter domestic water for comprehensiveness. Existing meters can be used with addition of new pulse outputs if necessary. The meters are required to automatically communicate interval energy use (using hourly or smaller intervals) to a front end storage device in real time. Sub-meters are installed as necessary to break out particular equipment energy use.

  In addition, campuses participating in the program are also asked to implement a database program specifically designed for the tracking and evaluation of energy use meters and EMS points. The program is required to have capability to log, store and manipulate

[54] D.12-05-015, dated May 18, 2012, p. 221, footnote 272 states: Sub-metering is the metering of individual buildings or commercial spaces, which creates awareness of energy usage by individual tenants or buildings where previously disguised by a master meter.

energy use information for every major building on campus for at least 10 years. These capabilities are beyond the capacity of many energy management systems. The system should have the ability to communicate with existing campus energy management systems to allow logging of points or virtual points from the EMS for use in the database program. The program will allow multiple ways to view and display data, including with data visualization software.

The data collection and analysis is supplemented by on-site visits for function testing of equipment and verification of defects. The campus is then provided with a report of findings that identify energy efficiency measures to install. Post-installation monitoring is conducted to verify persistence of installed measures.

In 2013-14, PG&E estimates that 50 MBCx projects will be completed through this program in its service territory. Note that each project may contain one or multiple buildings where sub-metering might be installed for the purpose of data collection and analysis.

- **Other Retro-commissioning programs -** PG&E through its Third Party channel offer several other monitoring based programs that usually rely on existing monitoring equipment within the building to provide the data needed for measure identification, fault detection, savings quantification and measure persistence. These programs include the Enovity Monitoring Based Persistence Commissioning Program (MBPCx), the EnerNOC Monitoring Based Commissioning Program (MBCx), the KEMA Enhanced Automation Program and the Nexant Industrial RCx (IRCx) program.

  PG&E is also in the process of selecting vendors through its IDEAA 365 process to introduce a new targeted RCx offering for its municipal and school sector which has several innovative program delivery elements. This program will leverage software tools that take as input whole meter data and based on proprietary algorithms conduct end-use de-segregation on that whole building data to identify precise areas of investigation for efficiency measures. This Analytics enabled RCx program is targeted at smaller buildings that are not currently served by PG&E's other programs and is projected to serve a minimum of 25 projects in 2013-14.

Savings By Design: For the new construction market, PG&E currently offers incentives for sub-metering of major energy end-uses through its Savings By Design program post construction of the facility. This incentive was introduced during the 2010-12 cycle and is being doubled (10% to 20%) for 2013-14 to encourage wider market participation. The IOU's were directed to look to the DEER database for plug load control technologies and PG&E was unable to find specific technologies of the kind requested. PG&E proposes to deploy the end-use monitoring approach in its SBD and tenant/owner pilot programs to address plug load control.

The IOU's were directed to look to the DEER database for plug load control technologies. PG&E was unable to find specific technologies of the kind requested for commercial buildings. All the EEM's listed were directed towards residential applications for use with refrigerators and other appliances. PG&E proposes to deploy the end-use monitoring approach in its SBD and tenant/owner pilot programs to address plug load control in commercial buildings.

Attachment C: IOU Strategy for Collecting and Utilizing Performance Data

PG&E recognizes the importance of performance data collection in establishing energy use baselines, informing future code updates, innovating new program delivery mechanisms and enabling additional financing for energy efficiency projects. Additionally, better data on the performance of energy efficiency measures and systems may encourage proper valuation of EE by owners, current tenants, and subsequent tenants. In addition to continuing its ongoing activities related to increasing the collection and utilization of performance data, PG&E is planning two new initiatives in 2013-2014 to develop performance data applications for commercial energy efficiency.

PG&E's primary effort in performance data collection/utilization during this program cycle will be the Commercial Whole Building Performance Demonstration. This demonstration, scheduled for launch in 2013, will entail the determination of predictive energy use baseline models for participating buildings using new, innovative software tools. These models will establish whole-building level energy use baselines against which realized energy savings from retrofit and retrocommissioning (RCx) measure impacts will be estimated. Final savings estimates will be based on actual performance as determined through modeled billing analysis and calibrated simulation. PG&E intends to normalize the energy savings estimates with respect to weather effects and to supplement its estimates with data collected on the operating conditions of the participating buildings. The demonstration is designed to provide a testing ground for best practice Whole Building Approach program delivery methods that could be scaled further within the 2015-17 program cycle.

In parallel with the Whole Building Performance Demonstration, PG&E plans to conduct an assessment of the technology readiness of building analytics to enable whole building approaches. Components of this effort will include developing: (1) a framework for statistical approaches to quantifying savings using building analytics tools; (2) a taxonomy of building analytics including functions and features; (3) best practices for load baseline estimation, adjustment and normalization; (4) product performance metrics; (5) performance evaluation

criteria; and (6) data collection recommendations for performance-based whole building approaches using building analytics.

This project will deliver and demonstrate a testing criteria and protocol for energy management software with interval meter data-based savings estimation functionality. The criteria could enable a new generation of customized and information products, improve the scalability of savings estimation across a large numbers of sites, and build customer (owner and tenant) confidence in the value of energy efficiency measures.

In addition to these new initiatives, PG&E will continue its successful efforts in collecting and utilizing performance data across its commercial portfolio. These continuing efforts include:

- **Savings by Design –** Customers in Savings by Design are offered a project incentive bonus for the installation of end-use metering equipment that is able to monitor and record lighting, HVAC, process and plug loads separately. Customers are also eligible for a project incentive bonus for submission of a comprehensive commissioning plan to verify the building's systems are installed, calibrated and will ultimately perform according to the project's design and construction.
- **Retrocommissioning (RCx) –** Monitoring and data logging equipment are utilized to establish pre-installation energy use baselines and to verify post-installation energy savings as part of the basic program process.
- **Third Party Programs –** PG&E administers several 3P programs that leverage monitoring at the whole building and sub-system level to identify and track energy efficiency measures. These programs include the EnerNOC Monitoring-Based Commissioning Program, Enovity's Monitoring-Based Performance Commissioning Program, and KEMA's Enhanced Automation Initiative.
- **Benchmarking –** Performance data at the sub-meter, whole building, or building portfolio level is leveraged to enable participants to monitor trends in energy use, and compare their facility's energy consumption with industry standard efficiencies through tools such as Energy Star's Portfolio Manager. Customers whose benchmarking activities reveal opportunities for efficiency improvements receive individualized follow-up from PG&E. Industry accepted benchmarking will drive proper valuation.

- **Audits –** Collection of detailed performance data at the sub-meter, system, and facility level is an essential component of the Integrated Audit services provided by PG&E. This data collected during these audits are used to inform recommendations for cost-effective energy efficiency improvements to the customer's facility.
- **Custom Retrofit –** Spot data collection and other short-term performance data gathering techniques are often employed during the post-installation review phase to substantiate energy savings claims above and beyond the code or industry standard baseline for the equipment or system being installed. In the case of early retirement of existing equipment, similar techniques are employed at the pre-installation review phase to substantiate the existing equipment's energy use baseline. In addition, a 10% incentive bonus is available to customers who substantiate energy savings through the formal measurement and verification (M&V) process.
- **Financing –**Performance data can be used by multiple stakeholders during the financing process.
    - Building owners will want to ensure that projects are perform for current and future tenants and that data will be able to be shared and trusted by tenants
    - Building tenants/users will be interested in understanding the full cost of building occupancy, including energy costs, so that they can make decisions based on full information.
    - The more confidence and data that financial institutions have on the performance of projects will increase their ability to utilize project performance data in the underwriting process.
- On-Bill Financing (OBF) will support commercial customers' investments by allowing commercial customers to pay for the project as energy savings are realized. While the OBF loan terms are based on projected energy savings, customers will benefit from seeing actual project performance data.
- The On-Bill Repayment (OBR) pilot will allow customers to access private capital for loans that may extend beyond the 5 year for Commercial customers and 10 year for government customers.
- As described in the sections above, PG&E's rebate/incentive programs are already collecting energy project performance data through a variety of different channels. In

addition, the IOUs have also been developing their initial recommendations for data needs of finance projects (e.g. data to be collected, data collection structures, data storage options, data release protocols, data transfer protocols, etc.). A soon as practical, after receiving CPUC approval, the finance team will inform the rebate/incentive team if there is any additional energy project data need. If so, the two teams will work closely to implement necessary changes to collect all necessary energy project data to inform the finance pilots.

Attachment D: Commercial Incentive Update

Consistent with direction received from the CPUC, the IOUs have developed a framework for offering higher incentives for emerging technologies. The tiered incentive structure to be offered by the utilities in the 2013-2014 cycle distinguishes between "Basic" measures (generally those that are less costly and more well-established) and "Targeted" measures (generally those that are new, emerging, costly or hard-to-reach). This structure will allow the utilities to send pricing signals to the market and award a higher incentive rate to new/emerging technologies at the outset of their inclusion within the program. The structure also enables the utilities to shift measures from the Targeted to the Basic category when market conditions have evolved to the point where a measure no longer requires an elevated incentive rate.

Incentives will be as follows:

2010-12 Cycle		**2013-14 Cycle**		
Category		*Category*	Basic	Targeted
Lighting	$.05/ kWh	Lighting	$.03/kWh	$.08/kWh
ACR I	$.15/kWh	Non Lighting	$.08/kWh	$.15/kWh
ACR II	$.09/kWh			
Other/Motors	$.09/kWh			
Peak Demand Reduction	$100/kW	Peak Demand Reduction	$100/kW	$100/kW
Gas	$1/therm	Gas	$1/therm	
RCx	$0.09/kWh, $1/therm, $100 /kW	RCx	$0.08/kWh, $1/therm, $100 /kW	

As a general rule, the composition of measures within the incentive categories falls along the following lines:

- **Targeted Lighting** includes LED retrofits and Advanced Lighting Controls measures.
- **Basic Lighting** includes all non-LED lighting retrofits (CFLs, linear fluorescents, etc).
- **Targeted Non-Lighting** rebrands the Air Conditioning and Refrigeration (AC&R) I category (generally, full system replacements or retrofits improving A/C system efficiency).
- **Basic Non-Lighting** rebrands the AC&R II/Other categories (generally, component retrofits or retrofits reducing operating load).

In addition, the IOUs will offer a 20% incentive bonus (the "**Comprehensiveness Bonus**") in response to CPUC direction to incorporate strategies to encourage deeper energy retrofits and packages of measures.

- The 20% incentive bonus will be awarded to for projects that bundle measures from at least three of the following end-use categories:
    - HVAC – Cooling
    - HVAC – Heating
    - HVAC – Ventilation
    - Process – Cooling
    - Process – Heating
    - Process – Pumping
    - Process – Compressed Air
    - Process – Other
    - Lighting
    - Refrigeration
    - Controls
    - Building Envelope
    - New RCx participation
    - New DR participation
- In order to ensure that the bonus truly drives deep retrofits, and that customers do not install small, inconsequential measures simply to access the bonus, each of the three end use-measures must contribute at least 10% of the customer's overall project incentive to count as a qualifier toward the bonus.
- Measures from all programs (e.g., Core Customized, Deemed, 3P, LGP) are eligible to participate. At least one customized measure is necessary in order to qualify. The bonus will be paid as 20% of the sum of the incentive payments associated with the qualifying measures, regardless of which program the measures originate from (Core, Deemed, 3P, LGP).
- Comprehensiveness Bonus payments are capped at $25,000 per project. RCx-only projects, regardless of the number and type of measure installed will not qualify for a comprehensiveness bonus.

The utilities consider the Comprehensiveness Bonus to be a trial of a new approach for encouraging deeper retrofits within the customized retrofit program. The bonus will be evaluated at the end of the program cycle to determine whether the approach shall continue into the 2015-2017 program cycle. A key metric in evaluating the success of the Comprehensiveness Bonus will be the increase in number of deep retrofits and packages of measures resulting from the bonus, which can be measured by comparing historical data with data collected after inclusion of the bonus.