PACIFIC GAS AND ELECTRIC COMPANY

~~2010-2012~~2013-2014 ENERGY EFFICIENCY PORTFOLIO

STATEWIDE PROGRAM IMPLEMENTATION PLAN

WORKFORCE EDUCATION AND TRAINING (WE&T)

PGE2107

JULY 2, 2012~~MARCH 2, 2009~~

~~(REVISED 1/18/11)~~

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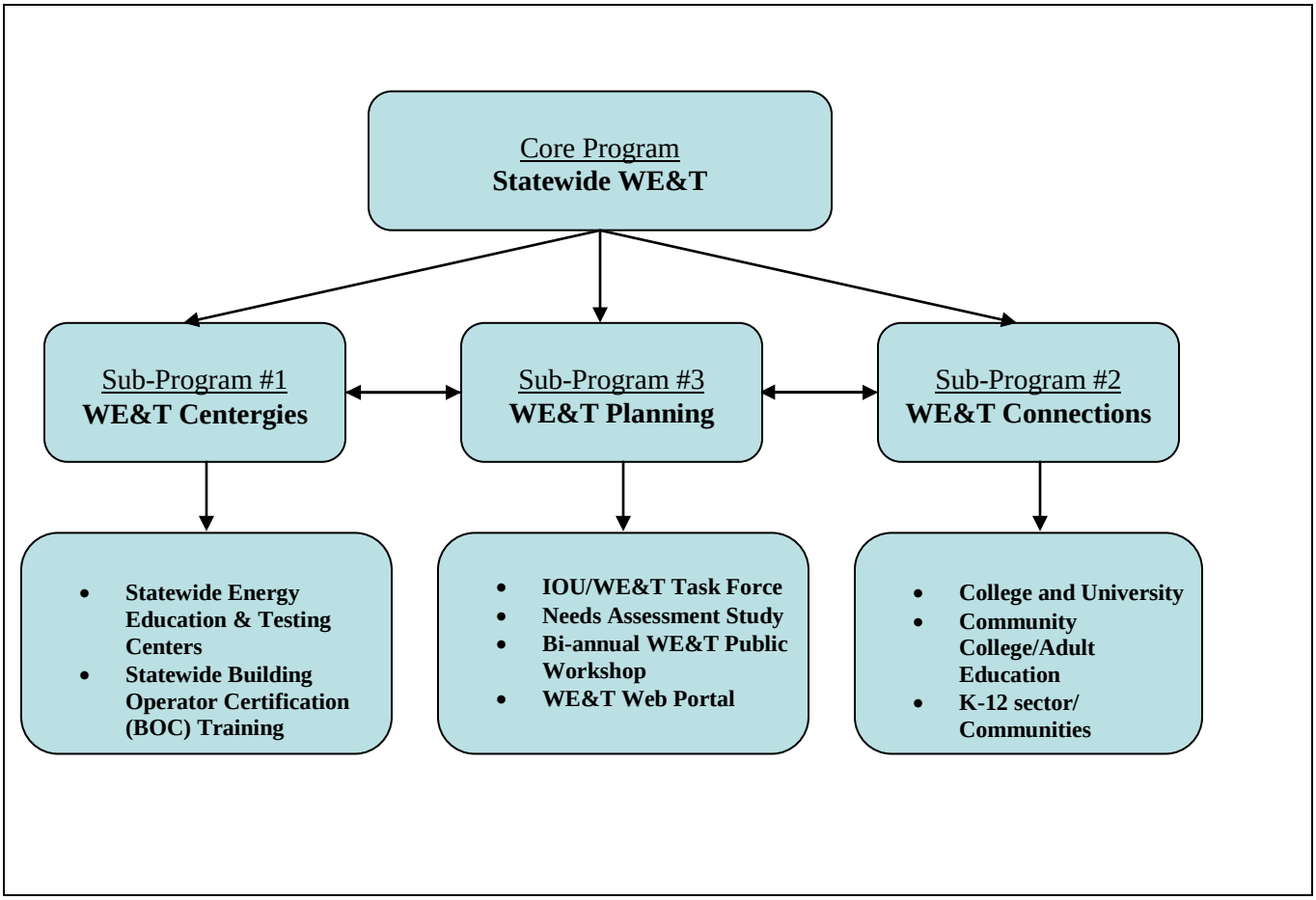
1) Statewide Workforce Education and Training (WE&T), PGE2107, core program

Diagram I: Statewide WE&T Core Program Implementation Structure[1]



[1] Sub-Program write-up contains detail on cross-cutting coordination and strategies with market sectors and market segments, as well as descriptions of specific shared component activities, projects and implementation models.

2) Projected Program Budget Table (IOU specific)

Table 1[2]

New EEGA	New Sub Program	Total Administrative Cost	Total Marketing & Outreach	Total Direct Implementation (Customer Services)	Direct Implementation (Incentives & Rebates)	Total Compliance Budget
PGE21071	Centergies	$557,291	$441,983	$19,093,653	$0	$20,092,927
PGE21072	Connections	$ 9,382	$0	$ 4,600,029	$0	$ 4,609,412
PGE21073	Strategic Planning	$0	$ 2,385	$ 1,232,550	$0	$ 1,234,935
	WE&T Total	$566,673	$444,369	$24,926,232	$0	$25,937,274

3) Projected Program Gross Impacts Table

WE&T is considered a non-resource program and thus is not expected to provide energy savings impacts for the IOU Energy Efficiency portfolio for the ~~2010-2012~~2013-2014 program years. However, as part of the ongoing efforts of the IOUs and recommendations taken from future study results, the IOU WE&T programs are continually seeking methodologies that can support energy savings contributions for WE&T activities. ~~(See Section 6.1.f.i-ii for a discussion of proposed pilots to quantify energy savings associated with WE&T Centergies programs.)~~

Table 2 – Not applicable for this program.

4) Program Description

a) Program description

The Statewide IOU Workforce Education and Training (WE&T) Program represents a portfolio of education, training, and workforce development planning and

[2] 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.

implementation funded by or coordinated with the Investor-Owned Utilities (IOUs): Pacific Gas and Electric (PG&E), Southern California Edison (SCE), San Diego Gas & Electric (SDG&E), and Southern California Gas (SCG). Education and training are vital components of each of the IOU's energy efficiency portfolio filings for ~~2010-2012~~2013-2014 and are integral in supporting the achievement of IOU energy savings targets and the workforce objectives set forth in the California Long-Term Energy Efficiency Strategic Plan (Strategic Plan). Workforce Education and Training has become an important crosscutting activity for the IOUs in an effort to not only educate and train current workers, but to prepare future workers to be better able to successfully perform the jobs needed to help achieve increased energy savings targets for the IOUs and California's clean energy goals.

WE&T relies on statewide coordination to collaboratively create a comprehensive training platform that leverages the potential of key stakeholders with the resources, knowledge, and commitments to implement an education and training strategy that focuses on integrating existing workforce skills with new workforce needs, as well as expand outreach efforts to increase awareness of and demand for green careers.

California wants to expeditiously increase statewide workforce development and training relying on strategically coordinated planning and administration to deliver energy efficiency and demand side energy management in the public and private sectors. This effort will require concerted planning among secondary and post-secondary educational leaders, technical and professional organizations, state agencies, economic and labor development organizations, utilities, construction and manufacturing businesses that deliver energy management and efficiency solutions.

The Strategic Plan's vision for WE&T is that "[b]y 2020, California's workforce will be trained and engaged to provide the human capital necessary to achieve California's economic energy efficiency and demand-side management potential."3 To do this, the Statewide IOU WE&T Program must be constructed in an implementable form to: 1) initiate and drive long-term WE&T development and strategic planning, including identification of funding streams and market sector specific needs; 2) support community college and adult education efforts to develop education based on visible career paths in energy efficiency and related fields; 3) incorporate energy efficiency and integrated demand side energy management into traditional contractor and technician training; 4) support the creation or expansion of energy management and efficiency focused curriculum by college and university programs and foster this knowledge in clear view of students and faculty; 5) support development of K-12 curriculum to include a basic understanding of energy fundamentals, including environmental and greenhouse gas impacts as well as solutions to mitigate energy use impacts such as EE, DSM, and associated behavioral changes, identify how career education in energy-related fields can be incorporated across the grades, and bolster high school career counseling to improve community college enrollment in green job training programs; and 6) achieve the fullest participation by minority, low income and disadvantaged communities in training and

[3] California Long Term Energy Efficiency Strategic Plan, p. 74.

education at all levels of DSM and the energy/resource efficiency industry. Diagram I illustrates the proposed program implementation structure for the Statewide IOU WE&T Program to best deliver the strategies outlined by the Strategic Plan.

Throughout the approved IOU Program Implementation period, the WE&T Program will strive to continuously initiate and facilitate ongoing dialogue with a broad group of market and education sector stakeholders to define, introduce and drive long-term WE&T development and solutions to establish EE and DSM education and training at all levels of California's educational system and accommodate the dramatic increase in EE activities envisioned by the Strategic Plan. The IOUs will modify curriculum and delivery methods to incorporate feedback and guidance from sources, including the California WE&T Needs Assessment, customer feedback from the 2010-2012 Process Evaluation, and the Guidance Decision for 2013-2014. Such modifications include, but are not limited to, approaching curriculum development with the sector strategy approach.

The Statewide IOU WE&T Program includes three pivotal Sub-Programs that form an integrated and cohesive structure for implementing WE&T curriculum and related activities in support of IOU energy savings targets and the long-term strategic goals for the state of California as prioritized and outlined by the Strategic Plan and Big Bold Energy Efficiency Strategies (BBEES). These three Sub-Programs include:

i. The WE&T Centergies Sub-Program is generally organized around market sectors and cross-cutting segments to facilitate workforce education and training appropriate for achieving the energy savings, demand reductions and related energy initiatives required of the IOUs. The Energy Centers, which have many years of experience in creating and disseminating high-quality programs, represent the largest component of this Sub-Program and provide WE&T curriculum and related deliverables—training courses, seminars, workshops, clean energy technology demonstration, equipment efficiency testing, interactive training exhibits and lectures—to promote industry trends and developments for advancing energy efficiency as a professional discipline. For many years, they have served as the IOU's primary delivery channels for mid- and upstream workforce education and training, information dissemination, and education/outreach coordination. IOU-administered Third Party, Local Government and Emerging Technology, Codes and Standards, Heating, Ventilation and Air Conditioning (HVAC), and ~~Low Income Energy Efficiency (LIEE)~~ Energy Savings Assistance (ESA) programs, as well as other community-based training efforts, are supported by the Energy Centers to sponsor workforce training courses. (Refer to WE&T Centergies Sub-Program Section 6.1 for a more detailed discussion of 2013-2014 program implementation.)

   The Statewide Building Operator Certification (BOC) Training Partnership, the second component of this Sub-Program, will continue to play a major role in improving and maintaining California's green collar building workforce stock of building engineers, stationary engineers, maintenance supervisors, maintenance

workers, facility coordinators, HVAC technicians, electricians, , and others in the facility operation and maintenance field. The IOUs have been collaborating with BOC to offer California building operators competency-based training and certification, resulting in improved job skills and more comfortable, efficient facilities. Operators earn certification by attending training and completing project assignments in their facilities. Training topics include facility electrical, HVAC, and lighting systems; indoor air quality; environmental health and safety; and energy conservation. The IOUs will work with BOC to shape and realign the BOC certification program to be consistent with the Strategy Plan.

ii. The WE&T Connections Sub-Program is organized around downstream and upstream relationships between the IOUs and the educational sector, entry and intro-level community-based training efforts that support workforce development in energy efficiency, energy management, and new emerging green careers. This Sub-Program emphasizes education curriculum and related activities that inspire interest in energy careers, new and emerging technology, and future skills development to advance the energy initiatives and goals of the state. This Sub-Program involves expanded relationship-building to foster curriculum development and related training that result from existing and expanding industry needs. IOUs will work with education institutions, labor and communities to nurture interest in green careers by K-12, community college, occupational, vocational, and major university students, as well as assist in the growth of low-income and transitional workforce targeted clean energy training programs. (Refer to WE&T Connections Sub-Program Section 6.2 for a more detailed discussion of 2013-2014 program implementation.)

iii. The WE&T Planning Sub-Program involves the management and execution of several strategic statewide planning tasks and resulting project implementation actions initiated by the Strategic Plan. The tasks and projects are seen as instrumental in delivering mechanisms and protocols that facilitate ongoing momentum and focus on the achievement of workforce, education and training long-term goals. The WE&T Planning Sub-Program facilitates implementation and completion of the four key strategic tasks identified in the Strategic Plan to drive long-term WE&T development:

1) Form an IOU/CPUC WE&T Task Force
2) Conduct a Needs Assessment
3) Create a WE&T Specific Web Portal
4) Facilitate annual WE&T Public Workshops

(Refer to WE&T Planning Sub-Program Section 6.3 for a more detailed discussion of 2013-2014 program implementation.)

b) List of current measures/curriculum

Refer to WE&T Sub-Program Sections 6.1 and 6.2 for specific detail.

i. WE&T Centergies

a. ~~a.~~ Statewide Energy Education and Testing Centers (Centers)

The Centers will continue to offer and expand their curricula to current and new audiences that make up California's energy efficiency workforce. The primary target audience for each of the Center's activities and that audience's significance to California's energy efficiency future are delineated in Appendix 2. Appendix 2 also includes a more comprehensive list of existing and new educational seminars that the Centers will offer at the local and statewide level. The list reflects classes that are developed around specific technologies or installation methods as well as classes that present integration among DSM programs, including distributed generation and demand response. NOTE: The course topics listed in Attachment 11 will be modified during the program cycle, as new technologies are introduced into the marketplace and revised codes and standards are implemented.

b. Statewide Building Operator Certification (BOC) Training Partnership

BOC will continue to be a WE&T partner with the IOUs. The IOUs will expand and improve the BOC partnership. The "measures" to be provided in the BOC program include delivery of the Level I (7-class series) and Level II (4-class series) certification courses listed below. BOC will also track certification statistics.

~~ii.~~	~~iii. 2010-2012~~	~~iv.~~	~~v.~~	~~vi.~~
~~vii. Course Series~~	~~viii. Total Level 1/Level 2~~	~~ix.~~	~~x.~~	~~xi.~~
~~xii. SCE~~	~~xiii. 23 16/7~~	~~xiv.~~	~~xv.~~	~~xvi.~~
~~xvii. PG&E~~	~~xviii. 23 16/7~~	~~xix.~~	~~xx.~~	~~xxi.~~
~~xxii. SoCalGas~~	~~xxiii. 5 4/1~~	~~xxiv.~~	~~xxv.~~	~~xxvi.~~
~~xxvii. SDG&E~~	~~xxviii. 9 7/2~~	~~xxix.~~	~~xxx.~~	~~xxxi.~~

~~**xxxii.** *Numbers do not reflect shared BOC sessions (promotion/costs) planned with SCE.~~

~~xxxiii.~~

~~xxxiv.~~ii. WE&T Connections

a. College and University sector: The Statewide University program that operates at UC/CSU campuses offers the following as well as advances the Strategic Plan goals:

- IOU and /or program staff will work with the UC Office of the President of Academic Affairs and the CSU Office of Degree Programs and Educational Opportunities to 1) promote energy minor or major degree programs, 2) collaborate and/or provide expertise in the development of complementary new and revised courses that will form a comprehensive integrated approach to energy education, and 3) consult with campus-specific administrators to define additional courses needed to meet the growing need for graduates with skills in energy efficiency and related fields.

- Student interns will work with many campus groups and organizations to promote energy efficiency and green careers to the student body.
- Student interns will work with campus EOP Programs to ensure that minority, low income, and disadvantaged students are fully engaged in our energy efficiency and green career path programs. Many students do not apply for admission to college because no one in their family has ever attended college or because college seems too expensive. EOP aims to improve the access, retention, and graduation of students who have been historically disadvantaged, either socially or economically.
- Student Interns promote energy efficiency throughout the campus by performing energy assessments and providing recommended actions to operate more efficiently.
- The program provides a pathway to green jobs through professional development, training, mentoring, integrated academic curricula, internships, project based learning, and a broad-based professional networks.
- Students are offered job shadowing and internships with IOUs, universities, other entities, and government agencies.

b. Community College sector: The Community College program will better position California's workforce to meet the growing need for energy professionals as well as advance Strategic Plan goals:

- The California Community College training and education program currently provides energy efficiency courses for CCC facilities, operations, and maintenance staff in an effort to create an energy efficient environment, help in the development energy efficient policies, take advantage of DSM programs, and implement distributed generation programs,
- IOUs are in the early stages of discussion with the Community Colleges to develop a Utility Workforce Education and Training program. The first step is to gather labor market information from employers in the energy sector and use this information to develop new certificate and degree programs that focus on energy efficiency and demand side management.
- IOUs will work with campus EOP Programs to ensure that minority, low income, and disadvantaged students are fully engaged in our energy efficiency and green career path programs. Traditionally, minority, low income and disadvantaged students heavily favor community colleges because they are economically more feasible or because students' GPA or standardized test scores were not high enough to get into a university. EOP provides support and helps students transition to universities if that is the goal of the student. EOP aims to improve the access, retention, and graduation of students who have been historically disadvantaged, either socially or economically.

c. K-12 sector: The various K-12 educational components all offer the following as well as advance Strategic Plan goals:

- Ensure that minority, low income, and disadvantaged communities fully participate in training and education programs: At least 50% of each program is offered in minority, low income, and disadvantaged communities, determined by school lunch program data.
- Designed to promote green careers to K-12 students through energy and environmental curriculum and highlight green careers/jobs: Students will learn about a range of green jobs and participate in shadowing and training program and classroom instruction to help them consider and prepare for future green employment. A focus will be on experimental learning models, including contacts with both blue and white collar workers now working in the green economy.
- Designed to educate students on energy, water, renewable energy, demand response, distributed generation, and greenhouse gases and impacts to the environment, with the goal of influencing the day-to-day energy efficiency decisions of students and their households (customer awareness focused).
- Designed to educate schools on the benefits of implementing energy efficiency policies and demand response programs at their sites to impact energy use in schools.
- The IOUs and/or our third party vendors will work with the State's Department of Education (Curriculum Commission) as well as Counties' Departments of Education to be included in curriculum development advisory boards so that we can contribute to tailored K-12 curriculum that includes the science of energy, energy efficiency, and some discussion about green careers.

c) List non-incentive customer services

i. WE&T Centergies

Common Center elements include:

- Educational seminars
- Technical consultations
- Outreach efforts
- Food Service Test Protocols
- Tool Lending Libraries
- Educational Partnerships
- ~~Support and collaboration with~~ HVAC ~~industry~~sector strategy
- Energy Design Resources integration and collaboration

These non-incentive customer services will be used to direct the Centers' customers to the IOU's incentive programs through inclusion of program materials in class course books, through information integration on Centers' class websites, and literature displays in Centers' exhibits. (Refer to WE&T Centergies Sub-Program section 6.1 for specific details.)

5) Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

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."[4] 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[5].

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[6]. Markets are social institutions[7], 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[8] 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[9]. According to York[10], "Market transformation is not likely to be achieved without significant, permanent increases in

[4] California Public Utilities Commission Decision, D.98-04-063, Appendix A.
[5] California Public Utilities Commission (2008) *California Long Term Energy Efficiency Strategic Plan*, p. 5. Available at http://www.californiaenergyefficiency.com/docs/EEStrategicPlan.pdf
[6] 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
[7] 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/
[8] 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.
[9] 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.*
[10] York, D., (1999). "A Discussion and Critique of Market Transformation", Energy Center of Wisconsin. Available at http://www.ecw.org/ecwresults/186-1.pdf.

energy prices. From an economic perspective, there are 3 ways to achieve market transformation: (1) fundamental changes in behavior, (2) provide proper price signals, and (3) permanent subsidy."

The question of what constitutes successful transformation is controversial because of a Catch-22: Market transformation is deemed successful when the changed market is self-sustaining, but that determination cannot be made until after program interventions are ended. Often, however, the need for immediate energy and demand savings or immediate carbon-emissions reductions will mean that program interventions may need to continue, which would interfere with the evaluation of whether MT is self-sustaining. Market transformation success has also been defined in terms of higher sales of efficient measures than would have otherwise occurred against a baseline absent of program interventions. The real world, however, provides no such control condition. Evaluators must estimate these baselines from quantitative factors such as past market sales that may be sparse and/or inaccurate - particularly for new products. Evaluations must also defer to expert judgments on what these baselines may have been as well as on the degree of successful market transformation[11]. 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[12], 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[13]. 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[14]. 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

[11] 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
[12] Rogers (1995) Diffusion of Innovations, 5th Ed.
[13] Example in bottom chart of this graphic from NYTimes: http://www.nytimes.com/imagepages/2008/02/10/opinion/10op.graphic.ready.html
[14] Sebold et al (2001) p. 6-5,

regulatory policy directions given to program designers.)[15]" The Strategic Plan recognizes that regulatory policies are not yet in place to support the success of market transformation efforts[16], 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[17]. 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[18] 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.

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. 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.

Program Performance Metrics (PPMs)

Below are the approved PPMs and metric types for the Workforce Education & Training Statewide (Resolution E-4385, Appendix A~~, pp 32-34~~). ~~:~~ The WE&T Program staff have

CPUC (2008) Strategic Plan, p. 5.
Nadel, Thorne, Saches, Prindle & Elliot (2003).
Peloza & York, (1999).

been in conversation with Energy Division to refine the definition of these metrics, which may change for the 2013-2014 reporting period.

WORKFORCE EDUCATION AND TRAINING (WE&T)

Centergies	Percent increase in educational collaboration with partners from 2011 baseline. (Tracked and reported by educational level, and by number of partners operating in Title-1 communities.) * Educational "collaboration" is defined as: seminars, outreach events and consultations as needed. These collaborations include exchanges of monetary or in-kind support and services (i.e., sharing meeting facilities, marketing/promotional services, etc.).	2b
	2. Percent increase in educational collaboration with organizations serving disadvantaged communities * Educational "collaboration" is defined as: seminars, outreach events and consultations as needed. These collaborations include exchanges of monetary or in-kind support and services (i.e., sharing meeting facilities, marketing/promotional services, etc.).	2b
	3. Number of IDSM educational classes with substantial IDSM (EE, DR, and DG) content. * "Substantial" is defined as approximately 50% or more of class content must address IDSM subject matter	2b
Connections	1. Percent increase in educational collaboration with partners. (Tracked and reported by educational level, and by number of partners operating in Title-1 communities.) * Educational "collaboration" is defined as: seminars, outreach events and consultations as needed. These collaborations include exchanges of monetary or in-kind support and services (i.e., sharing meeting facilities, marketing/promotional services, etc.).	2b
	2. Percent of K-12 WET Connection program participants that are from Title-1 schools	2a
	3a. Complete baseline study to determine the current number of partnerships.(Y/N) 3b: Number of high school continuing education outreach partnerships in WET Connection	2a* * Starting 2011.

b) Market Transformation Information

Per Resolution E-4385, ~~identifies a preliminary list of objectives and~~ a subset of market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms~~. The Resolution further directs the Joint Utilities to work collaboratively with Energy Division staff to select a subset of these MTIs for data collection, tracking and reporting as part of the 2010-2012 energy efficiency evaluation, monitoring and verification (EM&V) activities. These MTIs will be~~ was presented at a public workshop on November 7, 2011, to allow for public comments and further discussion before being finalized. No MTIs were identified for the WE&T Program.

~~As stated above, market transformation draws heavily upon diffusion of innovation theory, with the state of a market characterized by adoption rate plotted against time on the well-known S-shaped diffusion curve. In practice, however, the diffusion curve of products may span decades. Market share tracking studies conducted 3, 5 or even 10~~

~~years after the start of an MT program may reveal only small market transformation effects. Therefore it is problematic, if not impractical, to offer internal annual milestones towards market transformation sectors and specific program activities.~~

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

c) Program Design to Overcome Barriers

The Statewide IOU WE&T Program structure illustrated by this document is intended to address several new and recent challenges and existing barriers in order to implement a sustainable long-term education and training strategy, while leveraging the resources of the CA-IOUs to help influence energy efficiency curriculum and training content among education, labor and community sectors in a way that incorporates best practices and coordinates investment throughout the state.

The national, statewide and local economic downturn poses a real barrier to change, creating the risk of distracted focus and resistance to invest in projects. The IOUs currently represent a long and stable commitment to energy efficiency and demand-side management education and training. The IOUs have demonstrated the ability to offer a targeted breadth of education and training program, but market transformation toward a new green workforce will require an urgent commitment to change by educational sector stakeholders.

The challenge of introducing new technology into the marketplace has historically relied on coordination between technology development, research and technology commercialization. IOUs have demonstrated flexibility in identifying new and emerging technology training needs and introducing workforce training courses to both private and public sectors. However, market transformation to meet target dates associated with net zero new construction and code adoptions will require a rebound in the economy and interest in new investment.

The IOUs offer a broad statewide contiguous view on workforce, education and training which few other parties have. The proposed implementation plan leverages the statewide IOU assets and resources to the extent possible to address gaps in the workforce landscape, and IOUs can act as conduits to identify new or successful local and regional workforce training models that can be migrated across the state into underserved areas via IOU implementation or IOU administration of third-party sponsored implementation. Such an effort cannot occur solely from IOU funding, so there will need to be additional financial stimulus from alternative resources.

WE&T Connections

Energy education is critical to assuring a stable and reliable supply of electricity in California. Educating students will create a new generation of Californians who understand the significance of energy in their lives, their role in its efficient use and the importance of managing our limited resources for the future. This knowledge and information can also lead to life-long energy savings habits and a concern for the environment and its limited resources for not only the students but, for their family and friends. This knowledge and education can also lead the interest in a future green career path. However, given the budget cuts at schools, cuts to curriculum and longer work hours for teachers, getting this message across may not be possible without the assistance of these IOU sponsored programs.

WE&T Connections program components are designed to be both flexible and effective across diverse learning environments. All program components promote the science of energy, energy efficiency, demand response, distributed generation, and empower K-12 and college students to become advocates of smart energy management in their homes, schools, and communities. The program effectively combines classroom learning with hands-on activities such as:

The program will address lost opportunities in the schools market by implementing a comprehensive, innovative approach that involves incorporating:

- Some of the nation's leading energy education programs. These programs are 1) designed to promote green careers through energy and environmental curriculum, 2) designed to educate students on energy, water, renewable energy, demand response, distributed generation as well as green house gases and impact to the environment, with the goal of influencing day-to-day decisions of students and their households, 3) also designed to educate schools/facilities on the benefits of implementing energy efficiency policies and demand response programs at their sites so at to impact energy use in schools and, universities and to project energy and environmental leadership by example
- The program is developed in collaboration with natural gas, electricity and water agencies to promote and encourage the adoption of energy efficiency, demand response, distributed generation and water conservation options.
- Collaboration and integration with residential and business incentive programs that result in firm energy savings for homes and schools.

The WE&T Connections program will address the needs of schools through a combination of student, teacher, and school administrator education programs that increase their awareness and knowledge as well as provide support in developing curriculum and/or lesson plans that support these objectives. Additionally, once school-aged children learn something new like energy efficiency, they become advocates by taking that knowledge home and teaching/motivating their parents and siblings to take actions to reduce energy and water consumption. University students can conduct valuable research and effectively educate their peers and campus administrators about energy efficiency:

- Educational campaigns can result in significant energy savings on campus facilities and dorms by changing behaviors and purchasing decisions;
- Students are effective advocates, able to reach their peers, communities and high-level decision makers in promoting green jobs on campus.
- IOUs will coordinate with the Department of Education Curriculum Frameworks and Instructional Resources Division to discuss how curricula on energy efficiency fundamentals, GHG issues and global climate change can be included in the Science Framework (PG&E has submitted an application to be on the Science Curriculum Framework and Evaluation Criteria Committee for the revision of Science Framework, adoption in 2012). Additionally, coordinate with the Dept. of Ed for inclusion of curricula of green career options in energy-related fields in the Career Technical Education Framework for 7-12.
- IOUs will update the "Resource Guide for Teachers" developed by PG&E that provides an annotated listing of sites and curricula for teachers and students covering issues related to energy, energy efficiency and the environment.
- IOUs will coordinate with partners to expand outreach into K-12 schools that have curricula on energy, water, and environmental issues (e.g., California Department of Education of Education, Water Districts, California Department of Energy, California Energy Commission, Air Quality Management Districts).
- As an outcome of the collaboration of partners representing curricula mentioned above suggestions on how to integrate career options in energy-related fields will be explored. In the interim the IOU's will review the existing curriculum programs that they support and work together to see where career options can be incorporated into their curricula.
- The IOUs and/or our third party vendors will work with the appropriate (as described in program description) K-12, Community College and University agencies responsible for developing curriculum, courses and programs needed to educate students about energy, energy efficiency and prepare them for a green career path.

d) Quantitative Program Targets

Refer to WE&T Sub-Program sections for specific details.

e) Advancing Strategic Plan goals and objectives

The proposed Statewide IOU WE&T program implementation structure, integrating WE&T Planning as a Sub-Program in parallel with the two other major statewide IOU Sub-Programs, WE&T Centergies and WE&T Connections is intended to better integrate long-term planning with WE&T implementation. As stated in the Strategic Plan, "This cross-cutting sector demands a truly statewide coordination effort that integrates energy efficiency training into a wide range of public and private programs. This effort will include the California Department of Education, the Department of Employment Development, industry and labor associations, educational institutions at all levels,

technical and vocational training organizations, community based nonprofit organizations and the business community."[19]

California today is faced with an unprecedented challenge: the generation of students graduating high school in 2009 will need to stabilize carbon emissions in the 30+ years of their work careers. Additionally, this generation will need to develop and train the next generation of energy technologies. Transforming California's current building industry into one that exemplifies carbon neutrality by 2020 will require major changes in our existing market infrastructure and business models. This will result in many new jobs and industries.

One of the keys to success for future implementation of energy efficiency technologies is the need to train the next generation workforce in energy-related positions. The Statewide IOU WE&T Program, supported by the strategic activities of the WE&T Planning Sub-Program activities, establishes a connection among statewide implementers for increasing the knowledge and skills of the current generation - from local code officials, energy managers, and HVAC technicians to school teachers - to develop the muscle needed to achieve market transformation.

Achieving success in creating a workforce well educated in energy efficiency matters will require large-scale, ongoing, collaborative education, and training efforts to match evolving demands for both the type of jobs and number of workers needed to fully implement the Strategic Plan. Addressing human capital resource requirements will require collaborative efforts of federal, state, and local governments; financial institutions; community-based and non-profit organizations; industry and labor organizations and utilities. These entities present potential funding sources and opportunities for partnerships.

Students benefit from energy efficiency education and training opportunities with the ultimate goal of students entering careers in energy efficiency, advancing within their established career paths, and ultimately helping the state to meet very intense energy efficiency goals. A better trained workforce will advance the purpose of DSM implementation, policy, research and development, and education.

The educational components offered by the WE&T Connections program provide energy efficiency education and training at most levels of California's educational systems. The program also ensures that minority, low income and disadvantaged communities fully participate in training and education programs at all levels of the DSM and energy efficiency industry. The expected results are that:

1. Students develop careers, and existing workers develop skills and knowledge that advance DSM business, policy, research and development, and education; and
2. Individuals from the targeted communities take advantage of programs that specialize in energy disciplines at all levels of the educational system and

[19] California Long Term Energy Efficiency Strategic Plan, p. 75.

successfully advance themselves into rewarding careers in the energy services fields.

The Statewide IOU WE&T Program is structured to implement workforce training and workforce curriculum development in cooperation with the California Community Colleges Chancellor's Office, the California Board of Education and Adult Education Leadership. WE&T Planning Taskforce and annual workshops will help to nurture technical training and education services that support community college and adult education within the first 12 months of the program cycle. Together, these relationships will be able to outline the foundational learning plan(s) needed to prepare students for career paths in energy efficiency and related fields. Based on experience, learning plan outlined through this collaborative effort could provide students with entry points for entering the field of energy efficiency and/or result in career development tracks within a traditional education system. IOUs would initially suggest learning plans be based on the "working backwards" exercise of asking what knowledge, skills, educational background and abilities are needed for particular sets of jobs and careers. Once these various attributes have been identified, learning plans shall be developed which will drive the development of curricula and training programs and support the knowledge and skills sets needed to prepare students for the "green collar" workforce. The Statewide IOU WE&T Program will build on existing training activities to address "gaps" in the learning plans as appropriate and diagnosed by the needs assessment.

The Statewide IOU WE&T Program is modeled to generate stronger linkages to K-12, advising on energy curriculum and coordination between K-12, Community Colleges Chancellor's Office and the adult education sector. The Statewide IOUs will exchange instruction and curricula with community colleges, industry and labor on HVAC, Energy Audits, Home Performance Retrofits and Building Operator Certification. The Statewide IOU WE&T Program will also advance consistency among the IOUs to use training curricula through established partnerships with the community colleges, vocational / technical / trade schools and apprenticeship programs.

The Statewide IOU WE&T Program establishes a framework for cross-sectional expansion of training curricula and related workforce development programs to address HVAC quality installation and maintenance, building construction, home performance audit and retrofit services, building operator certification, facilities maintenance, and other technical fields. The Sub-Programs will build on the established partnerships with key actors to deliver technical information through a wide variety of training and education services for upstream stakeholders such as contractors, installers, inspectors, plan checkers, designers, architects, engineers, vendors, installers, and other technical skilled personnel to increase actions, awareness, and attitudes toward energy efficiency. ~~(Refer to the Statewide HVAC PIP for more information.)~~

The Statewide IOU WE&T Program as structured supports the Big / Bold Strategies adopted by the CPUC in the Strategic Plan by continuing to offer training programs on quality installation and maintenance of HVAC systems and equipment selection based on whole building design, training and certification, compliance improvement and new

technologies. Education and Training will continue its focus on the building envelope and overall home performance by providing HVAC quality installation, maintenance and service courses based on ACCA (Air Conditioning Contractors of America) and other appropriate standards. Education and Training will also continue to offer programs on new and emerging technologies in HVAC (e.g., ~~ductless mini-split heat pump~~ variable refrigerant flow (VRF) systems) and will encourage HVAC participants to become certified under the North American Technician Excellence (NATE) certification program or other appropriate credentials as a means of demonstrating technicians and installers' ability to perform quality work. ~~(Refer to Statewide HVAC PIP for more information.)~~

The Statewide IOU WE&T Program will work with Marketing Education and Outreach implementers on effective marketing and outreach strategies that will be designed to maximize participation in green career paths. For example, to increase awareness of the availability of training and career development programs, WE&T will contribute to the Web portal project to ensure that "green education" opportunities are accessible through the Web portal.

During the first 24 months of the program cycle, the Statewide IOU WE&T Program will be a guide for collaboration among the Department of Employment Development, community colleges, technical and vocational schools, industry and labor associations specifically on building job training programs and internships for students and preparing them for energy efficiency careers and related career paths. Collaboration will be aided by recruitment of key resources to help in promoting to students and continuing education participants the types of employment prospects available in energy derived from the WE&T Assessment study and other market data.

Within the first 24 months of the program cycle approval, the Statewide IOU WE&T Program structure will demonstrate its effectiveness to drive statewide coordination among key stakeholders to expand continuing education and college extension programs to include a greater focus on energy/resource efficiency, sustainability and green technologies. The Statewide IOU WE&T Program structure clearly shows the inclusion to collaborate with the UC/CSU system and California's community colleges to bring an expanded focus on energy/resource efficiency to students and faculty; utilize the extension programs available through the colleges and universities to incorporate a continuing education curriculum component; and work with these educational institutions to help them with expansion of their green degree programs. The Statewide IOU WE&T Program will seek ways of increasing awareness of the importance of energy efficiency, sustainability and green technologies to California, and the key partners will be able to positively impact participation and enrollment in educational programs and green careers.

The Statewide IOU WE&T Program enhances relationships with K-12 public and private educators to share best practices to attract students and facilitate interest in energy efficiency careers and the study of energy efficiency and GHG emissions. The WE&T Connections Sub-Program implementation, in collaboration with WE&T Planning activities, will engage industry experts and educational specialists including but not be limited to: the State Department of Education, educators working at County Offices of

Education, leaders in teacher organizations [e.g., California Science Teachers Association (CSTA), California Regional Environmental Education Community (CREEC), Regional Occupational Centers and Programs (ROCP), California Integrated Waste Management Board (CIWMB), and the California Environmental Protection Agency for the K-12 market to determine the inventory of educational resources, funding mechanisms, and include a breakdown of workforce development and strategic planning needed to establish career training for energy-related fields.

The California EPA and the California Integrated Waste Management Board (CIWMB) are involved in the implementation of AB1548. This is the development of a "unified education strategy to bring education about the environment into California's primary and secondary schools."20 Identified are fourteen specific environmental topics where curriculum is currently being developed. The WE&T will engage in the State Department of Education Science Framework revision to encourage incorporation of energy efficiency and renewable energy emphasis.

The Statewide IOU WE&T Program will help steer more training outreach and green careers education toward minority, low-income and disadvantaged communities. The IOU administered ~~LIEE~~ ESA program is expected to dramatically expand the number of units that will receive education and weatherization services during the ~~2010-2012~~2013-2014 program cycle. To meet the significantly higher goals, more communication and joint WE&T coordination will be necessary and desirable. The Statewide IOU WE&T Program creates an implementation framework to focus on expanding behavior modification in existing training programs to increase emphasis on energy efficient practices, steps that will enable installers, weatherization crews and energy specialists to build on the information they provide to minority, low-income and disadvantaged communities to achieve California's economic energy efficiency potential.

6) Program Implementation

a) Statewide IOU Coordination

As part of the overall Program Implementation Strategy, the statewide IOU WE&T program plans to institute protocols and processes to identify and facilitate statewide migration of quality training models into each IOU service area, as well as into underserved communities within the respective IOU service areas, where appropriate.

Summary table of WE&T target sectors, program implementation and implementers:

[20] www.calepa.ca.gov/Education/EEI/workgroups/envirotopics

Workforce Education and Training	Sub-Program	Sub-Program coordinated implementation
Schools	Green Campus; Energenius; PEAK	WE&T; IOU UC/CSU/CCC Partnerships
Commercial Market Segments	Tool Lending; Food Service; Building Design Training; Building Operations and Maintenance	WE&T (Energy Centers); Statewide Commercial Resource Programs; IOU Local Government Partnerships; BOMA; BOC; USGBC; New Construction; Codes and Standards
HVAC Industry	Tool Lending ;ACCA; IHACI - QI/QM~~/QS~~ (ACCA standards inclusive)	WE&T (Energy Centers) Community Colleges Statewide Residential and Commercial Resource Programs, including their HVAC Sub-Programs
Residential Market Segments	Building Design and Construction Training; Energy Partners (PG&E); CLEO (SCG/SDGE)	WE&T (Energy Centers) BIA – Remodelers; Statewide Residential Resource Programs; New Construction; BPI; ~~LIEE~~ESAP
Industrial/Agriculture Market Segments	Tool Lending; Audits/Assessments	WE&T (Energy Centers) Statewide Residential Resource Programs; DOE

b) Program delivery and coordination

Three areas of focus for the IOUs to deliver training curriculum to expanded audiences are:

Joint statewide training and seminars – comprehensive energy efficiency and clean energy educational seminars and conferences jointly hosted, promoted and sponsored among the IOUs, municipalities, government agencies, non-profits and industry experts.

Distance learning – web-based platform for synchronous and asynchronous access to digitally transmitted and pre-recorded (catalogued) on-line education and training modules. Distance learning enables webcasting as a communication tool to reach larger workforce audiences with specific training topics in a low cost manner. IOUs can

explore co-production and access to on-line training curriculum with other agencies (i.e., CARB, CAL-EPA) to provide more comprehensive energy solutions training.

Outreach – Assist community-based training programs that offer energy efficiency and hands-on training green job curriculum to trainees in minority and other disadvantaged communities. These types of relationships will be coordinated with Low-Income Energy Efficiency programs and likely piloted regionally by IOUs to develop best practices, determine cost effective designs and fine tune a model for turnkey statewide migration. IOUs can help community training programs implement best practices, measure impacts and revise programs, while helping to shape and form standardize integrated resource curriculum (i.e., water, air emissions) beyond what can be offered by IOUs.

i. Emerging Technologies (ET) program

The Statewide WE&T Program will collaborate with the Emerging Technologies program in an improved manner to allow external participation in the ET process. Working closer with ET to increase knowledge and confidence in emerging technologies, the WE&T programs will help with implementation of these new technologies disseminating information and training to enhance market transformation and acceptance into the marketplace.

ii. Codes and Standards (C&S) program

The Statewide WE&T Program structure segregates Sub-Program curricula to make it easier to identify training opportunities that: 1) enhance interest in C&S career positions, 2) provide training on the codification process of energy efficiency and green laws, 3) provide direct industry training on energy and green implementation strategies in response to current or impending codes and standards, and 4) prepare the workforce for code compliance improvement tasks.

WE&T Centergies will work closely with the Codes and Standards Program to support development of a sector strategy to support workforce development in an area with low compliance, for example, in HVAC. WE&T will maintain ongoing communications with the C&S staff to ensure coordinated development and inclusion of code-related content.

iii. WE&T Efforts

The Statewide WE&T Program will support the other IOU EE Programs as appropriate. Refer to Section 6.b.iii for each Sub-Program for additional plans, if applicable.

iv. Program-specific marketing and outreach efforts

Refer to Section 6.b.iv. for each Sub-Program, if applicable.

v. Rationale for selection of sub-contractors

Refer to Section 6.b.v. for each Sub-Program, if applicable.

vi. Non-energy activities of program

Refer to Section 6.b.vi. for each Sub-Program, if applicable.

vii. Non-IOU programs

The proposed Statewide IOU WE&T Program structure is very significant in that they represent a feasible and respected leader to help flesh out the common ground for delivering and coordinating statewide workforce training program among IOU and non-IOU sponsored trainers. WE&T as a strategic platform can help facilitate energy neutral training, coordination and funding among not only IOUs, but other stakeholders linked to California's energy plans. Refer to Section 6.b.vii for each Sub-Program for additional plans, if applicable.

viii. CEC work on ~~PIER~~Electric Program Investment Charge (EPIC)

Refer to Section 6.b.viii. for each Sub-Program, if applicable.

ix. CEC work on C&S

Please see Section 6.b.ix. for each Sub-Program, if applicable.

x. Non-utility market incentives

Refer to Section 6.b.x. for each Sub-Program, if applicable.

c) Best Practices

In addition to showing the relationship of the Statewide WE&T Program and Sub-Programs, Diagram I also illustrates the bi-directional interaction anticipated between the Sub-Programs under this structure. This represents IOU commitment to the WE&T strategic plan and its objectives, as well as IOU interests in facilitating stakeholder input in presenting, identifying and supporting IOUs efforts to create well-coordinated processes to connect and migrate local and regional WE&T models across the state based on best practices identified by a variety of stakeholders. The WE&T taskforce, with CPUC, IOU and statewide stakeholder roles can have a long-term impact on WE&T implementation plans of IOUs by maximizing the benefits of the structure presented. Regularly scheduled meetings among WE&T taskforce members will ensure that voices can be heard, IOUs implementation plans can be discussed and long-term WE&T strategic progress is addressed. As has been described in this section in some length, by layering the strategies outlined in the Strategic Plan on the Statewide IOU WE&T PIP,

the IOUs see that as a sustainable framework for achieving the various goals sought by the CPUC from the IOUs.

d) Innovation

Refer to Section 6.d. for each Sub-Program, if applicable.

e) Integrated/coordinated Demand Side Management

~~Refer to Section 6.e. for each Sub-Program, if applicable.~~The statewide WE&T team will continue to coordinate IDSM education and training efforts by working with IDSM program staff and as a member of the IDSM Task Force.

For PG&E's 2013-2014 program, PG&E will consolidate ~~the~~ its Local IDSM integrated education and training subprogram into the statewide WE&T program. PG&E believes that consolidating the scope and budget for local IDSM activities into PG&E's existing programs is a more streamlined, understandable way of administering local IDSM activities, since integration efforts are currently underway in various areas of PG&E's portfolio. This program provides PG&E employees, vendors, and partners with training to educate customers and foster customer participation in IDSM programs.

f) Integration across resource types

Refer to Section 6.f. for each Sub-Program, if applicable.

g) Pilots

~~There are a few pilot concepts that are being introduced to the WE&T Sub-Program portfolios. A pilot to the Statewide IOU WE&T Program committee represents a new concept that is being implemented on a limited scale for a duration of at least one year by one or more of the IOUs, and then evaluated using internal metrics and criteria for presentation to the statewide IOU WE&T representatives. Once the statewide IOU WE&T committee agrees that a particular idea or innovation has merit – and funding among the IOUs on a statewide basis is deemed sufficient – the IOUs will adopt the pilot for statewide migration, establishing a project plan for integration as a statewide program and implementation across all IOU service areas. Each IOU will track the adopted Sub-Program pilot toward the statewide targets and goals to determine whether the pilot is generating the intended results in the new regions. Refer to WE&T Sub Program sections 6.1.g, 6.2.g, and 6.3.g for specific detail of planned pilots.~~
No pilot programs are planned for WE&T in 2013-2014.

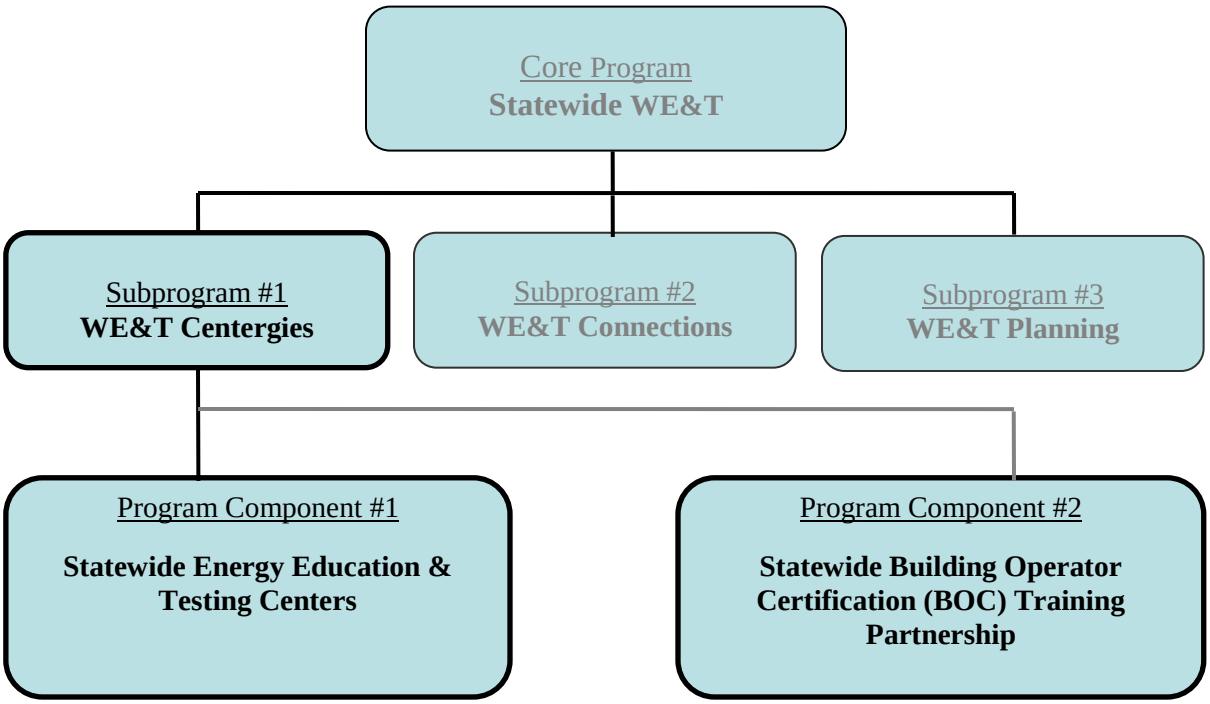
In 2012 the IOUs have started work to develop an HVAC sector strategy approach, to be implemented in 2013-2014. Details are provided in the Centergies Subprogram.

PG&E's Green Pathways Program was successfully piloted in 2010-2012 and will transition to a local program for 2013-2014. More details are provided in the Connections Subprogram.

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 plan will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the utilities and the Energy Division. Development of these plans will occur after the final program design is approved by the CPUC and, in many cases after program implementation has begun, since the plans need to be based on identified program design and implementation issues.

6.1) Sub-Program Implementation – WE&T Centergies, PGE21071



a) Statewide IOU Coordination

i. Program name

The Statewide WE&T "Centergies" is a Sub-Program within the Statewide WE&T Core Program. The "Centergies" Subprogram has two primary components which are diagramed above and described in greater detail below. Parts to the "components" shall be referred to as "elements".

ii. Program delivery mechanisms

The IOUs will continue to deliver workforce education and training through two delivery mechanisms: Statewide Energy Education and Testing Centers and through the Building Operator Certification (BOC) program.

Statewide Energy Education and Testing Centers
Through their energy education and testing centers (Centers), California's IOUs have been supporting the energy efficiency workforce and partnering with 3rd Party and Local Government Partnerships, in some cases, for over 30 years. The Energy Training Center (ETC), Food Service Technology Center (FSTC), and Pacific Energy Center (PEC) will align with the statewide WE&T goals of the Strategic Plan by addressing the training needs of the midstream and upstream

mass market, commercial, industrial, and agricultural actors through state-of-the-art classes designed to enable building professionals to reduce energy consumption in new and existing residential and small commercial buildings. As disseminators of information, the Centers are structured to deliver integrated energy efficiency, demand response, and renewable energy program information through their offerings described below. The Centers serve as a "public face" in interactions with the community and as a conduit to California's local and statewide energy efficiency programs. Through the ~~2010-2012~~2013-2014 ~~cycle~~bridge period, the Energy Centers will partner with appropriate California industry and labor organizations, professional organizations, trade and vocational schools, community colleges, universities, third-party entities, government partners serving low-income or disadvantaged communities, and other IOU and POU education and training centers. By delivering technical information through a wide variety of courses and technical consultations, the Energy Centers will support and enhance programs which address demand side management (DSM), demand response (DR), distributed generation (DG), water and energy use, codes and standards, emerging technologies, renewables, and all incentive programs. The Energy Centers will ensure maximum effectiveness and impacts needed to achieve long-term energy savings goals for California. With some variation at the local level, the Centers have and will continue to evolve their elements to:

- Deliver high-quality integrated educational seminars to train members of the energy efficiency workforce, including entry-level contractors, disadvantaged community members, university and community college students, architects, food service facility designers and operators, HVAC engineers, equipment installers, manufacturers, developers, and commissioning agents. Based on factors, including changes in technology, changes in codes and standards, and feedback from seminar participants, seminars will be modified to more effectively integrate topics such as distributed generation, DR, and EE as described in section 6.2.e and 6.2.f. Seminars will continue to include transferring skills on energy audits to members of the EE workforce at various stages in their careers—novices to seasoned energy auditors.

- Provide technical consultations and equipment demonstrations through building design plan and equipment schedule reviews, technical advice on new equipment and system technologies, technical advice on best-practice methods, and site visits for identifying energy efficiency opportunities. Site visits shall not replicate the efforts of the energy audits program, but rather be conducted when necessary to provide technical advice.

- Where Outreach falls under the local Center, provide on- and off-site outreach programs for disseminating technical EE information, and promoting utility energy efficiency incentive programs to green- and white-collar building professionals. Outreach programs will include, but not be limited to: on-site facility tours, off-site short presentations about Centers' offerings, participation in environmental fairs and events. Centers shall work with their

IOU's marketing groups so as to collaborate, but not duplicate efforts.

- Design, certify, and maintain food service equipment test protocols that allow for unbiased measurement of energy efficiency and production capacity while engaging manufacturers and chain operators to test equipment and build user accessible performance results databases. This data provides the foundation for future training programs across the Food Service spectrum as well as the technical support for rebate and other programs provided by the IOUs.

- Expand and integrate tool lending library programs that provide building and system performance measuring instrumentation, instrument use information, and measurement protocols. Tool lending libraries will loan tools free of charge to people working on short-term EE projects in California. Patrons will include building operators, facility managers, designers and other professionals who use the tools for building diagnostics, site analysis, power and energy consumption studies, research projects, and educational efforts.

- Expand energy efficiency educational partnerships with institutions that include government, professional, and trade organizations that will help Centers deliver IOU programs and information to a broader audience. Examples of such groups ~~are~~ include, but are not limited to the U.S. Green Building Council, Building Owners and Manufacturers Association, American Institute of Architects, American Society of Heating, Refrigerating, and Air-conditioning Engineers, the Association of Energy Engineers, the Illuminating Engineering Society, Institute of Heating and Air Conditioning Industries, Air Conditioning Contractors of America, Affordable Comfort Inc., Building Performance Institute, Residential Energy Services Network, Apprenticeship Training Programs, North American Technician Excellence, the National Restaurant Association, Foodservice Consultants Society International, North American Foodservice Equipment Manufacturers, National Environmental Balancing Bureau, Stationary Engineer Unions, U.S. Environmental Protection Agency / Department of ENERGY STAR, American Society for Testing and Materials, ~~and~~ the California Energy Commission, California Division of Apprenticeship Standards, International Brotherhood of Electrical Workers, National Electrical Contractors Association, Sheet Metal and Air Conditioning Contractors' National Association, Counselors of Real Estate, Institute of Real Estate Management, and the International Facility Management Association. More detail on educational partnerships is available as part of the Statewide WE&T Connections Sub-Program.

- Support building energy efficiency by developing training sessions to prepare the marketplace for new HVAC codes (acceptance testing and HERS verification), technologies, and innovative whole building approaches to new and existing buildings. Since the HVAC Big Bold initiative will expand training and education aimed at the HVAC industry, the WE&T program will coordinate carefully to complement HVAC industry training by providing

educational support to related market actors such as energy consultants, Home Energy Raters, engineers, architects, and home performance contractors. It is anticipated that the robust HVAC industry training proposed by the HVAC program will create important collaboration opportunities to not only increase training opportunities, but to embellish energy center offerings and impacts.

- Increase statewide Energy Design Resources (EDR) Integration. (EDR) is an existing statewide energy efficiency resource website featuring design materials on how to effectively integrate energy efficient designs into nonresidential facilities. EDR has begun developing the structure to expand the materials and tool offerings to include residential design requirements. While EDR is not funded through WE&T, EDR content is very relevant to the Centers' WE&T direction and goals. Centers will integrate EDR content (online classes, case studies, materials, etc) as statewide resources that are relevant to specific classes, outreach efforts, and consultations.

The table below summarizes common Center elements defined above.

Centers' Elements	SCE AGTAC	SCE CTAC	PG&E ETC	PG&E PEC	PG&E FSTC	SDGE SDERC	SCG ERC	SCG FSEC
WE&T Seminars	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Technical Consultations	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Outreach	No**	No**	Yes	Yes	Yes	Yes	Yes	Yes
Food Service Test Protocols	TBE	Yes	N/A	N/A	Yes	TBE	N/A	Yes
Tool Lending Library	~~TBE~~Yes	TBE	Yes	Yes	TBE	Yes	TBE	TBE
Educational Partnerships	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

TBE = To be established (based on information collaboration with other Centers)
** Outreach efforts not part of this Center and occurs in other parts of the utility
N/A = Not applicable to Center's primary target audience

Table 5 –~~PG&E's~~ Centergies Program Goals

PG&E Energy Center	Program Target 201~~2~~3	Program Target 201~~3~~4
Energy Training Center – Stockton		
Mass Market		
Training Sessions	~~165~~145	~~145~~165
Technical Consultations	~~60~~50	~~50~~60
Outreach Events	~~25~~20	~~20~~25
Tool Loans	~~35~~30	~~30~~35
Target Market		
Training Sessions	~~21~~19	~~19~~21
Pacific Energy Center – San Francisco		
Training Sessions	~~175~~150	~~150~~175
Technical Consultations	~~200~~175	~~175~~200
Outreach Events	~~125~~110	~~110~~125
Tool Loans	~~1200~~1,000	~~1000~~1,200
Food Service Technology Center – San Ramon		
Seminars	25	25
Performance Reports	~~10~~62	~~10~~62
New Standard Test Methods	1	1
EE Activities: Outreach, Facility Tours/Events	200	200
Technical Consultations / Site Audits	1,000	1,000
Revised STMs	4	4

NOTE: Goals are expressed as full-year performance to be prorated according to the effective date of the final ~~2010~~2013 ~~2012~~ ~~2014~~ decision ~~(D.09-09-047).~~approving the 2013-2014 portfolio.

NOTE: ~~**NOTE:**~~ Training Sessions are at least two hours in length and include educational materials specially developed for each session. Training Sessions are presented live and/or on-line. On-demand web-based courses will count once toward Sessions goals and are typically less than one hour in duration. Outreach events are at least one hour in length, but do not include handouts specially developed for such events. Outreach events include meetings and educational events sponsored by parties outside the ETC, PEC and/or FSTC and do not include training sessions. Technical consultations are technical advice interactions provided directly to a design team or an individual contractor, owner or customer. ~~All Training Sessions are at least two hours in length and include educational materials specially developed for each session. Training Sessions are presented live and/or on-line. Outreach events are at least two hours in length, but do not include handouts specially developed for such events. Outreach events include meetings and educational events sponsored by parties outside the ETC, PEC and/or FSTC and do not include training sessions. Technical consultations are technical advice provided directly to a design team or an individual contractor, owner or customer.~~

A. Changes for 2013-2014 Statewide Program Coordination through IOU Energy Centers:

The IOUs will modify Centergies curriculum and delivery methods to incorporate feedback and guidance from sources, including the California WE&T Needs Assessment, customer feedback from the 2010-2012 Process Evaluation, and the Guidance Decision for 2013-2014. Such modifications include, but are not limited to, approaching curriculum development with the sector strategy approach.

- Heating Ventilation and Air Conditioning (HVAC)

IOUs will incorporate and integrate HVAC education and training programs into its Workforce Education and Training Centergies sub-program to deliver a dedicated, industry-specific education and training opportunities targeted at all levels of the HVAC value chain. As part of this effort, IOUs will convene various stakeholders from, but not limited to, community colleges, trade organizations, professional organizations, employers, and apprenticeship/pre-apprenticeship programs including through the IOU-sponsored Western HVAC Performance Alliance stakeholder collaboration group, which has WE&T-specific committees already built into its structure. This will allow for identifying skill gaps and to identify opportunities for collaboration in a coordinated effort toward implementing recommendations needed to close gaps at all levels of the industry.

HVAC Sector Strategy Plan:

In response to the Guidance Decision, the IOUs have begun work in 2012 to develop a plan as described below to expand their educational efforts toward more direct effect on trade organizations that have memberships involved with installation and maintenance of commercial HVAC systems. IOUs will test a non-residential HVAC sector strategy. A core component will be the development of a multi-stakeholder partnership to develop a full implementation plan to apply the CALCTP sector strategy approach to the HVAC non-residential industry. The IOUs will begin with Quality Maintenance to provide the foundation, and then include a Quality Installation sub-strategy. Cornerstones of the Quality Maintenance implementation plan include identifying priority emerging technologies for improving EE related non-residential HVAC systems, identifying the knowledge, skills and abilities (KSAs) professionals need to install and maintain systems efficiently and safely as well as the linkage of these KSAs to ANSI or ISO certifications, and, developing a steering committee.

IOUs will collaborate on a statewide memorandum of understanding (MOU) with the California Division of Apprenticeship Standards. The MOU will provide a framework for partnering with labor, trade, and professional organizations that resembles the existing CALCTP program. Such an MOU

will help to reinforce cooperation in achieving goals of the sector strategy test of having certified training modules, performance based principles to test and diagnose the HVAC system, site information for the contractor to design and implement real solutions for customer comfort and efficiency, training that takes good HVAC technicians to the next level and gives them the tools to maximize efficiency, comfort and safety of customers in the construction of new systems, and real-time analysis to track and maintain data from completed projects by trained participants.

Because of early activities with sector strategies, IOUs will be applying recent lessons learned from their related efforts within Commercial EE to the HVAC sector strategy, as it develops.

IOUs will work with qualified partners to institute a test that will enable HVAC workforce member to attend various HVAC classes and receive credit towards industry-recognized certifications or other appropriate credentials. The IOUs will also contact and extend partnership opportunities designed to improve installation and maintenance quality of Commercial HVAC units.

The IOUs have initiated discussions to determine the parameters of an HVAC sector strategy, to be deployed in 2013. The IOUs have identified a core group from across lines of business, and externally, the IOUs have begun to discuss pilot concepts with the other IOUs and external stakeholders such as the Western HVAC Performance Alliance and the Division of Apprenticeship Standards.

Based on best practices from CALCTP and PG&E's own commercial EE sector strategy, the IOUs recommend starting with a Needs Assessment to determine where gaps and opportunities exist, prior to determining the HVAC sector strategy's specific objectives and goals. The initial research and discussions have pointed PG&E towards developing a concrete project within HVAC non-residential Quality Maintenance (QM). This is due to various reasons, including the fact that advancing HVAC Quality Installation is often based on building a larger foundation of contractors and customers adopting QM and establishing associated relationships of trust. Additionally, PG&E believes QM forms a stable and focused basis for testing a sector strategy because it is based on a single consensus industry standard. Lastly, due to the fact that a sustainable QI program is not yet in-market, any initial sector strategy test would ostensibly be premature.

With Quality Maintenance as a test, the IOUs intend to glean lessons learned from that approach, to be subsequently extended into the quality installation approach to the HVAC sector strategy.

The IOUs will endeavor to have skills standards for HVAC installations established by the end of 2013. The IOUs will continue to provide necessary

training as a component of the quality installation and quality maintenance programs. The current design is geared toward providing the highest possible level of installation and maintenance expertise for contractors and technicians working within the HVAC subprograms. The IOUs will continue to use the basic foundations of Title 24 acceptance testing regulations and the consensus HVAC industry standards as the basis of requirements for this training. The IOUs will continue necessary training as a component of HVAC programs. These programs will continue to evolve as needed to meet program changes as they develop.

In order to estimate costs associated with requiring certification or sector strategy-induced skills standards, the IOUs will collaborate starting in 2012 with the Commission's Energy Division through the HVAC EM&V Project Coordination Group (PCG) on the new, baseline research needed to best address questions regarding impacts or potential benefits, according to appropriate EM&V best practices.

- Support for California Advanced Lighting Controls Training Program (CALCTP)

The IOUs will continue to partner with CALCTP to offer CALCTP trainings as part of their portfolio of classes to various sectors of the advanced lighting controls workforce, including electricians, contractors, business managers, installers, specifiers, marketing reps, and designers. Where appropriate, IOUs will serve as program advisors and instructors, and provide direct financial and in-kind support to help sustain the program. IOU contributions will augment funding and support from other stakeholders, including employers, unions, other training partners, and manufacturers. Where appropriate, IOUs will continue to provide letters of support to secure grants to help support CALCTP and will continue to serve on the CALCTP board of directors and advise CALCTP curriculum developers.

To assess mandatory or voluntary incentive-based approaches to promoting high-road skills standards as part of the HVAC sector strategy initiative or CALCTP training, IOUs will work with relevant resource program managers to identify opportunities to create or enhance incentive programs that are linked to the participation of members of the workforce who have specific qualifications and/or credentials. For example, IOUs will explore the opportunity to provide an additional incentive directly to the customer if the customer hires a CALCTP certified electrician, in order to help create demand for participation in IOU-supported training programs such as CALCTP. The same model can be applied to the HVAC industry as well as other sector strategy approaches.

In response to the guidance decision, the IOUs provide the following information about the CALCTP program.

Request	CALCTP Information
(1) data or estimation of the incremental customer cost, if any, of requiring skill standards;	(1)When the program requires CALCTP certified installers, the cost to the customer for the labor component of the project may be 10% - 15% more than prior when no certification was required.
(2) data or estimation of the average and range of permitting/compliance costs across permitting jurisdictions in the IOUs' service territories;	(2) Compliance and permitting cost are directly associated to the cost of proper training programs for designers, installers, manufacturers, etc. which may be equivalent to an additionally 20% to the project cost. However, proper collaboration with industry associations and manufacturers may offset this cost.
(3) data or estimation of impacts, if any, mandatory skill standards would have on program participation rates;	(3) With proper incentive levels and education of the segment, it is anticipated that adoption/participation would increase since the misperceptions of advanced lighting control systems, potential for demand response and how DR or ADR works will be corrected causing more demand for the control solution.
(3) data or estimation of impacts, if any, mandatory skill standards would have on program participation rates;	(4) It has been proven with advanced lighting control system assessment projects at PG&E, SCE and SDG&E that the customer will achieve a minimum of an additional 30% savings over traditional lighting efficiency measures. And dependent upon the level of control allowed to individual employees, savings may increase an additional 5% - 10%. With the opportunity to participation in DR, the customer will achieve even greater cost savings due to the ability to shave or control peak loads. The actual dollar values will be determined as the program adoption occurs and customer site performance is monitored and data collected.
(5) any other potential benefits associated with higher standards, such as fewer call-backs, lower frequency of customers over-riding control systems, lower life-cycle costs, and increased consumer uptake of	(5) Additional benefits include: a. systems do not get overridden due to better understanding as well as the system being designed and installed. Also, ease of proper training of customer personnel regardless of

measures based on higher quality and certainty.	turnover with the local certified installer; b. IOU assessments have shown that fewer, if any, call backs will be experienced when the system is installed by a certified installer. In contrast, numerous call backs were experienced before the system was able to be commissioned when a non-certified installer was used. c) increased proper maintenance, d) higher visibility of actual energy use in lighting due to the potential of graphic interfaces and other reporting. e) ability to track GHG emission reductions. f) create market disruption as customers begin talking to others about how well their advanced lighting control system is working and saving them money due to proper design and installation.

- Coordination with Energy Upgrade California -Whole Home Upgrade Program (WHUP)

  The IOUs will develop and produce a core set of offerings in 2012 that will be geared to providing interested contractors and technicians with the program knowledge necessary to provide entry, as well as support for their continued participation into WHUP.

  To increase emphasis on workforce training for WHUP, the utilities will work with various "trade organizations" to share existing and future course offerings for their membership. The sharing of these courses is intended to expand the relevant knowledge base of partnering organizations, with regards to WHUP and thereby improve the quality of energy efficient products installed throughout California.

  PG&E will continue its current efforts to offer "continuing education credits" for organizations such as NATE, BPI, AIA, NARI, and other certification programs to be approved. PG&E is currently working with IHACI, SMACNA, National Association of Realtors, and others.

  In consultation with local governments, the utilities will expand their training networks to include specific contractor and technician training. In addition, the utilities will work with local governments to identify geographic listings of contractors and technicians who will address community needs and comply with local codes and standards. In addition, the IOUs will conduct a gap

assessment with local governments to identify additional needs not currently addressed.

PG&E will continue to work through our local government partnerships to ensure we have identified and marketed to contractors in areas served by those local jurisdictions, including multifamily programs.

- Coordination with Energy Savings Assistance Program (ESAP) Training and Certification

  In 2012 the IOUs will engage with various Community Based Organizations, Local Training Facilities and Community Colleges to identify the most appropriate methods to partner with them to serve disadvantaged members of their communities. In 2013-2014, based on results of discussions with other relevant organizations, the IOUs will develop agreements to offer or share existing curricula with these partners to better serve their communities. These curricula will be designed to provide potential employment tracks within EE through entities such as trade organizations, IOU weatherization programs and weatherization programs offered through State agencies.

  PG&E's partnership with the Energy Savings Assistance Program has provided low income utility customers with a variety of energy efficiency improvements for their homes for over 30 years. Recently a connection between the ESA Program and the PG&E PowerPathway Training Network for Energy Efficiency and Renewables has developed the methodology to articulate a portion of ESA required training to our outside partners in the network. The result has been an opportunity for our PowerPathway partners to offer some of the training to local students (generally members of disadvantaged workers within their communities) and provide a gateway to future employment with contractors participating in the ESA Program.

  The community colleges and the community based organizations that have partnered with PowerPathway have demonstrated that they can offer equivalent training for skills based training through their facilities which results in a reduced cost to contractors wishing to hire new assessors and installers for the program. The result of the articulation also reduces the initial cost of training for participating contractors (a key consideration in the hiring decision) making the individual more likely to be successful in their employment search. In addition, the contractors that have taken advantage of this symbiotic relationship have also found it has resulted in essentially these prescreened candidates are more likely to be long term employees of the program.

  PG&E expects that relationship will add stability of the workforce and provide a long term job opportunity for those students that wish such an opportunity.

- Real Estate Agent Training

  In 2012 the IOUs will make an initial introduction of courses designed to stimulate interest within the Real Estate community to expand their knowledge of benefits of EE in resale of residential and commercial properties as well as provide continuing education opportunities through partnership with various local, state and national oversight entities. Consultations in 2012 with relevant stakeholders are planned to continue into 2013-2014, so that ongoing feedback can lead to continuous improvement of these efforts. In 2013-2014 these offerings will be restructured, if necessary, and expanded to meet increased needs of these groups.

  The utilities in 2012 will make initial entries into partnerships with various real estate groups within their territories in an attempt to gauge possible obstacles to WHUP trainings to enhance knowledge of EE by their memberships. In addition, the first forays into workshop offerings will be targeted at areas likely to be receptive to the sessions. In 2013-2014 the partnerships and offerings will be increased to provide a better understanding of the value of WHUP in real estate transactions. Consultations in 2012 with relevant stakeholders are planned to continue into 2013-2014, so that ongoing feedback can lead to continuous improvement of these efforts.

  PG&E has partnered with California's real estate community with the delivery of two classes where students learn the science behind home performance and energy efficiency measures, how to determine their value, and how to finance and promote these measures in homes. PG&E collaborated with local realtor and appraiser professional associations in hosting and promoting these classes. A local WHUP representative gives a short presentation on the program. The "Green Homes: Valuation Expertise for Appraisers and Realtors" class has been approved for continuing education units (CEUs) from OREA (state Office of Real Estate Appraisers) and DRE (Department of Real Estate).

Additional information Required in Guidance Decision

- Serving Low Income and Disadvantaged Communities

  IOUs will build partnerships with community-based organizations to offer on-location joint utility workshops in disadvantaged communities. These workshops will promote IOU low income programs, training, and certification opportunities at IOU Energy Centers and community-based organization locations. IOUs will explore providing presentations and materials in languages other than English, as appropriate to each community and partnership, to overcome any barriers of communication to customers in the disadvantaged communities.

Please see additional information regarding efforts to serve low income and disadvantaged communities in Attachment 1 to this addendum.

- Other Program Coordination

WE&T will work with the Continuous Energy Improvement Program to introduce the CEI process, lessons learned, and case study input to community colleges and universities. CEI has a goal of integrating into energy engineering curriculum. IOUs will also work with CEI to assess and determine 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 and cost sharing to bridge the linkages and integrate sector strategy approaches.

PG&E has begun implementing a sector strategy to accelerate the development of the Commercial demand-side management workforce needed by PG&E, the other IOUs and larger EE industry. This implementation is the result of statewide research and cross-stakeholder collaboration, with a focus on deepening partnerships between education and industry. Core programs have already been developed to link WE&T to energy goals. Moving forward, PG&E will be refining those programs, developing new programs and building an overall project plan for deliverables in 2012 as well as in 2013 and beyond. This strategy has already begun to provide key lessons for application towards similar strategies within other priority sectors.

In 2013-2014, WE&T will work with the Benchmarking and IDSM Programs in similar manner as proposed for the Continuous Energy Improvement Program to introduce the processes, lessons, and case studies curriculum to working energy management professionals, industry professionals, IOUs will consider a sector strategies approach in furthering development of these collaborative effort.

- Safety Related Training

The IOUs currently conduct Natural Gas Appliance Testing (NGAT) training where appropriate, and in particular when working with providers of low income weatherization programs. No lead or asbestos abatement certification is currently required as part of IOUs' low income weatherization training programs, only identification of potential conditions, because licensed contractors are expected to obtain such training as required.

PG&E currently provides training and consulting services for the appropriate combustion safety protocols (Natural Gas Appliance Testing (NGAT) or LIHEAP Combustion Appliance Safety (CAS) protocols for Low Income Energy Efficiency weatherization programs, and augmented Building Performance Institute (BPI) protocols for Energy Upgrade California non-low income weatherization programs. Although EPA RRP (Renovation, Repair and Painting Rule) certification is not provided as a part of PG&E's utility low income residential weatherization training curricula, all participating contractors are required to be EPA RRP certified.

- Attachments to Addendum

  Attached to this addendum as Attachment 1 is additional information the Staff requested be provided in its May 24, 2012 guidance documents, Appendix F.

  Attached to this addendum as Attachment 2 is PG&E's list of courses and programs planned for 2013-2014, using the template provided in the Guidance Decision (Appendix C). Course offerings may be modified, based on market training demands and input from industry stakeholders. Per WE&T's Joint Advice Letter[21], IOUs will redesign and structure select courses offered in 2013-2014 such that they become part of a series.

Local Energy Center Program Changes for PG&E Only:

Zero Net Energy

For 2013-2014, PG&E will transition its Zero Net Energy (ZNE) Pilot Program education and training efforts into its Workforce Education and Training Centergies sub-program. The Centergies team will partner with the ZNE team to deliver:

- At least 25 public educational workshops on key ZNE topics, with a focus on two integrated workshops series that have been developed on the design of residential ZNE and non-residential ZNE buildings, respectively.
- "Train the trainer" workshops on ZNE design that will enable information about ZNE and relevant design strategies and technologies to reach a wider audience within the building design community more quickly.

[21] SG&E 2260-E-B/2041-G-B, SCG 4249-B, SCE 2588-E-B, and PG&E 3212-G-B/3852-E-B

- Development of online education module, focusing on the design of ZNE communities and buildings and/or case studies of recently completed ZNE projects.
- Two stakeholder forums, one each year. These forums bring together key ZNE players and stakeholders for presentations and discussion of major ZNE-related subjects. These forums encourage and support interaction between stakeholders such as utility staff, policymakers, developers, builders, architects, engineers, state and local governments, and the business community.

ZNE will continue to maintain and update the ZNE program website with relevant events and information. The website will host completed technology studies, case studies, and links to online education modules on ZNE design.

Statewide Building Operator Certification (BOC) Training Partnership
In addition to IOU coordination of Energy Center activities, the IOUs will continue to offer Building Operator Certification training to the commercial building workforce in their territories.

~~**Statewide Building Operator Certification (BOC) Training Partnership**~~

Building operators are a sector of California's green collar workforce that will continue to play a major role in improving and maintaining California's energy efficient building stock.

Buildings at all scales—small commercial to high-rise commercial and universities—that are designed to operate at a high level of energy efficiency and comfort often fall short of design expectations for many reasons, including unexpected occupancy or use patterns, malfunctioning controls, incorrect installation, and equipment that falls out of calibration over time. Building operators and facility managers play major roles in ensuring buildings are performing at the level of efficiency and comfort they were designed to perform.

Building Operator Certification (BOC®) is a national program providing education and accreditation in the field of energy efficiency of commercial and institutional buildings. BOC has been recognized by the American Council for an Energy Efficient Economy (ACEEE) as one of the country's "Exemplary Programs." With more than 6,000 facility professionals earning the credential, BOC is widely recognized by key employers as a means to distinguish skill proficiency for energy management in buildings.

As an active national training program, BOC is well positioned to provide training for workers looking to establish or enhance their building energy efficiency skill sets as well as those who may need foundational building and energy efficiency training as an entry point to a growing clean energy career path. BOC's target workforce audience includes building engineers, stationary engineers, maintenance supervisors, maintenance workers, facility coordinators, HVAC technicians,

electricians, operations supervisors, operations technicians, and others in the facility operation and maintenance field.

The BOC curriculum supports a credential at two levels. The Level I certification provides a strong grounding in commercial building systems, the key energy using equipment within the building, and how improved energy management technology and practices can reduce operating costs, improve comfort and productivity, and reduce the building's carbon footprint. The Level II certification builds on the Level I competencies with additional technical specificity in key building energy use areas such as HVAC, controls, and electrical equipment. In total, the BOC curriculum offers a comprehensive 130 hours of training. A list of class topics for Level I and II are provided in the Appendix 2.

BOC Beyond the Classroom
BOC offers a classroom training component supplemented by both an exam process for credentialing and a practicum component. Participants utilize a set of project assignments which help ensure that energy management principles are well understood and can be actively applied in buildings. The program has had numerous third party evaluations over the past 10 years and has been rated very positively by participants and their employers. These evaluations have consistently reported significant energy savings for employers who utilize credentialed BOC employees. Utilities across the country are supporting BOC and many utilize the core training program as a means for professional development of their internal staff.

Employers and BOC
BOC is being used by employers across the country for their energy management training needs. Public agencies, private employers, property managers, schools, universities, and healthcare institutions are all active BOC participants. Many companies and public institutions use BOC as a component of their professional development track for their employees. Examples of employers using BOC include California State University System, Irvine Company, Providence Health System, Raytheon, State Farm Insurance, and Washington State General Administration.

IOUs and BOC
The IOUs have been collaborating with BOC to offer California building operators competency-based training and certification, resulting in improved job skills and more comfortable, efficient facilities. Through a coordinated effort, the four California IOUs offer BOC training to their commercial and institutional customers. The statewide program combines classroom training, exams and in-facility project assignments to train and certify building engineers and O&M technicians in the practice of energy efficient building operation and maintenance. NEEC has implemented the program for the IOUs since 2002.

The IOUs will work with BOC to shape and realign the BOC certification program to be consistent with the California Long Term Energy Efficiency Strategy Plan

(Strategic Plan) as well as other guiding documents, including the California WE&T Needs assessment and the Guidance Decision. Changes to the BOC curriculum and program will include:

- Following up with program participants to assess content implementation into existing facilities;
- Expanding the number of and improving the dissemination of case studies of model energy efficiency projects conducted by program participants in combination with other demand side management (ex: onsite generation and demand response) improvements when applicable;
- Incorporating BOC materials and findings into broader IOU Centers' curriculum and vice-versa;
- Better integration between BOC and other utility and utility-sponsored integrated EE, DR, and distributed generation programs;
- Better integration between BOC and other utility-sponsored energy efficiency education and other demand side management programs, including the BOMA Energy Efficiency Program (BEEP);
- Continuous updating of curriculum materials to include information about monitoring and operating zero-net energy buildings;
- Emphasizing diagnostic and troubleshooting strategies in BOC curriculum and including materials of the use of measurement equipment; and
- Developing an annual awards program for BOC program participants annual awards program to recognize graduates for their energy efficiency building operations implementation efforts, including improved building performance from measured energy savings, documented improvement in occupant satisfaction/comfort, or document tenant complaints.

- Per feedback received from the 2010-2012 Process Evaluation via Opinion Dynamics, offering the BOC four-part webinar series as a cost-effective way to address a growing demand for web-based learning, increasingly limited budgets among building operations staff, and for continuing education credits for maintaining certification.

- As resources allow, working with local workforce investment boards (WIBs) to develop specific programs to offer BOC trainings to experienced, but displaced building operators at a significant discount. Such programs will also include opportunities to implement course material into actual buildings as well as development of "soft skills," including resume writing and interview techniques.

Local BOC Program Variations among IOUs:

IOUs will implement the BOC program statewide as described above throughout their territories.

2013-2014 BOC Course and 4-Part Technical Webinar Series Targets

	2013			2014		
	Level 1	Level 2	Webinar	Level 1	Level 2	Webinar
SCE	4	2	0	4	2	0
PG&E	4	4	2	4	2	2
SoCalGas	1	1	1	1	0	1
SDG&E	2	0	1	1	1	1

iii. Incentive levels

Not applicable.

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

Each of the Energy Centers will develop and distribute two (2) course calendars per year to potential attendees, including mid- and upstream target groups and past participants. The ETC's course calendars will be mailed using a database of more than 60,000 names. For the PEC, distribution will be made to 45,000 potential attendees. Over the years, the Energy Centers have identified and cataloged these individuals as having the greatest capability of exerting significant influence on the energy efficiency decisions of customers based on the multiplier effect. Energy Centers will continue to expand their marketing efforts by incorporating innovative and creative approaches to reach new target audiences including industry and labor partners, colleges and universities, local governments, and third party partnerships, and will continue to cross-market their courses through its established relationships with various professional organizations. Energy Centers have and will continue to rely on email promotions to people in their combined database of potential students. The Centers will continually update their database to ensure accuracy and targeted marketing for seminars.

Training sessions and workshops will be marketed through PG&E's Energy Centers' combined education and training website (www.pge.com/energyclasses), the Energy Upgrade California web site~~Flex Your Power e-newswire publication~~, professional organizations' websites, HVAC distributors and vendors, California Community Colleges, energy fairs, trade shows, and energy efficiency / environmental events designed to increase awareness of the ~~ETC~~ Energy Centers and ~~its~~ their education programs to prospective participants. In addition, other programs in PG&E's portfolio will support the activities of the ETC by recommending classes and services and collaborating to develop new courses targeted to their individual needs.

Over the past several years, the Energy Centers have worked with labor and industry to qualify many of their courses for accreditation. Through these outreach efforts, the ETC has been able to certify many of its residential classes for continuing education credits from the following organizations: Build It Green (BIG), North American Technical Excellence (NATE), American Institute of Architects (AIA), National council for the Qualification of Lighting Professionals (NCQLP), and the National Association of the Remodeling Industry (NARI). The U.S. Green Building Council (USGBC) will soon begin a continuing education program for its LEED™ Accredited Professionals to maintain their accreditation, thus providing another target audience for the Energy Centers' courses. Both the ETC and PEC will continue to reach out to these and other industry groups and labor organizations, and will expand their marketing to vocational training institutions and programs which serve low-income, disadvantaged communities.

The Energy Centers will leverage their long-standing partnerships with the California Community Colleges, UC/CSU system, State of California Community Services Department, USDOE Industrial Technology Program, the Building Operator Certification (BOC), and the California Energy Commission Industrial and Agricultural Programs during ~~2010-2012~~2013-2014 as part of its overall marketing and outreach efforts to attract and train the next generation of the green collar workforce. In addition, the ETC will partner with the Energy Savings Assistance Program~~Low Income Energy Efficiency~~ (~~LIEE~~ESA) to improve, expand, and extend training offerings to disadvantaged communities. The ETC will also coordinate with the ~~LIEE~~ ESA Program to enhance recruitment of low-income workers.

FSTC works directly with SCE and ~~the CTAC and~~ FSEC (SCG) on coordinating the seminars and events relating to food service. ~~FSTC~~ The statewide food service energy center team provides the technical support for the statewide ~~Kitchen~~ Energy Wise Food Service Equipment rebate programs and for target market incentives for food service. The target audience for FSTC and the statewide energy center activities is to a significant extent; corporate or franchise customers whose decision makers are located outside of PG&E's service territory or, more likely, outside of California. FSTC maintains close communication with the other IOUs and the food service energy center teams in order to provide coordination of programs or information aimed at these customers.

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

Carbon neutrality – ETC will support AB32 compliance by incorporating waste and greenhouse gas (GHG) emissions reduction information into all appropriate training courses. ETC will prioritize its training and DSM efforts based on the carbon content of sources used to meet building energy loads and by challenging people to eliminate carbon consumption. Technical expertise, educational programs and support for the Big Bold Zero Energy New Home goal and

California's vision of achieving zero net energy residential buildings by 2020 and commercial buildings by 2030will also be made, as well as training on methods needed to achieve deep energy savings retrofits for existing homes.

Codes and Standards – The Energy Centers will continue their long-standing partnership with the Codes and Standards team and the California Energy Commission (CEC) to offer training on the latest updates to the Title 24 Energy Standard through improved code compliance and design / installation methods for exceeding code requirements in residential new construction and HVAC retrofits.

FSTC and the statewide food service energy center team provide~~s~~ technical support to staff of the CEC as Title 20 appliance regulations are developed for commercial food service equipment. Efficiency regulations for commercial kitchen equipment tend to go hand-in-hand with the voluntary ENERGY STAR program. The ENERGY STAR database and criteria are used to qualify (through testing and labeling) the top quartile of equipment efficiency while CEC seeks to through regulation the bottom quartile of equipment on the same list.

FSTC works with the Bay Area Air Quality Management District (based in San Francisco) directly or through ASHRAE on projects and technologies aimed at efficiently reducing food service effluents. For the major equipment categories and candidates for national energy and water savings, the FSTC and the statewide food service energy center team will provide technical support to establish efficiency criteria for EPA's ENERGY STAR program. On an appliance-by-appliance basis, FSTC and the statewide food service energy center team will work with EPA and leading manufacturers to implement ENERGY STAR for commercial food service equipment and to support the Federal Energy Management Program (FEMP) interagency program on energy-efficient federal purchasing.

FSTC and the statewide food service energy center team will continue to work with the LEED "Working Group" to finalize the list of recommended proscriptive measures and baselines for energy modeling of commercial food service facilities. This group provides insight and submits formal CIRs on EA Credit 1 to the Retail Core Committee to help mature the language to yield a clear guideline for all types of retailers, including restaurants.

vi. Similar IOU and POU programs

The food service (FS) programs offered by the three IOUs are coordinated through two levels, first at the FS program level through interactions between FSTC (PG&E), FSEC (~~Sempra~~SoCal Gas),and the Energy Innovations Center (SDG&E)~~and CTAC (SCE) Food Service~~ to develop program offerings, schedule combined outreach programs, and develop support programs such as Rebate Workpapers. Second, the FS programs are coordinated at the Energy Center level through the statewide Energy Center coordinating committee. The Food Service

Coordination deals with the scheduling and logistics of cooperative events such as seminars and supporting outreach materials, workshops, Executive Planning Committee meetings, outreach events such as trade shows, joint energy efficiency program advertisements, and trade articles and general promotion of both the seminar and rebate programs.

b) Program delivery and coordination

PG&E's Energy Centers have been national leaders in the field of energy efficiency workforce education, training and technical advice for a combined total of almost ~~50~~ 80 years. Over this time, both Energy Centers have received numerous local, Bay Area, state and national awards and recognition for their training programs. Between 2013-2014~~2010-2012~~, the Energy Centers will work closely with all programs to coordinate and conduct seminars and workshops that address the knowledge and skill gaps of builders, developers, contractors, designers, installers, plant engineers and operators, agricultural owners and managers, and city and county building department staffs. Additional services will include technical assistance and support, consultations and tool loans.

i. Emerging Technologies program

The Energy Centers will continue to coordinate and collaborate with the Emerging Technologies program to introduce new equipment, installation practices, and whole building concepts to key market actors. Such support helps expand implementation of new energy efficiency products and services. For example, Energy Centers partner with Emerging Technology projects by: developing demonstration and testing facilities, jointly developing curricula, organizing product showcases, and incorporating new products into training sessions.

The ETC and PEC will do more to support California's vision of achieving zero net energy residential buildings by 2020 and commercial buildings by 2030 through the Big Bold Zero Energy Home Program and California Solar Initiative (CSI) by creating a focused training curriculum and resource support center. In addition, the ETC and PEC will collaborate with the Emerging Technologies (ET) program to coordinate training programs for training the trainer and training programs with information about technologies on the horizon for introduction to the marketplace. ET will also play a significant role in advising the PEC on fixed and portable displays and exhibits for its interactive lighting classroom.

The FSTC works directly with ET programs on issues and technologies of mutual interest. Specifically, FSTC has worked to bring ventilation controls and water heaters to market, using ET funding where appropriate. FSTC's work in Standard Test Methods development and lab and field testing provides the technical basis for much new technology. FSTC also uses its PIER research opportunities to further support the ET efforts.

In 2013-2014, Business Incubation Support or Technology Resource Incubator Outreach (TRIO) will focus on providing training and networking for developers of energy saving technologies.

The IOUs will coordinate efforts with the Codes and Standards program and with the California Energy Commission to identify critical early planning workforce training needs for advanced technologies.

IOUs will collaborate with their respective Emerging Technologies groups, the statewide Emerging Technologies Coordinating Council, State agencies, and IOU codes and standards groups to identify and deliver on opportunities for teaching targeted parts of the workforce about emerging technology products as they relate to energy savings opportunities through energy efficiency and demand response. WE&T programs will also include content on proper installation and commissioning of ET products/systems.

ii. Codes and Standards program

The Centers will collaborate through their educational seminars with compliance improvement efforts planned by the codes and standards (C&S) program. Typically, these efforts will focus on training of building department staff. Centers will focus on building standards training for architect, engineers, energy consultants, home performance contractors, home energy raters, and green building programs.

The Energy Centers will directly impact improved compliance with Title 24 energy standards through rigorous updates that go beyond new construction to include revolutionary impacts on the existing housing market. The ETC and PEC will work with HVAC contractors and building department officials to overcome information and training barriers to code compliance and enforcement. Since 1998, the Energy Centers have proactively offered training on Title 24 code updates and changes to residential / small commercial building standards. The ETC and PEC will continue to go "beyond code" by providing state-of-the-art, building science-based information about the best available systems, technologies and techniques for minimizing building and operational energy consumption while optimizing whole building or system performance and occupant satisfaction or enhanced productivity. Additionally, the FSTC and the statewide food service energy center team provide~~s~~ technical support to C&S staff for Title 20 appliance and Title 24 building regulations as relating to commercial food service equipment, operations and facilities.

In collaboration with WE&T, C&S will enhance support for the appropriate market actor roles responsible for new and emerging codes and standards implementation according to priorities established by needs assessments. C&S

will collaborate with the WE&T Centergies sub-program to not only prepare contractors and technicians to implement current codes, but to also prepare them with technical training on advanced technologies that are projected to become part of reach codes and then the statewide code.

In support of the Zero Net Energy goals, C&S will continue to build on existing training offerings and will expand activities to coordinate more closely with WE&T. In collaboration with WE&T, C&S will develop a sector strategy to support workforce development in an area with low compliance, for example, the Commercial Air Conditioning Quality Maintenance and Installation Program. C&S will maintain ongoing communications with WE&T staff to ensure coordinated development and inclusion of code-related content

WE&T programs will offer market actor-specific training on Codes and Standards to address ongoing code changes and code compliance.

iii. WE&T efforts

Energy Centers
The Centers will collaborate and coordinate where possible to be in alignment with California's Strategic Plan. Statewide collaboration among Centers will increase sub-program consistency and information/cost sharing for what the Centers offer to their customers (seminars, tool lending library development assistance, portable exhibits).

BOC Program
In alignment with the goals of the Strategic Plan, BOC's curricula incorporate relevant information about the Emerging Technologies, Codes and Standards, and HVAC Quality Installers/Quality Maintenance programs. As appropriate, BOC instructors will enhance the depth of the learning experience by discussing new technologies and ways to meet and exceed the state's code and standards.

Through its two levels of training and certification, BOC offers supplemental training in existing technical positions by providing knowledge and skill building for technician-level facilities personnel including building engineers, stationary engineers, maintenance supervisors, maintenance workers, facility coordinators, HVAC technicians, electricians, general repairers, and head custodians.

BOC has been recognized by several industry and labor organizations as one of value to its members. This recognition reflects the program's efforts to meet the needs of these organizations through solid, industry relevant curricula development. Among the organizations recognizing BOC's training program are the International Facility Management Association (IFMA), the Building Owners and Managers Institute (BOMI), the National School Plant Management Association (NSPMA), local chapters of the society of healthcare engineering, and the California State Employees Trades Council (SETC). NEEC also partners

with California statewide partnerships including the UC/CSU/IOU Partnership and other Local Government Partnerships (e.g. Association of Monterey Bay Area Governments).

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

Energy Centers
Each of the Centers will distribute their own print calendars to a more focused target audience to ensure notifications of Centers' offerings reach key actors. Innovative and creative approaches will be applied to attract and retain new customers and market actors to the Centers. This will include aligning the Centers' activities with corporate and statewide direction. Centers will contribute content to the Statewide Web portal described above and below. Classes and other Center activities will be promoted through the following venues: the Centers' print calendars, collaboration with professional and trade organizations, Center's Web sites, Centers' email communications with students who have opted in to receiving email notifications, and other partnerships, including non-profit organizations and existing academic channels (community colleges, UC/CSU).

Centers will continue to promote and collaborate on marketing efforts with established and new partnerships involving other utility segments, across utilities, and with government, academic, research, professional/trade, and non-profit organizations focused on efforts supporting the Strategic Plan.

BOC Program
Northwest Energy Efficiency Council (NEEC) works closely with the IOUs to promote Building Operator Certification (BOC) seminars. IOU-sponsored BOC classes shall be mentioned in Energy Centers' calendars and email-marketing campaigns targeting commercial and institutional customers. NEEC will also target potential participants with direct marketing materials including informational brochures, case studies and bi-annual bulletins. The program's website also serves as a promotional channel. In 2013-2014~~2010-2012~~, BOC will undertake promotional activities that build on customer interest in national initiatives such as the ENERGY STAR® Challenge and LEED for Existing Buildings. It will also work with large employers to organize closed-enrollment sessions for facilities engineering departments at a single site. Where the IOUs offer the Building Owners and Managers Association (BOMA) Energy Efficiency Program seminars, BOC shall be cross-marketed.

BOC will continue to promote training and certification through its highly successful educational partnerships with professional associations representing the facilities engineers. These include the International Facility Management Association (IFMA), Building Owners and Managers Association (BOMA), Association of Physical Plant Administrators (APPA - higher education), National School Plant Management Association, and the American Society Healthcare Engineering (ASHE). BOC will participate in the annual events and program

meetings of these associations to share information about opportunities to reduce operating costs through energy efficient building operations.

v. Non-energy activities of program

The Centers and BOC shall remain focused on delivering content centered around integrated DSM programs, including EE, DR and distributed generation. The Centers have and will continue to explore other program topics that do not have direct energy connections, but that do contribute to improving California's building stock. Such topics include indoor air quality, occupant comfort, recycling, and environmental stewardship and preservation. The LEED™ Green Building Rating System provides an outline for other topics that can help inform Centers' program managers and instructors about other resource types.

The Energy Centers provide low-cost centralized meeting space for the benefit of program implementers. Volume of activity for non-energy program participants at the ETC and PEC lowers the average cost of energy efficiency training due to volume discounts. Non-energy participants are not subsidized by this program. FSTC supports water conservation through its work on hot water heating and use in FS, hot water systems research, testing and rating of water using cooking and refrigeration equipment. Air Quality work is being coordinated with Air Quality Districts on reduction of kitchen effluents.

vi. Non-IOU Programs

IOU program will interact with CEC, ARB, Air Quality Management Districts, local government programs and other government programs as applicable. The Centers will interact with the CEC to develop and deliver training to support improved compliance with building and appliance standards. Compliance with retrofit HVAC requirements is a key strategy in the Big Bold Initiative that will rely on collaborative training efforts.

The Sacramento Municipal Utilities District (SMUD) operates its Energy Technology Center (ETC) that provides similar functions as the IOU's Centers. The IOUs will reach out to SMUD to collaborate on WE&T elements. The IOUs are active partners with Community Colleges to support and embellish green career technical education. For example, PG&E is working with Laney College to develop and deliver an "Energy Efficiency and HVAC Symposium" targeting career and technical education programs in the Community Colleges. This collaboration will provide professional development for instructors to aid in adjustments to curricula to support green job training. Such an endeavor may set the stage for expanded collaboration to support instructors and develop additional programs. A second example includes active participation in the California Advanced Lighting Controls Training Program (CALCTP) currently underway with several institutions, including Pacific Gas and Electric Company, Southern California Edison, and California Lighting Technology Center. CALCTP aims to

deliver a "train the trainer" series of classes to industry groups such as electrical unions and trade organizations.

The ETC has conducted weatherization-related training for the State Department of Community Services Development in partnership for the last 30 years. In fact, the ETC was originally designed as a hands-on weatherization training center for State programs. In conjunction with other EPC efforts, BOC has and will continue to support CEC adoption of minimum energy efficiency standards.

Additionally, the FSTC works with or provides support to the following programs:

- National Restaurant Association (NRA): The FSTC has maintained a working relationship with the NRA since its inception in 1987. In fact, the NRA co-funded the build out of the FSTC and provided cofounding on several occasions over the past two decades. The FSTC is currently recognized as a [technical] partner in NRA's new Conserve Initiative that is featuring energy efficient and green restaurant design and operation. (http://conserve.restaurant.org/)
- Multi-Unit Architects, Engineers and Construction Officers (MAECO): MAECO is a study group of the NRA that the FSTC has supported for two decades, attending meetings and presenting the results of our research into restaurant efficiency.
- California Restaurant Association (CRA): In parallel with the NRA, the FSTC has worked with the California Restaurant Association, providing energy efficiency education in publications and equipment shows. The FSTC authored a series for the CRA bulletin titled the Green Sheets since 2003. (http://www.fishnick.com/saveenergy/greensheets/)
- Thimmakka - Ethnic "Green" Business Program**:** FSTC served as a technical resource, helping develop low cost / no cost energy savings solutions for small and ethnic restaurant operators in the greater bay area. (http://www.thimmakka.org/)
- Bay Area Green Business Program**:** FSTC served as technical resource, helping to develop energy assessment checklist for green business certification program. (http://www.greenbiz.ca.gov/)
- Green Café Network (Small restaurant "Green" business program): FSTC served as technical resource, helping develop low cost / no cost energy savings solutions for small restaurant operators in SF. (http://www.greencafenetwork.org/)
- California Urban Water Conservation Council (CUWCC): The FSTC has been a primary resource to the CUWCC and members such as EBMUD and Metropolitan Water as they developed educational and incentive programs for commercial foodservice in California. (http://www.cuwcc.org/)

- Foodservice Consultants Society International (FCSI): The FSTC has maintained a working relationship with this professional association for many years. More recently, we have been very active in its outreach initiatives, specifically the Super Regional education program. (http://www.fcsi.org/)
- North American Food Equipment Manufacturers (NAFEM): NAFEM has been a long supporter of the FSTC, tapping our technical resources for its educational initiatives. We have also been involved in developing the On-Line Kitchen Protocol and the new Life-Cycle Cost Models. The FSTC is a member of NAFEM's Technical Liaison Committee. (http://www.nafem.org/)
- ASHRAE: The FSTC has been an active participant in ASHRAE program, research and standards activities. Technical committee work is currently focused on commercial kitchen ventilation, refrigeration and water heating. ASHRAE is one of the FSTC's key channels to the engineering and large facility design communities.
- ASTM: ASTM is the standards organization that ratifies and publishes all of the standard test methods developed by the FSTC. To date, the foodservice test method portfolio includes more than 35 test methods.
- International Mechanical Code (IMC): FSTC submits code change proposals with respect to commercial kitchen ventilation. Over the past few years, we have been successful in over 20 code proposals.

vii. CEC work on ~~PIER~~Electric Program Investment Charge (EPIC)

The PEC will collaborate with Lawrence Berkeley National Laboratory, the National Institute of Standards and Testing, and consulting firms on a CEC ~~PIER~~ project to support the development of the Universal Translator (UT). The UT is a software tool that supports building operators and engineers to document building energy performance and energy efficiency project planning. The UT is an extension of the PEC's tool lending library described in Section 4.i.

FSTC works closely with the CEC ~~PIER program~~ on such issues as Commercial Kitchen Ventilation, hot water heating and distribution, and advanced kitchen appliances. FSTC works as a research contractor ~~for PIER~~ in conjunction with PG&E's CEE and ATS departments on Kitchen Gas and Electric use and hot water research.

viii. CEC work on codes and standards

The Centers will work with the CEC and the IOU C&S programs to improve code compliance through coordinated education and training delivery. For more details on these integration efforts, refer to the HVAC WE&T PIP. The ETC provides expert consultation and advice for building standards development as well as advocacy support in collaboration with the Codes and Standards Program.

ix. Non-utility market initiatives

The Energy Centers collaborate with certification and training initiatives by the following organizations: North American Technician Excellence (NATE), Affordable Comfort, Inc. (ACI), Building Performance Institute (BPI), National Association of the Remodeling Industry (NARI), American Institute of Architects (AIA), BuildItGreen (BIG), and Home Energy Rating System (HERS) Providers [California Building Performance Contractors Association (CBPCA), U.S. Green Building Council (USGBC), American Society of Heating, Refrigerating, and Air-conditioning Engineers (ASHRAE), California Home Energy Efficiency Rating System(CHEERS) and CALCerts].

FSTC and the statewide food service energy center team utilize~~s its~~their relationships with ENERGY STAR and various restaurant and food service industry organizations to promote their programs and leverage these relationships to pursue PG&E's efficiency objectives. (Refer to Section 6.2.b.v. above.)

c) Best Practices

Centers will develop classes, displays, and materials with current information that highlights and demonstrates best practices for efficient installation and equipment through field-experience and case studies from existing programs, including Savings by Design and Energy Design Resources. Centers' offerings will emphasize whole building and system performance in conjunction with design intent. Implementation of hands-on learning methods that are applied in the field creates an opportunity for partnering with EM&V and/or 3rd party evaluators to follow up with course participants to assess impact upon practice and/or energy savings. A description of this pilot program appears in Section 6.1-g below. The Centers will continue to implement best practice methods as prescribed in prior statewide evaluation reports, including "Evaluation of the 2003 Statewide Education and Training Services Program" by Wirtshafter Associates, Inc., 2005 and "2004-2005 Statewide Education, Training and Services Program Evaluation" by KEMA, 2007.

Many of the training programs conducted through the Energy Centers incorporate adult learning theory by utilizing a "hands-on" approach that enables students to visualize and experience the impact proper system design, installation and maintenance can have on operation and energy efficiency. For example, the ETC's functional HVAC training unit, a "best practice" implemented by the ETC in 2005, provides participants an opportunity to see first-hand how proper charging, duct sealing and other actions made to HVAC systems impact their energy use and the ETC's training house provides students with the ability to see and touch quality insulation installation, high efficiency lighting exhibits, weatherization techniques and more.

The PEC's lighting classroom allows students to experience both poor and good quality lighting. Participants in the Energy Audits class use tools from the Tool Lending Library and the PEC to learn ways of measuring building performance; the overcast sky simulator

and Heliodon allow class participants to test physical models of buildings for daylighting and shading performance; and interactive energy modeling software classes provide students the opportunity to learn effective use of the software in a group setting with an instructor.

Throughout the 2013-2014~~2010-2012 cycle~~bridge period, the ETC and PEC will develop additional training props and equipment for use in many of the courses offered to enhance learning and provide real-world experience in the classroom. In addition, both Energy Centers will expand their courses to include more "Train the Trainer" classes to expand the reach of their training efforts and materials. See Section 6.1.g.iii for more information on "Train the Trainer" activities.

FSTC, through its research, testing, and constant customer contact continually updates its technology and operational practices knowledge base. The Best Practice partner Program is a manifestation of this constant improvement.

The ETC also interacts with Affordable Comfort, Inc., in a leadership, planning and strategic mode to audition and recruit the best talent and state-of-the-art topics for delivery in California, capitalizing on long-term relationships that gain access to best practice providers.

BOC teaches commercial and institutional facility staff how to operate and maintain building systems for energy efficiency, optimal performance, and occupant comfort. BOC combines classroom training, exams, and in-facility project assignments to train and certify building engineers and operations and maintenance technicians in the practice of energy-efficient building operation and maintenance. The curriculum was developed to provide knowledge and skill building for technician-level facility personnel including HVAC technicians, electricians, general repairers, and head custodians. BOC curriculum is taught by practicing professionals who implement best practice building operations strategies toward improving building energy efficiency. The curriculum is updated on a regular basis. Trained instructors share best practices with one another as BOC curriculum is updated on an annual basis.

d) Innovation

In 2013-2014~~2010-2012~~, the IOU Energy Education and Testing Centers will undertake three pilot projects that will serve to shape programs for future filings. These pilot projects are discussed in Section 6.1-g below. The Centers will also continue to keep their Centers and offerings up-to-date with current and upcoming technologies.

- *Increased use of the Internet to deliver education and training programs as real-time simulcasts, real-time Webinars, and archived on-demand classes*: While these applications have been implemented by some Centers in the past, all Centers will implement and progress this delivery method further to reach a wider audience and to increase program cost-effectiveness.

- *Expanded curriculum to support California Energy Efficiency Action Plan for 2020*: The IOU Centers will develop teaching material on topics such as climate change, energy neutral growth, effective mass transit and Plug-In Hybrid Vehicles, and effective implementation of green technologies. Centers will need to pilot, experiment and partner with local Universities, science museums and other parties with expertise to provide a balanced view on these complex topics.
- *Emphasis on Adult Learning Principles*: Centers will complete the revision of seminar content and curriculum based on adult learning principles to which they were exposed as part of the KEMA program evaluation effort "2004-2005 Statewide Education, Training and Services Program Evaluation", submitted in 2007. Such learning principles emphasized hands-on "learn by doing" training. Some members of the Centers' training staff at the centers have been trained on these principles and will integrate them with the goals of promoting energy efficient behavior participating in available EE programs. The expected benefit of utilizing Adult Learning Principles is an increase in participant retention of knowledge, awareness and comprehension leading to greater EE behavior and program impact.
- Centers will work together and collaboratively with other utility groups (i.e. Emerging Technologies) to develop new exhibits with up-to-date technology that can be either replicated and/or shared across utilities to maximize cost-effectiveness of new exhibit development.
- Centers will work together and collaboratively with other utility groups and stakeholders to create an educational series describing paths to zero net energy residential buildings by 2020 and commercial buildings by 2030. This is in support of CPUC and CEC commitments and directives.

BOC Innovation

As a credential program, BOC is uniquely positioned to maintain a long term relationship with graduates through its certification renewal program. Graduates must earn continuing education hours annually to maintain the BOC credential. This provides an opportunity to direct graduates to the utility education and training centers to earn continuing education hours towards renewal.

Energy efficiency project work also qualifies for continuing education. Graduates may earn continuing education hours through engagement of EE and DR projects at their facilities. In 2006, almost 20% of BOC graduates earned hours through completion of efficiency projects. Finally, BOC graduates and their supervisors are informed about energy efficiency and demand response program opportunities through the BOC Bulletin, a bi-annual newsletter mailed to 1,500 California IOU customers.

Continue, and even increase, utility presence at BOC trainings: Students expressed satisfaction with utility account representative presentations in BOC classes. This should be continued and even expanded on by involving account reps in promoting BOC to key accounts in advance of the course series start date.

e) Integrated/coordinated Demand Side Management

Centers will develop their programs to incorporate other DSM opportunities, including demand response (DR), and distributed generation. The Centers have taken the first steps toward integrating DG and energy efficiency into their exhibits and educational seminars. They have also developed seminars and exhibits focused on DG, EE, and DR The next step is to work with the DG and DR groups to develop programs that integrate the three in a way that is consistent with other utility programs and with the long-term energy efficiency strategic plan towards zero net energy residential buildings by 2020 and commercial buildings by 2030. Centers will integrate training offerings with codes and standards programs as described in section 6-b above.

NEEC recognizes California's demand side management needs are not fully addressed through energy efficiency alone, but rather through a blend of multiple DSM options including rigorous building and ~~appliance~~ codes and standards, demand response, and on-site generation. The BOC curricula are structured to offer flexibility for the incorporation and promotion of relevant demand side management options (rebate and non-rebate) available through the IOUs. NEEC has and will continue to work with the IOU's to customize BOC curriculum to the California market to address technologies and practices associated with demand reduction and to stimulate uptake of utility programs in energy efficiency, demand response, and on-site generation. In 2005 and 2006, BOC curriculum modules were supplemented with material on the topics of enhanced automation strategies for demand reduction and operational best practices to ensure persistence of savings from building retro-commissioning. In 2008, BOC curriculum modules were supplemented with material on the topic of O&M practices for sustainable buildings covering a full range of resource conservation topics. The curricula are also flexible to include information pertaining changes and/or implications to support implementation of and compliance with the CEC's Title 24 to Title 24 2008 Building Energy Efficiency Standards, AB32 (Greenhouse Gas Reduction bill), and other initiatives.

In 2013-2014, WE&T will work with the Benchmarking and IDSM Programs in similar manner as proposed for the Continuous Energy Improvement Program to introduce the processes, lessons, and case studies curriculum to working energy management professionals, industry professionals,- IOUs will consider a sector strategies approach in furthering development of these collaborative efforts.

f) Integration across resource types

IOU Centers recognize that energy efficiency can be achieved through programs that go beyond traditional energy efficiency education and training. The Centers have and will continue to offer seminars and build partnerships that remain focused on energy efficiency and go a step further to show the benefits of energy efficiency upon other areas (e.g., air quality). The Centers will also work together and collaboratively with other utility groups and stakeholders to incorporate the benefits of achieving efficiencies with other types of resources (e.g. water efficiency) upon whole building energy use. This integration can be achieved by developing courses on specific topics like water efficiency

since any use of water requires energy consumption. The highest impact for water efficiency integration occurs when water is also heated on site. The LEED™ Green Building Rating System provides an outline for other topics that can help to inform Center program managers and instructors about other resource types.

BOC's Level II course structure offers unique flexibility to integrate the curricula from other resource management areas relevant to building operation and maintenance such as water, waste, and indoor air quality. Level II supplemental classes are offered in tandem with core classes to customize the course series to regional and topical interests in the California building operator market. Three one-day supplemental classes in the topics of water efficiency, O&M for sustainable buildings, indoor air quality, and demand response have been developed and successfully delivered to 500 building operators since the program's inception.

g) Pilots

No pilots are proposed for Centergies Subprogram. Several sector strategy initiatives will be pursued in coordination with IOU programs, as discussed in previous sections.

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 plan will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the utilities and the Energy Division. Development of these plans will occur after the final program design is approved by the CPUC and, in many cases after program implementation has begun, since the plans need to be based on identified program design and implementation issues.

7) Program Diagram

See above Section 6.2.

8) Program Logic

Below is the logic model for the WE&T Centergies Subprogram.

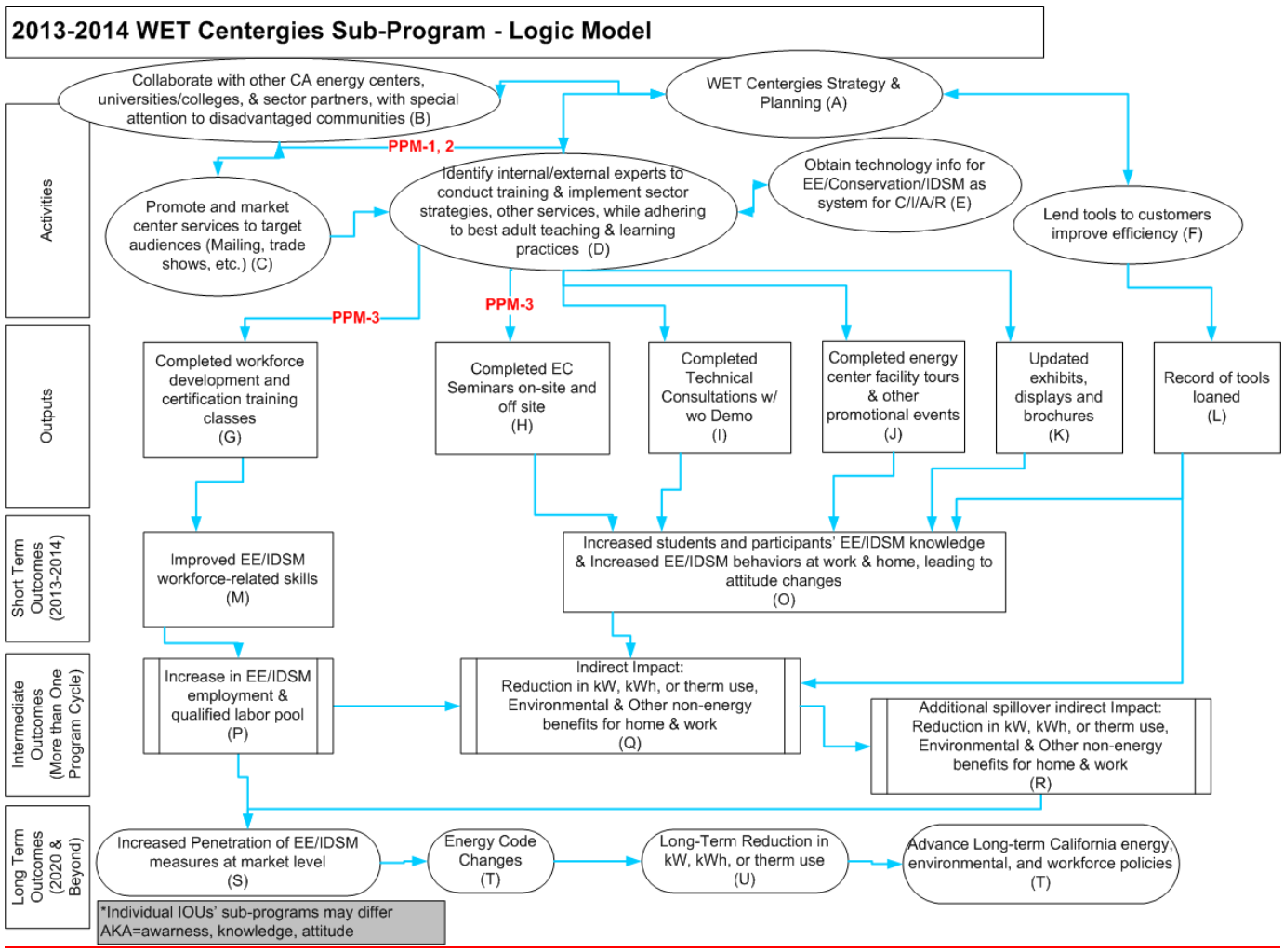
The activities specified in the logic model focus on several types of actions. One is to promote and market center services to target audiences. These activities involve gathering labor market information from employers in the energy sector and designing programs to meet their needs. They also include leveraging existing relationships with colleges, and professional and trade organizations to market courses and other energy center offerings.

A second activity focus is marketing and reaching out to disadvantaged communities to facilitate energy-related job skills in those communities. This will be accomplished by partnering with industry and labor organizations, professional organizations, trade and vocational schools, community colleges, third-party entities, government organizations and other partners that service low-income or disadvantaged communities in order to reach members of these communities and bring them into energy center training programs.

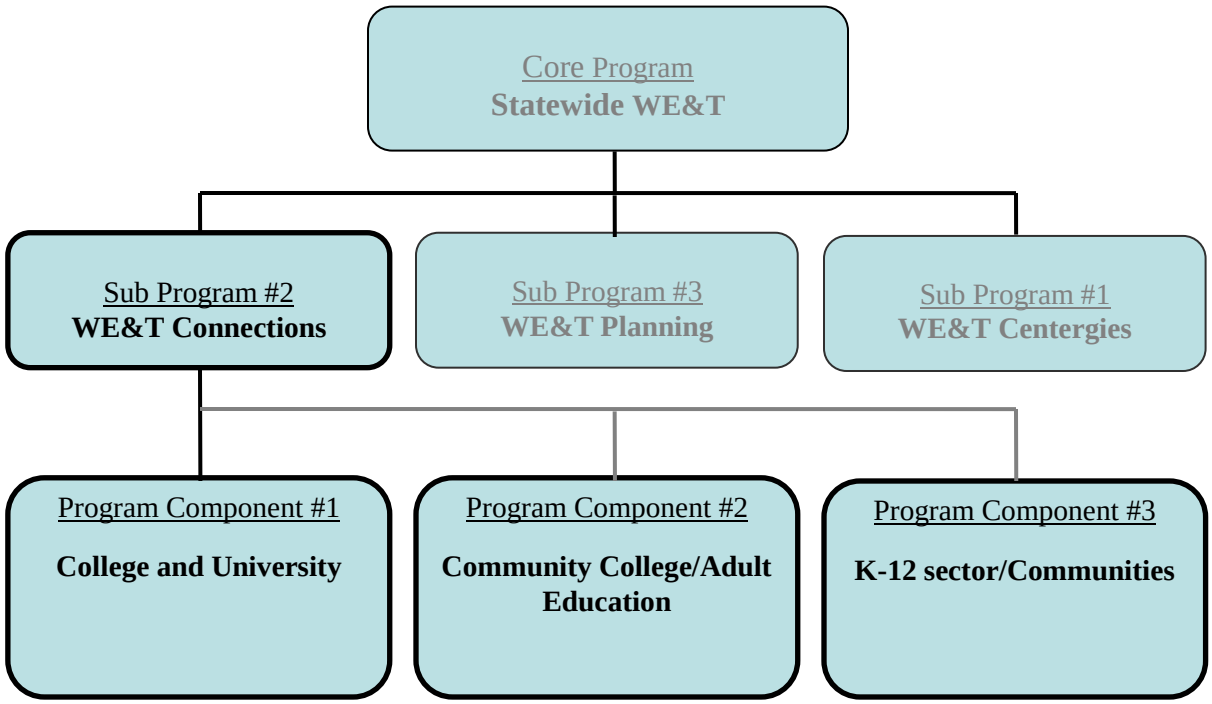
A third activity focus is to identify internal and external experts to conduct training and other services, while adhering to best practices in adult learning. The centers are developing and using many new training props to give students first-hand experience with how energy-saving technologies and practices work and how they produce savings. They are also including energy modeling tools to teach students to estimate savings resulting from the technologies and practices they learn in the classes. In addition, the centers are reviewing seminar content to be sure the adult learning principles are being incorporated.

A fourth activity in the logic model is the lending of tools to customers that will allow them to judge the energy efficiency of their equipment and make changes and adjustments to increase efficiency.

All of these activities are all expected to result in classes, consultations, promotional events, exhibits, and tool lending that increase participants' energy efficiency and IDSM knowledge and behaviors. Ultimately, these activities and outputs are expected to result in indirect energy savings.


2013-2014 WET Centergies Sub-Program - Logic Model
Activities
Outputs
Short Term Outcomes (2013-2014)
Intermediate Outcomes (More than One Program Cycle)
Long Term Outcomes (2020 & Beyond)
Collaborate with other CA energy centers, universities/colleges, & sector partners, with special attention to disadvantaged communities (B)
WET Centergies Strategy & Planning (A)
PPM-1, 2
Promote and market center services to target audiences (Mailing, trade shows, etc.) (C)
Identify internal/external experts to conduct training & implement sector strategies, other services, while adhering to best adult teaching & learning practices (D)
Obtain technology info for EE/Conservation/IDSM as system for C/I/A/R (E)
Lend tools to customers improve efficiency (F)
PPM-3
PPM-3
Completed workforce development and certification training classes (G)
Completed EC Seminars on-site and off site (H)
Completed Technical Consultations w/ wo Demo (I)
Completed energy center facility tours & other promotional events (J)
Updated exhibits, displays and brochures (K)
Record of tools loaned (L)
Improved EE/IDSM workforce-related skills (M)
Increased students and participants' EE/IDSM knowledge & Increased EE/IDSM behaviors at work & home, leading to attitude changes (O)
Increase in EE/IDSM employment & qualified labor pool (P)
Indirect Impact: Reduction in kW, kWh, or therm use, Environmental & Other non-energy benefits for home & work (Q)
Additional spillover indirect Impact: Reduction in kW, kWh, or therm use, Environmental & Other non-energy benefits for home & work (R)
Increased Penetration of EE/IDSM measures at market level (S)
Energy Code Changes (T)
Long-Term Reduction in kW, kWh, or therm use (U)
Advance Long-term California energy, environmental, and workforce policies (T)
*Individual IOUs' sub-programs may differ
AKA=awarness, knowledge, attitude

6.2) Sub-Program Implementation – WE&T Connections, PGE21072



a) Statewide IOU Coordination

i. Program name

The Statewide WE&T Connections is a Sub-Program within the Statewide WE&T Core Program.

WE&T Connections is a three-fold marketing, outreach and workforce education and training program. This Sub-Program offers K-12, Adult Education (post-high school), Technical Training, Community College and University level education programs that support the Strategic Plan's vision for educating and training California's workforce for "green" jobs.

- First, the programs promote green careers to K-12, Adult Education (post-high school), Technical Training, Community College and University students through energy and environmental curriculum, college credit courses at high schools, college degree programs, job shadowing and internships.

The IOUs and/or our third party vendors will continue to work with California ~~State~~ Department of Education (Curriculum Commission) as well as curriculum coordinators from the County Offices of Education to be included in curriculum development advisory boards so that we can contribute to tailored K-12 curriculum

that includes the science of energy, energy efficiency, Demand Response, Renewable Resources and some discussion about green careers. We will also work with the California Community College Chancellor's office, UC Office of the President of Academic Affairs and the CSU Office of Degree Programs and Educational Opportunities to 1) promote energy minor or major degree programs, 2) collaborate and/or provide expertise in the development of complementary new and revised courses that will form a comprehensive integrated approach to energy education, and 3) consult with campus-specific administrators to define additional courses needed to meet the growing need for graduates with skills in energy efficiency and related fields. Throughout the process, we will also work to incorporate and promote a green career path.

- Second, the programs are intended to educate students on energy, water, renewable energy, demand response, distributed generation as well as green-house gases and the environmental impact, with the goal of influencing day-to-day decisions of students and their households.
- Third, the programs educate K-12/Community Colleges/Universities on the benefits of adopting energy efficiency and demand response policies at their facilities to help them save energy and money. Having these programs at schools and campuses serves to reinforce that schools practice what they preach. Some students truly pay close attention to see if the schools are just providing lip service or if they are leading by example.

WE&T Connections program offers five energy education program components— Green Campus, DEEP, PEAK, Energenius, LivingWise, Green Pathways and Green Schools— and effectively integrates specific content for the science of energy, energy efficiency, water conservation, -renewable energy, demand response, distributed generation, green house gases to address awareness in the communities, barriers faced by schools as well as growth and demand for green careers. These programs are designed to be both flexible and affective across diverse learning environments as well as to empower K-12/college students to become advocates of smart energy management in their homes, schools, and communities. Each program component will also leverage all other available energy efficiency, demand response, and distributed generation programs for consumers as well as existing business incentives for schools, all to achieve immediate and long-term energy savings and demand reduction in homes, communities, schools and universities.

b) Quantitative Program Targets

The proposed targets may be modified due to funding restrictions.

~~**Table 5**~~

~~Program Name~~	~~Program Target 2010~~	~~Program Target 2011~~	~~Program Target 2012~~	~~Totals~~
~~**University Sector**~~				
~~Green Campus~~	~~70 green careers~~	~~126 green careers~~	~~182 green careers~~	~~378 green car~~

~~**Community College Sector**~~				
~~CA Community College~~	~~50 green careers~~	~~100 green careers~~	~~150 green careers~~	~~300 green car~~
~~**K-12 Sector**~~				
~~PEAK~~	~~20,000 students~~	~~23,000 students~~	~~23,000 students~~	~~66,000 stude~~
~~Energenius~~	~~55,000 students*~~	~~65,000 students~~	~~85,000 students~~	~~205,000 stud~~
~~LivingWise~~	~~33,000 students~~	~~33,000 students~~	~~34,000 students~~	~~100,000 stud~~
~~Green Schools~~	~~25,000 students~~	~~5,000 students~~	~~65,000 students~~	~~140,000 stud~~
~~**Note:** There are approximately 6,000,000 K-12 students currently enrolled in California, and our K-12 programs are expec to touch only 9% of the student population over the next 3 years. However, the programs at these schools will serve as a test/pilot environment for energy efficiency and green career curriculum.~~ ~~*Because of PG&E's limited bridge funding and the delayed approval of the 2009-2011 Portfolio, the targets for 2009 hav been adjusted accordingly.~~				

Table 5

Program Name	Program Target 2013	Program Target 2014
University Sector		
Green Campus (Statewide)	16 campuses	16 campuses
Community College Sector		
DEEP (SCE only)	3 campuses	3 campuses
K-12 Sector		
PEAK (Statewide)	20,000 students	20,000 students
Energenius (PG&E)	60,000 students	60,000 students
Green Pathways* (PG&E)	1,000 Online Course/ Community Participants	3,300 Online Course/ Community Participants
LivingWise (SCG, SCE)	30,000 students	30,000 students
Green Schools (SCE)	25,000 students	25,000 students
Note: There are approximately 6,000,000 K-12 students currently enrolled in California, and our K-12 programs are expected to touch only 7% of the student population over the next 2 years. However, the programs at these schools will serve as a test/pilot environment for energy efficiency and green career curriculum. * Green Pathways serves grades 9-12; goals may be adjusted upon approval of final budget.		

ii. Program delivery mechanisms

WE&T Connections programs will be taking a sector strategy approach around education collaborations with K-12 and College stakeholders and organizations. The strategy's multi-faceted goals include increasing engagement of all students, particularly minority, low-income or disadvantaged, in energy-related coursework and programs, poising them for careers in Energy Efficiency (EE) and a life-long appreciation of energy conservation and efficiency.

The California Public Utilities Commission has provided a framework to make EE a way of life in California by refocusing rate-payer funded EE programs on achieving long-term savings. Goals of this framework include (1) establishing EE education and training at all levels of California's educational systems; and, (2) ensuring that

minority low-income and disadvantaged communities fully participate in training and education programs at all levels of the Demand Side Management and EE industry.

Education collaborations are integral to achieving the goals laid out above. The K-12 and College Sector Strategy, led by the IOUs and implemented by a cross-stakeholder driven partnership, will include the below key elements to ensure these goals are achieved.

While traditional sector strategies often include specific employer hiring commitment or funding, the K-12 Sector Strategy will not directly include this component due to the target population being years away from career entry points. However, other sector strategy hallmarks will be included in this approach. These include:

- Developing a regional partnership which includes a cross-section of stakeholders from the EE sector.
- Ensuring employer commitment to help align training to market demand.
- Working towards career pathway development, including "stackable" credentials that enable students' education to build upon previous trainings.

Ultimately, via the Sector Strategy work, the IOUs will have a thorough understanding of K-12 and College resources and programs that currently exist, and, *through collaborations*, (1) propose enhancements to current programs, (2) identify new program needs that fill gaps understood from our mapping work, and (3) create opportunities to "link" programs and build education pathways. The ultimate goal is to increase the engagement of students in energy-related K-12 programs, and ultimately, energy efficiency careers.

Key Elements

- Supporting K-12 and college efforts to assist students to develop education based on visible career paths in EE and related fields.
- Creating and/or expanding college and university programs with EE focus.
- Fostering green campus efforts to apply EE knowledge in clear view of students and faculty.
- Continued refinement of existing curriculum to ensure EE fundamentals are included.
- Identifying career options in energy-related fields.
- Continue incorporating career exploration into programs and developing a systematic effort to institutionalize energy awareness and career awareness programs that is aligned with state content standards.
- Expanding collaborations with career academies, regional occupational programs and community colleges.

Proposed Objectives

- Students develop an awareness and appreciation for energy, energy conservation and the impact to the environment;
- Students develop careers that advance DSM business, policy, research and development and education; and
- Individuals from the targeted communities take advantage of programs that specialize in energy disciplines at all levels of the educational system and successfully advance themselves into rewarding careers in the energy services fields.
- Linking existing training programs, across modalities, so that students' options are increased and pathways begin to be developed, e.g., pathways to post-secondary programs.
- Increase engagement of at-risk or disadvantaged students in energy-related coursework.
- A plan for more fully leveraging utility training centers for K-12 stakeholders.

College and University sector

Green Campus (statewide)
The Green Campus Program is implemented on ~~UC/CSU~~college and university campuses by student interns engaged and/or enrolled in environmental studies and/or other related areas. This team of 2 – 6 student interns per campus engages other students through forums, and other means on the importance of energy conservation and the link to the environment. They also lead the way in addressing energy efficiency in the higher education sector by meeting with faculty, staff and administrators and work with them to incorporate energy, energy efficiency and discussions about a green career path into their ~~curriculum, and~~ courses/programs as well as work with ~~them~~ campus officials to implement energy efficiency projects on campus and add value with educational outreach campaigns. Green Campus addresses behavioral and operational changes and product retrofits for campus facilities as well as serves as a direct pipeline of emerging environmental/energy professionals.

Green Campus WE&T aspects are exemplified by the advanced technical and professional development skills that the students develop as part of their internship, and that non-intern students develop from interaction with Green Campus interns. Green Campus projects include dorm energy competitions, energy efficiency curricula development, building energy assessments and recommendations, technology pilots, and outreach events. Interns actively market their projects and the program by completing monthly newsletters, working with campus and local media and presenting at conferences – including biannual program convergences.

Green Campus Program is being reviewed to determine if it qualifies as a resource program.

Program Delivery
Student Intern assistance to Facility Management stakeholders; Housing and Dining; and energy service companies (ESCOs), as appropriate, to help them increase measurable energy savings: Green Campus Interns play a key role in helping campus staff, administrators and energy efficiency professionals with their energy savings targets. As a means to this end, students will organize such activities as dorm energy competitions, laboratory fume hood educational campaigns and competitions, technology pilots, office energy assessments and recommendations.

- *Recruit, train and support Green Campus Interns at each campus in implementing program activities.* Interns are hired and trained to implement many aspects of the program throughout the school year. Green Campus program staff works closely with interns, campus stakeholders, utility partners~~ies~~ and ESCOs as they identify their objectives and draft a detailed implementation plan.
- Hold a f~~F~~all planning meeting~~s~~ with ~~include~~ student organizers and IOU program managers, campus administrators, facilities staff, faculty, IOU program managers and, energy service company representatives at each campus. After conducting implementation planning exercises prior to or early in the fall term, Green Campus Interns will bring new participants up to speed on the program goals, expectations, report on activities conducted to date, unveil future plans, and solicit feed-back.
- *Building in Efficiency to the Fabric of the Academic Framework:* Program staff will work with the UC Office of the President, Office of Academic Affairs, ~~and~~ CSU Office of Degree Programs and Educational Opportunities, or Office of the Chancellor to:
  - develop a database of EE-related courses on UC and CSU campuses,
  - consult with system-level as well as campus-specific administrators to define additional courses needed to meet the growing need for graduates with skills in energy efficiency and related fields, and
- ~~—~~Utilize the Green Campus program as a tools to promote energy, sustainability, environmental and other related courses on campus ~~diffuse EE courses throughout the UC and CSU systems by offering all campuses the opportunity to be selected for inclusion in piloting a new Statewide Green Campus Energy Career Pathway Program.~~
- ~~*Building the Workforce in Collaboration with Industry:* Program staff will organize a California Energy Efficiency Student Mentoring Program. This program will bring together the energy efficiency industry, IOUs, government energy regulatory agencies, community colleges, and UC/CSU campuses to pilot an intern program in which students will take a semester off their academic studies to work for a private or public entity doing energy~~

~~-efficiency related work. The result will be better trained graduates who know the efficiency field and the businesses in it, and energy businesses that have semi-skilled, low-cost help who are primed to join their workforce when they graduate.~~

- *Ramping Up Green Campus Reach:* Every aspect of the Green Campus Program offers a pathway to green jobs –academic course offerings, training in technical and "soft" professional skills, experiential hands-on energy efficiency projects, and providing a statewide network composed of utilities professionals, other professionals and academics, students, and program alumni. We plan to increase the number of students who participate in Green Campus activities through growing the "concentric circles" of GC activities:
  - Students who are employed as GC interns (approximately 60 students)
  - Increase the number of volunteers who participate in GC activities without being paid
  - Interns conducting awareness campaigns on campus will invite students to sign up as honorary Green Campus students and pledge to advance the WE&T message across campus. They will carry the message forward and ask others to do the same. Interns will gather pledge information so that they can be contact via email to gather information on courses they are taking or jobs they might be in.
  - Increase the number of students who take classes taught or facilitated by GC interns (currently over 600 per year total)
  - Students who are exposed to Green Campus messages on campus (This is already 400,000 student contacts per year statewide)

~~•~~ *Ensure that minority, low income and disadvantaged communities fully participate in training and education programs.* Green Campus program will be made available at campuses serving low-income, minority and disadvantaged communities. ~~will work with campus EOP Programs to ensure this group of students is also fully engaged in our energy efficiency and green career path programs. Many students do not apply for admission to college because no one in their family has ever attended college or because college seems too expensive. EOP aims to improve the access, retention and graduation of students who have been historically disadvantaged, either socially or economically. EOP assists students by providing admissions and academic support services. EOP serves students from all ethnic backgrounds, and Green Campus will ensure that they are fully engaged in this program. Working with the EOP program as well as other similar programs will ensure that low income, minority, and disadvantaged groups are engaged in the WE&T goals.~~

~~•~~ ~~EOP Provides access opportunities for historically underserved students (Low Income, first generation college) by making higher education a possibility for prospective students with potential~~

- ~~EOP is empowered to admit those who demonstrate potential, and recognizes that potential is not measured by GPA or standardized testing alone.~~
- *Mid-year and year-end meetings of all Green Campuses.* The mid-year meetings bring interns together with IOU program managers, campus administrators, faculty, and facilities staff from various campuses to share successes, discuss challenges, and plan Green Campus activities for the next half of the academic year. The year-end meetings are used to review the year's progress, recognize group and individual accomplishments or best practices, and plan for the summer and following year.
- *Coordinate with other IOU departments to promote consumer and ~~facilitate Bb~~business ~~I~~incentive ~~P~~programs.* Green Campus through IOU Account Executives will provide information to campus administrators and facilities managers about Business Incentive Programs and encourage them to take advantage of these opportunities for making energy efficiency changes more cost effective. These facilities energy savings ~~programs~~ projects are needed for two things~~, 1) the campuses need to get some benefit for these educational programs being on their campuses, and 2~~1) for students to see that campuses are practicing what they are teaching, and 2) to serve as a lab for students to practice energy efficiency through identification and implementation of projects on campuses, and 3) building a career pathway.

Community College sector

~~California Community College (possible statewide)~~CCC IOU Partnership
The ~~2010-2012~~2013-2014 California Community College program will build upon, enhance, and streamline the implementation strategies employed in the ~~2006-2008~~ 2010-2012 partnership and adopt new strategies over the life of the program as they emerge or are proven as ready for the market. The implementation plan will be refined to adopt best practices and lessons learned program elements for the ~~2010-2012~~2013-2014 programs will include:

- An improved program management and structure that adopts lessons learned from the past cycle resulting in a more streamlined, effective approach;
- In the process of expanding the existing CCC training and education program from simply training facilities, operations and maintenance staff to include working with community stakeholders on curriculum development for students and industry with the objective of developing future energy professionals and a green workforce. Please refer to Advancing Strategic Plan goals and objectives for details on IOUs role in developing a Utility Workforce Education and Training program as well as our plan to ensure low income, minority and disadvantaged students are included.

DEEP (SCE only)

DEEP is an employment development program that trains and educates California Community College students in the areas of integrated demand side reduction through classroom learning, projects, and outreach within the campus community. Along with preparing students for green careers, the program will produce reductions in operational costs for California Community Colleges by promoting the understanding of demand response, resource conservation, and carbon emission reduction.

Three Program Goals

Promote Sustainability and Efficiency Awareness

DEEP students will learn about sustainable lifestyles and promote what they have learned.

DEEP students will be guided by program coordinators, faculty and administrative staff on campus. They will familiarize themselves with current on-campus practices in building construction, recycling, green procure-ment, and renewable energy. They will work to integrate new concepts of sustainability into existing classes. DEEP students will provide the link between cam-pus sustainability, academic infusion of sustainability concepts, and the green workforce.

Engage Students with Hands on Learning & Pro-mote Peer-to-Peer Learning Opportunities

DEEP students will work closely with stakeholders and organizations on campus to create and implement energy efficiency projects, and conduct outreach campaigns. These guided efforts will work toward providing students with a hands-on experience, bring the campus realized energy saving opportunities, enhance building performance, and provide multiple other benefits.

Provide Green Workforce Exposure and Real World Experience

DEEP students will have opportunities to be exposed to domestic and international companies. They will develop relationships to future careers via interactions with companies such as Chevron Energy Solutions, ACCO Engineered Systems, Powersmiths, Lime Energy, Sie-men's Industry Inc, Sunflower, Growing Energy Labs, Honeywell Building Solutions, and Growing Energy Labs.

Students will be exposed to the benefits of transferring to four year colleges and learn how their educational interests relate to professional careers in energy.

Program Approach

The DEEP Program is primarily student-driven and al-lows valuable innovators to take an active role in driving Community College campuses to meet the needs of the developing green economy.

An effective Peer-to-Peer teaching model is encouraged. This allows students to teach others about energy and exponentially increases campus-wide energy awareness.

The recruitment, screening, and participant selection will be facilitated in close collaboration with participating campuses and the Foundation for California Com-munity Colleges. All employee relation issues will be managed by the Foundation's Human Resources Department utilizing the SAGE system. Each selected school will receive funding for forty hours per week to be distributed among four to six part-time DEEP students. Positions will be allocated $10 per hour for an average of approximately 10 hours per week for the duration of program participation.

Student participants will work collaboratively with key stakeholders to create campus-wide goals and create a customized list of strategies to achieve those goals. Each team will assign roles and responsibilities to respective members.

Adult School/Post High School (SCE)

The delivery mechanisms include in-language seminars, outreach to schools, community events, faith-based organizations and Workforce, Education & Training.

- In-language seminars: The objective of in-language seminars will be to provide a classroom style forum to empower residential customers to conserve resources by teaching them simple ways of saving electricity, gas and water. This strategy will also align itself with a goal of the WE&T Strategic Plan so that minority, low-income and disadvantaged communities fully participate in education programs by providing elements that will seek to encourage interest toward careers in the energy efficiency industry. Seminars will also be used to promote other IOU program offerings such as Comprehensive Home Performance and of course demand response and other integrated DSM offerings like Summer Discount.
- Community booths: CLEO will continue participating in prominent ethnic cultural booths such as the 'Chinese New Year' and 'Harvest Moon Festivals'. This will also include coordinating with SCE's and SCG's Energy Centers and faith-based organizations and other cultural opportunities.
- Schools outreach: In 2013-2014, the CLEO program will expand its schools outreach efforts by providing a comprehensive schools initiative. In addition to continuing the 'Energy-Artist' contest, this initiative will also introduce a 'Carbon Footprint' contest where schools could potentially compete against each other for the highest decrease in energy use. The PEAK Program will be utilized to encourage energy efficiency behavior for fourth graders. Outreach efforts will also include coordination with SCE's Mobile Energy Unit and will also target Adult Education centers. Primary focus will involve K-12 elementary schools.
- Faith-Based Organizations (FBO's) and Community Center outreach: Local community FBO's and religious forums form the backbone of the ethnic community. FBO's also provide a forum for community events and an excellent platform to market and encourage energy efficiency. CLEO will cultivate and add to the existing relationships with churches and local community centers to effectively cultivate program participation and promote energy conservation

- Community / city partnership and outreach: This outreach strategy will build upon existing relationships with the cities of Monterey Park, San Gabriel, Alhambra, Walnut, Diamond Bar and others to promote energy efficiency in the community. CLEO will place information kiosks at city community centers and will participate in community events to further promote energy efficiency in the community. CLEO will also integrate components of the program with other existing partnership programs with higher ethnic populations.
- Workforce, Education and Training: CLEO will expand its reach in the Workforce, Education and Training (WE&T) area by providing in-language energy efficiency education and training at various Adult Learning Centers and Community Colleges. The focus will be on educating those whose primary language is not English. Program participants will learn about the green jobs industry, energy efficiency measures / technologies, programs and services offered, as well as be placed on a 'green' career-path for participants to build upon.

K-12 sector

Some of these programs target the same grade levels but, none of the current or proposed programs target the same districts/schools. We have and will continue to ensure that students participating in one program will not also participate in another similar IOU provided program.

PEAK (statewide) ~~(PG&E, SCE and SCG)~~

For ~~the 2010 to 2012~~ 2013-2014 ~~transition period~~program cycle, PEAK is proposed as a continuation of a successful program by PG&E, SDG&E, SCG and SCE. ~~In the 2006-2008 program cycle PEAK was stand alone in PG&E and SDG&E service areas but, was a joint program in SCE and SCG service areas. For the 2010-2012~~2013-2014 ~~program cycles, t~~The participating IOUs will continue ~~plan~~ to work together to ensure that the program design and delivery is consistent across the IOUs.~~operate as a statewide program~~. Other changes planned for ~~2010-2012~~2013-2014 are revisions to include lessons on ~~green house gases, DSM and green careers~~ Water/Energy Nexus to reflect WE&T goals.

~~PEAK staff meets with school district representatives, such as principals, to explain the year-long program commitment; plans a customized program for their schools; and targets 3rd -7th grade levels. PEAK then trains teachers through its curriculum, hands-on lab activities, and toolkits. In turn, teachers educate their students about the science of energy, energy efficiency and environmental consequences. Using service-learning as a framework, students are prompted to apply their knowledge to real-life situations in their homes, schools, and communities. Throughout the school year, students and teachers are supported in a variety of ways, such as: product distributions, educational assemblies, interactive website and software, e-newsletters, contests, community recognition, and field trips to power plants and renewable energy generation plants. Via the website, PEAK participants are offered structured course curricula recommendations on in a variety of EE savings topics including:~~

~~electric, gas, water and renewable energy use. PEAK's diverse offerings foster strong relationships with schools and school districts, as well as a positive connection between the end-user, the community, and the utility.~~ Brief description of the program.

PEAK Student Energy Actions (PEAK) is a standards-based energy education program for grades 3rd through 7th grade (with possible expansion into other grades), that empowers youth to save energy in their homes, schools, and communities and promotes workforce development in energy-related industries.

Program Key Elements

The core of this program is built on four PEAK Student Energy Actions which are used thematically to educate students on how their personal behavior and the behavior of others has a direct impact on the demand for energy and on the environment. The four PEAK Student Energy Actions are: 1) Shifting Use Off Peak Demand Times 2) Cutting Waste Through Conservation 3) Plugging Into New and Efficient Technologies 4) Exploring Renewable Energy
Overall Program Goals:

- Deliver high-quality energy education to the next generation of energy consumers.
- Actively engage students, their families, and schools to save energy through energy efficiency, smart resource management, sustainability and demand response awareness.
- Provide career awareness, career exploration, and/or career preparation to appropriate grades on industries related to energy and environmental sectors.
- Create sustainable behavioral changes that result in the achievement of immediate and long-term energy savings and demand reduction in schools and homes.
- Promote positive relationships between the end user, the community, and their serving utility.

Program Rationale

PEAK complements each level of the Integrated Demand Side Management model by using education as a means of shifting behavior. The Energy Coalition's PEAK program will support IOUs in meeting recommendations outlined in the California Long Term Energy Efficiency Strategic Plan (CLEESP) and Workforce Education and Training (WE&T) Needs Assessment by providing integrated education on demand response, energy efficiency, energy and water conservation and sustainability through its curriculum. Participating students will receive workforce education related to career awareness, career exploration, and career preparation in order to ensure that they are equipped with the necessary pathway to enter the workforce. PEAK also promotes various rebate and incentive programs such as the Home Energy Efficiency Survey offered in Southern California Edison and Southern California Gas Company service territory.

Alignment with CLTEESP

PEAK is aligned with the following CLTEESP Workforce Education and Training goals: 1) Establish energy efficiency education and training at all levels of California's educational system 2) Ensure the minority, low-income and disadvantaged communities fully participate. The PEAK program supports the state in meeting its 2020 goal to have a workforce that is trained and fully prepared to achieve California's economic energy efficiency and demand-side management workforce potential.

Core Program Coordination

The PEAK program fits with the current IOU WE&T programs in that PEAK both provides and continuously develops 3 – 7 grade curriculum to include energy efficiency fundamentals (e.g. math, science, behavior) and identify career pathway options in energy-related fields. In addition, PEAK supports existing IOU programs by funneling participating student families into energy efficiency programs including distribution of IDSM education through student take-home materials. The Energy Coalition will work with the utility to further connect additional utility rebate and incentive opportunities that support energy efficiency management at the school facility level.

Target Audience

PEAK is designed to engage students, educators, school district officials, school site administrators, parents, and community members. The PEAK program is tailored to educate 3rd~~third~~ through 12th grade students as change agents within the utility territory and develop educator expertise that supports the program core energy concepts as well as environmental education. In alignment with the CPUC's goals, PEAK will place emphasis on enrolling schools into the program that have been designated as low-income.

Implementation Strategy

Implementation strategy consists of the following components:

Professional Development

- Provide a Teacher Orientation & Training session for all new PEAK teachers. Offer advanced Teacher Training and Orientation to returning teachers.
- Support innovative project development in the areas of energy and the environment.

PEAK On-site Support

- Complete up to 2 PEAK educational campaigns or contests per school year.
- Conduct PEAK Events and Site Visits upon request or as deemed appropriate by PEAK and school staff.
- Provide on-site career explorer/career preparation opportunities upon request or as deemed appropriate by PEAK and school staff.

PEAK Curriculum Development

- Enhancements to improve relevance and comprehensiveness include: STEM and service learning-components, expansion to out of school time (OST), extension to 3rd -12th grade education-, and expansion of components to include , Water-Energy Nexus, Smart Meters, renewable energy and other sustainability concepts.
- It is essential for PEAK to focus its efforts on career development especially in the areas of unemployed and underemployed workers. Two components will be developed: career exploration (grades 3-8) and career preparation (grades 9-12) if applicable. The Energy Coalition will realign the current curriculum so that students will explore the careers in the energy field as they engage in energy action activities, thus providing practice and engineering for success. For the career preparation component, The Energy Coalition will develop curriculum alongside the energy education to incorporate hands-on job preparation opportunities as the students prepare for the jobs of the future.

Program Activities

~~*Home Energy Efficiency Survey (HEES):* The program will provide a HEES survey for students to take home and have completed by their parents. The teachers will treat this as a homework assignment and have the kids bring the completed survey back within a specified time. The surveys will then be mailed in to the IOU SCE (coordinating IOU) and the families will receive their kit (CFL, showerhead and aerators) in a few weeks. The kit contents are worked into the lesson plans.~~

~~*PEAK Curriculum:* The PEAK Teacher Guide Book enables teachers to meet academic content standards in science, math, and language arts for grades three through seven. The curriculum lessons are designed to be covered over one school year. Lessons are designed to be fully comprehensive and contain the following: student learning objectives, lab instructions, post-activity reflection questions and suggested community activities. In addition, each lesson (electricity, gas and renewable energy) emphasizes one or more of the PEAK Student Energy Actions, compelling students to apply their classroom learning to real-life situations and behaviors.~~

~~*Greenhouse Gas and Energy Career~~*Water/Energy Nexus module:* PEAK will create a new module/s to include Water/Energy Nexus and how the use of one impacts the use of the other. ~~Green House Gases and their environmental impact as well and Career development discussion promoting a green career path into their lesson plan curricula.~~

~~*Teacher Training:* PEAK teachers participate in a day-long professional development seminar on PEAK's academic content and how to deliver the curriculum in the classroom. Teachers are encouraged to utilize lesson plans from each segment (electricity, natural gas, renewable resources, GHG, careers in the green workforce) of the program curriculum.~~

Classroom Lab Toolkit: PEAK teachers receive a toolkit that contains the supplies needed to complete each hands-on lesson for a class of 36 students. Toolkit supplies are replenished on an as-needed basis.

Energy Challenge Software: PEAK's website at www.peakstudents.net houses interactive games that allow students to simulate the effects of energy efficient behaviors at home and in the community. The web page will be expanded to include new program features; renewable energy; demand response; green-house gases and, their environmental impact.

Energy Education in the Community: PEAK staff facilitates educational assemblies featuring Bulbman, PEAK's energy-saving mascot. Participants learn such concepts as how electricity is generated, how much energy is saved by a CFL, demand response, green-house gases and the 4 Student Energy Actions.

Saving Energy at Schools Facility Audits: Facility audits and retrofits will be offered to PEAK schools to improve facility energy use and enhance PEAK energy education. This initiative serves as an additional hands-on student learning opportunity, where students are encouraged to participate in the process and learn about the impacts of proposed changes. Students are also more engaged in energy conservation when they see that the schools are also practicing what they teach. In fact, most districts have energy managers that manage the green effort at schools and, students are able to see a green career in action.

Coordinate with other IOU departments to promote and facilitate Consumer and Business Incentive Programs.

Coordinate events with Mobile Energy Unit (MEU) where available: PEAK program activities are tailored to suit the needs of PEAK participants. This customized approach is implemented in all PEAK activities including planning special events and product distributions, developing teacher trainings, promoting green jobs through career discussions, and organizing student field trips. PEAK's proactive support generates a feedback loop which lends itself to quality internal program monitoring and ensures a constantly evolving, living program. PEAK education ultimately produces behavior modifications and attitudinal shifts that result in immediate measurable kW, kWh and therm reductions in both the student's school and home.

PEAK complements each level of the Integrated Demand Side Management model by using education as a means of shifting behavior. PEAK's comprehensive, hands-on program is correlated to the State of California's science, math and language arts standards for grades three through seven. The program teaches students the science of energy and instills an ethic of smart energy management as well as engages students on discussions about green jobs. Throughout their participation in the PEAK program, students are presented with the necessary tools to formulate thoughtful conclusions about energy usage at the individual and community levels.

Energenius Pre-K to 8 Program ~~(statewide to be established~~(PG&E only)

The Energenius Program, in 21 years of existence, has reached close to one million students in both public and private schools within the PG&E service area. These highly rated educational materials are designed for students from pre-kindergarten through middle school. They are correlated to California Department of Education Content Standards and are reviewed and/or piloted during the development process by classroom teachers. Each of the eight existing Energenius programs include curriculum guides with detailed lesson plans, student activity books, calendars (for primary grades), and take home materials on energy efficiency for parents and guardians.

The WE&T goals of the California Long Term Energy Efficiency Strategic Plan (CLTEESP) are reflected in the content and in the marketing strategies of the Energenius program. Section 9.5 of the Strategic Plan stresses that curriculum should include energy efficiency fundamentals and identify career options in energy related fields. All programs are in the process or have incorporated these concepts. The Energenius program, in meeting goal 2 has implemented a comprehensive marketing plan to ensure that minority, low income and disadvantaged communities fully participate in its program.

The eight programs that are presently being marketed include: We Saved Energy Today – pre-kindergarten; Energenius Big Book Program for kindergarten – grade 1; Energy and Me! for grades 2-3; Energenius E Program for grades 4-5; Trees. Energy, and the Environment for grades 4–6, Energy Check-Up for the Environment for grades 4- 6; Water, Energy and the Environment for grades 4 – 6; and Transportation, Energy, and the Environment for grades 6 and above. Grade level designations relate to how each program is correlated to California Content Standards. However, teachers are the ones to decide which materials best meet the needs and skill levels of their own students.

The main focus of all the Energenius programs is on energy efficiency. As age appropriate content is included on the science of energy, environmental impacts of energy use and energy production, the water=energy nexus, greenhouse gas emissions, global climate change, demand response, and distributed generation. Content is also included on careers and jobs (awareness and exploration) with an emphasis on those in the green and clean-tech areas.

Learning about energy, energy efficiency, and the environment should begin at an early age and continue through elementary, middle and high school, and beyond. The knowledge, information and skills can lead to lifelong habits and concern for the environment and the protection of the Earths' limited natural resources. Students are also discovering in the Energenius program materials information (as age appropriate) on green jobs and careers.

Launching of Energenius Programs and Resource Guides

Two new Energenius Programs for middle school students will be available by end of 2012 and marketed beginning in 2013. A unit on non-renewable and renewable

energy sources offers students an introduction to various sources of energy. Research and in-class activities provide the background for students to analyze the costs and benefits of various energy sources. Students will also analyze the environmental impacts of the energy sources and learn how their own daily energy choices impact the environment. A section of the program relates to jobs and careers in renewable energy fields. The other new Energenius program is Smart Technology, Energy, and the Environment. This unit focuses on the smart grid, smart meters, and how technology allows consumers to better manage their energy consumption. Content related to demand-response and distributed generation is introduced along with a look to a future where many consumers of energy will also be producers of energy. Careers related to the development /installation of the smart grid are among those covered in this unit.

Green Career Resource Guide

The new Energenius Green Career Resource Guide provides high school counselors and other educators a listing of resources they can use with students who are interested in learning about careers and jobs in the green economy. A range of annotated websites along with a section on search techniques will help introduce students to training and educational opportunities to secure green careers and jobs in the future.

Online Energy Resources for Educators

The Online Energy Resources for Educators guide has been updated and is available both online and in a print version. This annotated guide provides educators a hundred plus web resources for teaching about energy and the environment.

Revising of Energenius Educational Program

Two of the Energenius programs will be updated and revised in 2013 to be in compliance with expanded content defined in the CLTEESP and the Needs Assessment. Both programs will also provide activities related to career awareness with an emphasis on green careers in energy related fields. The Light Right Program for grades 4-6 uses lighting as a way to explore energy, technological changes and personal energy habits. As students take actions at school and home to be energy efficient they learn how they are also reducing greenhouse emissions that contribute to global climate change. The Energenius E Program (grades 4 –5) developed in 2005 will be updated to include information on how the use of electricity and natural gas is measured. Students will learn in this unit about the greenhouse effect, greenhouse gas emissions and global climate change. Included in this E Program will be content on how energy production and energy use impacts the environment.

Green Action Teams

A new green Energenius program will bring resources to high schools wanting to implement green action teams. Resources include consultation services by a green team implementation specialist. A consultant will provide site visits, phone consultations, and green team planning sessions. The consultant will work closely with staff and students to define activities and facilitate the actual establishment of a green team. One of the early team activities will be an energy survey of the school to

help establish potential links to retrofit incentive programs. Upon a review of the survey results an energy expert will analyze potential energy savings at the site and make recommendations to the school and school district. Once a plan is developed other resources can be brought in by the utility. Green action team members might also choose to implement a water-saving program, a green career day, or introduce a new composting/recycling program. An additional activity for high school green team members would be to partner with local middle schools to help them establish their own teams.

~~Since 1991, Energenius has expanded and flourished providing educational materials to over 700,000 students in public and private schools throughout the PG&E service area. Expansion statewide with eventual use of the WE&T "Web Portal" as the teacher access point is now possible. These materials are designed for students from kindergarten through grade eight and are correlated to California Content Standards. Each of the seven existing programs include a complete curriculum package featuring detailed lesson plans, student activity booklets, calendars, energy calculators and take-home materials for family members.~~

~~Program units focus on energy efficiency and safety around electricity and natural gas and include Energenius Kindergarten Habits (grades 1-3), Energenius e-Kit (grades 4-5), Energenius Bill Buster, the Light Right program (grades 6-8), Trees and the Environment (grades 4-6), and Transportation, Clean Air, and the Environment (grades 6-8).~~

~~Learning about energy, energy efficiency, energy safety and the environment should begin in the early years of school and continue through high school and college. This knowledge and information can lead to life-long energy savings habits and a concern for the environment and its limited resources.~~

~~*Curriculum Development*~~
~~For 2010-2012~~2013-2014, ~~*Energenius will develop new program materials,*~~ ~~"Energenius Branching Out", targeted to upper elementary and middle school students. These materials will focus on energy-related environmental connections, such as global climate change and the linkage between greenhouse gas emissions, energy production and energy use. The new materials will help students explore and analyze the trade-offs of the various alternative energy sources. In addition alternative energy resources, and integrated demand side management. In addition, the materials will go beyond the energy efficiency fundamentals and introduce information on career and job opportunities in energy-related and in the green economy. This as well as all educational programs will help interest youth in future green career paths.~~

~~*High School Program*~~
~~The Energenius Program is a K-8th grade curriculum program on energy, energy efficiency, and the environment. The program does not currently extend into high school, so a new program, Green Pathways, will be developed and piloted (see 6.2.g)~~

~~for high school students. This career development program will explore the landscape of environmental and energy careers. Green Pathways enables students to expand and apply what they learned in the Energenius program in the context of developing personal interests and planning career goals and strategies in the green economy. Extending beyond high school, Green Pathways will link and leverage program resources with the Community Colleges providing additional educational opportunities for students to pursue green jobs and careers. Together, Energenius and Green Pathways provide a comprehensive "green" education and career development experience.~~

~~*School Presentations*~~
~~The program will develop resources and presentation materials to help schools that are interested in going green. Resources will include models for assemblies, classroom presentations or helping them coordinate implementation of green projects at their site. Coordination would include helping them develop an action plan and timeline for implementing the various green projects. Once the plan is developed they will go to the community for support for implementation. The local Waste Management company can help set up a recycling program, the water district and PG&E can do a walk through of the campus to identify water and energy efficiency tips. The class or club would decide based on their time availability what is reasonable to accomplish.~~

~~*Energy Patrol*~~
~~School workshops will be conducted using the Energenius Energy Patrol Handbook and videos. Workshops will include an actual monitoring activity and all schools will receive follow-up assistance with implementation... Energy Patrol programs help schools to monitor energy waste and energy efficient actions at the school site.~~

~~*Green Careers Curriculum for Secondary Students*~~
~~New program materials that focus on both living and working in a green global economy will be developed for high school students. This curriculum will provide students background knowledge on renewable energy and energy efficiency, trends in green job growth, green careers today and those projected for the future. The high school program will include references to the California Career Technical Education (CCTE) model curriculum standards. The curriculum will be made available to career centers, environmental groups on campus and could serve as a guide to holding green job fairs and career days on campus. This high school material will support the Green Pathways program.~~

~~The new program designed for middle school students will provide career awareness activities that relate to green jobs and careers. The materials will provide students the background needed to understand the relationship between energy efficiency, renewable energy and the green jobs and careers that are available. This middle school program will be marketed through the existing channels that the Energenius K-8 program series is at this time.~~

~~*Curriculum on Analyzing Energy Use:* Introduce a mini curriculum that supports the use of the Home Energy Efficiency Survey (HEES). Piloting of these materials is in progress in the second quarter of 2009. The goal of this unit is to interest students and their families in ways that they can save energy at home.~~

~~*Conference, Exhibits and Presentations:* Our goal is to attend at least 10 educational conferences annually to promote Energenius materials and workshops and to provide general information on energy efficiency. When possible, presentations during the conference will be made.~~

~~*Resource Guide for Teachers:* Maintain a yearly update on "Energy Education Resource Booklet" which provides an annotated listing of sites for teachers and students covering issues on energy, energy efficiency, and the environment.~~

~~Energenius will coordinate with PEAK Student Energy Actions educational program or other K-12 programs where possible. PEAK compliments Energenius by covering demand side management concepts (shifting use to off-peak hours) and the science of energy.~~

Green Pathways High School (9 – 12 grade) program (PG&E only)

For 2013-2014, Green Pathways will be a local PG&E program. Green Pathways is a green workforce development high school program. The program was approved and developed during 2010-2012. (Filed Advice letter #3080-G/3596-E.) The pilot included research, development, and testing in collaboration with student and adult stakeholder groups. The goal of the pilot—to determine proof-of-concept for a program that addresses unmet market needs and regulatory requirements—was accomplished. Green Pathways is now positioned to serve students and communities in the PG&E service area in 2013-2014 with the potential to reach students and communities statewide thereafter.

Green Pathways is the only targeted high school Connections program that leverages the online environment and social networking trends in education, utilizing online learning and communication. The Green Pathways online course completes the K-college level program continuity in energy efficiency education and career preparation. The online community engages professionals in the green workforce to inform and inspire students to pursue green careers. By leveraging the reach, economy, and scale inherent in online resources, Green Pathways provides a strategy that introduces California's emerging high school–college workforce to opportunities to contribute creatively and productively to California's environmental sustainability solutions.

The WE&T goals of the California Long Term Energy Efficiency Strategic Plan (CLTEESP) and the 2012 Needs Assessment Recommendations are reflected in the goals, content, and marketing strategies of Green Pathways. Section 9.5 of the Strategic Plan stresses that curriculum should include energy efficiency fundamentals

and identify career options in energy related fields. These concepts are integrated into the Green Pathways online course and community. Green Pathways also provides pivotal gateway information and experiences to prepare high school students to identify and secure future internships and work opportunities. The online community will represent our cross-sector partners from industry, trade and professional organizations, educational institutions, and local and state agencies. It will engage multiple stakeholder groups representing diverse market sectors such as business, industry, government, and CBOs. Green Pathways will be made available to geographically and socio-economically diverse communities within the PG&E service area. In meeting Goal 2 of the Strategic Plan, Green Pathways has already implemented a marketing plan to ensure that minority, low income, and disadvantaged communities have full access to the program.

Green Pathways includes four key elements: an online course, a web-based learning community, volunteer green professionals (Green Gurus), and teacher professional development. These components provide students with a unique workforce development resource that integrates career preparation with environmental sustainability and green employment. It also provides teachers with a relevant, real world, green curricular context that enhances their curriculum. It seeks to increase students' awareness and involvement in their community about local environmental challenges, strategies and solutions, and related career opportunities.

Online Course

The Green Pathways course provides a flexible vehicle for use by educational institutions, CBOs, and independent and home school students. Delivery options could involve one consolidated period of time or span a few weeks or semester. The multi-week course complements teacher's curriculum and can be used in conjunction with a variety of high school courses. It can also be integrated into after school programs, clubs, or CBOs' youth programs. Green Pathways equips students with the knowledge, skills, and resources to begin a path toward green careers. Course content is divided into modules that include Environmental Sustainability Challenges, green careers addressing those challenges, and career exploration/preparation strategies. Online tools and resources include career assessments, the Department of Labor's jobs database, video/media, and discussions with Green Gurus and Career Coaches. Course completion includes certificates of completion and possible course credit options.

Online Community

The online learning community is a communication and collaboration hub to achieve dual goals of (1) providing environmental sustainability content and (2) catalyzing resource sharing across regions, market sectors, and organizations. Students and teachers build relationships with peers from other school districts and communities that otherwise would not be possible. It hosts Green Gurus and Career Coaches in a variety of interactive formats including blogs, Q&A, discussions, and webinars. These experts offer information and guidance and serve as a source of networking contacts, potential internships, and possible work opportunities. Students create a personal profile that showcases their green career interests, work and volunteer

experience, and desired pathway. As members of the Green Pathways community, students may participate in community activities as they build their path toward a green career.

Professional Development
Professional development ensures the successful delivery of Green Pathways by educators and program directors. For many, an online course and communication platform may be new. Leader preparation introduces the knowledge and skills needed for orchestrating a successful online learning experience. Instructional materials and web-based training sessions will be provided. Ongoing interaction among participating leaders will encourage learning from each other and support a successful implementation.

Collaboration and Community Building
In the service of developing tomorrow's green workforce today, Green Pathways creates motivation and a vehicle for cross-sector collaboration, community building, and communication. Green Pathways is positioned to link and leverage its resources and those of our partners and related initiatives such as the IOU Connections, Centergies programs, and the Green Pathways Sector Strategy. The program will reach out to Workforce Investment Boards, representatives of local and state agencies, professional and trade organizations, unions, and providers of apprenticeships and training programs. These partner resources—along with community college, four-year, and graduate programs—will provide relevant job, preparation, training, and internship information to Green Pathways students and teachers locally and regionally.

LivingWise® (SCG and SCE)
For ~~the 2010 to 2012 program cycle,~~2013-2014, ~~LivingWise~~LivingWise® is proposed as a continuation of a successful program partnership between SCE and SCG. ~~LivingWise~~LivingWise® program target 5th and 6th grade students, and is usually incorporated into the science and math classes over a 4 week period. Local water providers are also contacted regarding their interest to co-sponsor the ~~LivingWise~~LivingWise® Program in their service territories.
~~LivingWise~~LivingWise® provides classroom learning activities and take-home kits to elementary and middle school classes. The kit contains energy and water-saving products such as a compact fluorescent lamp and high efficiency showerhead as well as other items to introduce energy efficiency and water conservation to children and their parents. The program features a blend of classroom learning activities, hands-on energy survey and installation projects which students complete in their homes with parental assistance. In addition, ~~LivingWise~~LivingWise® participants will be provided lesson plans as well as classroom discussion in the area of energy efficiency, demand response, distributed generation, water conservation and careers and job opportunities in the new green economy. These lesson plans come in the form of an activity booklet that addresses electric, gas and water conservation as well as green house gases, renewable energy and careers in green jobs.

Program Activities

Interactive: Interactive school-to-home program for students

LivingWise® Activity book: The LivingWise Teacher Activity Guide enables teachers to meet academic content standards in science, math, and environmental. Lessons are designed to be fully comprehensive and contain the following: student learning objectives, post-activity reflection and environmental impacts.

The activity books contain the following lessons:

- Electricity;
- Natural gas;
- Water conservation;
- Renewable energy;
- Distributed generation;
- Greenhouse gases;
- Demand response; and
- Careers in the new green economy.

Classroom activity: Teacher-designed classroom activities that reinforce student work on critical State Standards for core subject areas (math, Science, environmental).

Hands-on: Hands-on projects that utilize kits containing energy and water efficiency technologies that students directly install in their homes, thus reinforcing education results.

Family involvement: Involvement of parents to shape family habits and awareness of the benefits of energy and water efficiency

Fully integrated energy efficiency program: Collaboration with Southern California Gas Co and local Water agencies ensures that program covers electric, gas, and water as well as greenhouse gases, renewable energy and careers in green jobs.

Coordinate with internal departments to promote and facilitate Consumer and Business Incentive Programs.

Teachers are required to incorporate lessons from each of the following areas; electricity, natural gas, renewable resources, GHG and green jobs into their math, science or environmental classroom activities as possible. This program is very adaptable to different teaching styles and compliments California's science and math curriculum.

Initial implementation includes program customization to promote utility energy efficiency programs, demand response, distributed generation, water conservation as well as a green career path. The program also features a) pre-survey – that kids

complete at the start of the program to determine their knowledge of energy efficiency, b) Household report card – that provide valuable information about household environment and conservation behaviors, c) post-survey – the kids complete after going through the program and allows us to see program effects on their knowledge.

Green Schools (SCE)
Green Schools is a comprehensive K-12 school program that integrates energy saving actions into schools, homes, and the community as well as provides skills development to high school students in preparation for green jobs. Program staff meet with school district representatives, principals and teachers to develop a customized approach for their schools. Teachers are then trained on its lesson plans and approach. The program's Instructional resource materials, including lessons in all aspects of energy and energy efficiency, are correlated to California education standards, making it easier for teachers to integrate the lessons into their curriculum and strengthen student academic learning. ~~New~~ Ff~~or~~ ~~2010-2012~~2013-2014, ~~is a new lesson on green careers in the new green economy~~ the program will expand in the area of green career awareness and career exploration as outlined in the California Needs Assessment, where teachers will talk to students about careers in solar, wind, hydro, energy management as well as environmental areas. Our goal is that students will learn and consider energy careers in high school much like they previously learned about going into the medical field, legal field, accounting and public service.

Green Schools teaches students about energy from an integrated perspective that includes the science of energy, energy efficiency and conservation, demand response, renewable and distributed generation, environmental and economic impacts of energy consumption and encourages students to consider green careers. Students will learn about green careers or green university courses/programs in their life skills classes and/or from their career counselors. The students will use the campus as a laboratory for hands-on learning. As a result, ~~The program also encourages schools to pursue efficiency opportunities from~~ the students will drive behavioral changes, operational changes, and product retrofits to 1) save energy and reduce utility costs, and 2) for students to see that schools are practicing what they are teaching. Teams of teachers, custodians, administrators, and students work together to develop a tailored plan that implements all aspects of this program at their schools. Through integrative, project-based learning activities, the Green Schools teams work with students who then become energy-smart educators and efficiency advocates, bringing the conservation message and knowledge about green careers to their schools, homes, and communities. Students learn about energy, ways energy efficiency can help the environment, rewarding careers in the energy field, and will involve their schools and families in energy lessons and energy efficiency practices.

The Green Schools Program provides training and professional development to teachers, custodians, and administrators; trains students to conduct audits of their schools; educates students about career opportunities in the energy efficiency field; and convenes school teams three times during the year to learn how to implement the

program, celebrate successes and learn from their challenges. The career knowledge and experience that students gain with respect to energy and energy conservation prepares students for a wide range of rewarding energy careers in the government sector, public sector, CBOs and utilities.

Program Activities
Conduct Professional Development Workshop for new school teams: Program staff will conduct a one-day Professional Development Workshop in the summer or fall of each year to train new school teams of superintendents, principals, teachers and career counselors about the program goals and provide instruction and guidance in planning and implementing their Green Schools activities.

Curriculum Development: Will work with California Department of Education (Curriculum Commission) to be included in curriculum development advisory boards so that the Energy sector can contribute to tailored K-12 curriculum and enhance the state-mandated Environmental Education Initiative with more robust energy efficiency curriculum. ~~Afterward, Green Schools will pilot curriculum prior to California Department of Education mandating widespread use of new curriculum.~~ Develop a complete lesson plan library for teachers to select from to- integrate with their teaching.

Instructional Resource Binders: These binders are provided and discussed at the professional development workshop. The resource binders contain the following sections:

- Teaching about energy
- Alternative energy sources (New)
- Green careers (New)
- Saving energy at school
- Involving the whole school
- Saving energy at home
- Facilities and custodial staff contributions to Green Schools

Teachers are required to cover 1) Section 1: background lessons, action lessons, and climate change, 2) Section 4: saving energy at home and at the community, 3) Section on Alternative energy sources: solar, wind, distributed generation and demand response, 4) Section on Green careers.

Promote energy efficiency measures in the community: Each year students will be engaged in activities that promote community outreach and SCE's incentives information. Examples of community outreach activities include tabling at school or community events, student presentations on energy efficiency for community service organizations, and students working with parents to complete SCE's home energy efficiency survey. These activities serve to instill this green lifestyle in the students. If the student is passionate about this cause, s/he will be more likely to continue this

course in college and or a green career. This function should serve as preparation for this student following a green career path.

Student Energy Audit Training (SEAT): Conduct SEAT program in three high schools and/or middle schools each year. The Green Schools SEAT program educates students about energy and gives them first-hand experience analyzing how energy is used at their school. Students will learn about many aspects of energy efficiency and energy auditing and will conduct basic audits of select areas in their schools. This activity will serve to inspire students to continue down the green career path by pursuing this cause in college or moving directly into the green workforce out of high school.

Develop Career Pathways from High School to Higher Education or Energy Career: Through partnering with school counselors, community colleges and universities to conduct field trips to energy related business and training centers, conduct school assemblies focused on energy issues and the importance of energy careers.

- Work with existing school clubs to incorporate green job information and training into club activities,
- Providing students with career path information, including relevant degree or certification offerings with community colleges and universities,
- Encouraging students to pursue internship opportunities with the Green Campus program, and
- Organizing career days at the IOUs where students can learn about career opportunities and the important work performed to help the environment and reduce GHG. If this is not feasible, green schools will organize school assemblies where IOU experts can come and talk to students about energy, careers and answer questions.

Mid-Year Meetings: School teams meet mid-academic year to share successes and challenges of program implementation and to make plans for the second semester of the school year. Documentation of the meetings will be provided, including the agenda, list of attendees, materials distribution list, second-semester school plans, and workshop evaluation.

Energy Bb~~b~~aseline~~:~~ ~~tracking system:~~ Work with Account Management, Institutional Partnerships and/or Business group to establish a baseline and provide ongoing energy usage support. This function serves several purposes, 1) show the district/school the energy costs benefit of implementing operational changes, ~~The works with schools to establish baselines and provide monthly energy usage information to schools in districts that have committed to giving a return on savings to their schools. This function serves several purposes, 1) saves the district/school on energy costs,~~ 2) show the students that the schools are practicing what they teach, and 3) students get to realize the impact of their actions at schools and this will reinforce the importance of energy management careers.

Coordinate with other internal departments to promote ~~and facilitate~~ consumer and b~~B~~usiness i~~I~~ncentive p~~P~~rograms. The Alliance will provide information to the Green Schools districts about Consumer and Business Incentive Programs and encourage them to promote consumer programs to parents as well as take advantage of these opportunities for making energy efficiency changes more cost effective.

Develop, track and report on key performance indicators:
Green Schools primary focus is to educates students and their families about energy and the link between efficiency, the environment and finances as well as educate students about careers in the field of energy.~~helps schools reduce energy costs and educates students and their families about energy and the link between efficiency, the environment and finances as well as educate students about careers in the field of energy. It is a comprehensive and long-term approach to school efficiency, bringing together the facilities, instructional and administrative staff in a cooperative effort to improve education using energy as a tool. Its unique approach integrates school facility energy savings with energy savings instruction and action for students to use in school, their homes and their community.~~

K-College Outreach

Mobile Education Unit (SCE only)

This program will explore behavior-based marketing; and allow the utility to generate awareness of its integrated DSM solutions through the Mobile Education Units (MEUs). This program focuses on 1) serving as a mobile classroom for students to learn about energy, the nexus between energy/gas/water, importance of conservation and careers in energy, 2) the integration aspect of outreach by gathering data and delivering information to customers in a way that reaches customers now and provides intelligence to guide future outreach, while education and outreach efforts build awareness for energy efficiency products and services, shift customers attitudes/perceptions, and drive customers to learn more about utility rebate and savings programs that can help them save energy, money and the environment.

To generate awareness for the community, SCE will work closely with existing partners (CARE Capitation agencies, Energy Assistance Fund agencies, and LIEE agencies), local government partnerships, social service agencies, and CBOs and FBO.

SCE will also leverage MEU, whenever appropriate, at outreach events, such as: home shows, trade shows, retail stores, malls, sporting, and public relations events. The MEU travels to school events as well as community events where there is the greatest opportunity to reach students /customers and change behaviors. The MEU is designed to engage students and customers on location through the use of physical displays and exhibits that explain energy efficiency and offer a hands-on customer experience.

~~ii.~~iii. Incentive levels

Not applicable

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

College and University sector

Green Campus

Marketing and outreach efforts to increase the transparency of campus energy efficiency goals and results, as well as Green Campus projects: Green Campus Interns will launch termed and ongoing educational campaigns for students, faculty, staff and administrators. In order to achieve and sustain cross-campus buy-in for energy efficiency goals and projects set by individual campuses and/or utilities, the program will:

- Promote campus awareness of energy efficiency opportunities and work being done on campus. Green Campus Interns will publish a monthly newsletter describing their ongoing campus outreach efforts, in order to increase awareness about their projects and those of the campus stakeholders and university system. ~~The students will also coordinate to bring a Mobile Energy Unit (MEU) to campus awareness events where available.~~
- Distribute IOU Energy Savings brochures containing details about our commercial and residential EE, DR, DG and Renewable energy programs are provided on campus to administrators and students, and
- Place an emphasis on working with minority and disadvantaged groups throughout the campus.

Community College Sector

DEEP (SCE only)

This program is targeting community colleges on a limited basis,~~. W~~working with the Community College Chancellor's Office to target campuses with strong sustainability programs.

California Community College IOU Partnership

The partnership will implement a training and education (T&E) program focusing on energy efficiency courses for CCC facilities, operations and maintenance staff. The partnership is also actively working with other CCC and community stakeholders on curriculum and Workforce Education and Training Strategies (WE&T) for students and industry to develop a green career path and workforce

in support of the Strategic Plan goals. The basis of the T&E program will be to coordinate with the IOU training centers to customize existing course offerings in the HVAC, controls, lighting, commissioning, and green building areas and deliver them to the CCCs via direct training at the campuses or via telecasts or webinars to many campuses on a distributed basis.
~~The CCC approach was established in the 2006-2008 program cycle on a pilot basis, and will expand it to a comprehensive program offering for 2012-2012.~~

Adult School / Post High School

CLEO

The CLEO program will promote all energy efficiency and demand reduction programs that would benefit that community using brochures and written materials, interactive displays, newspaper advertising, radio advertising, online website presence, and static displays.

The CLEO program message will encourage customers to participate in SCE's programs and services, and will coordinate with SCG and the local water agencies and will promote increased awareness for customers to understand the structure and opportunities for energy conservation and efficiency, both at home and in their businesses.

K-12 sector

PEAK (statewide)

This program will be targeted to associations, school districts and ~~will be included in up to 8~~ teacher conferences ~~a year~~. Part of this marketing will include targeting low income and disadvantaged communities. The method used to identify low income and disadvantaged communities is by the percentage of students on school lunch programs. In fact, our goal is that 50% of program participants come from the low income and disadvantaged groups.

- ~~Information about our residential EE, DR, DG, and renewable energy programs are provided with our Peak program. This information is intended to be included as part of class discussion as well as taken home to be discussed with parents.~~
- ~~Schools that have used this program and see the impact it has on the students, request the program year after year as well as inform other teachers about the benefits. Even though every new year brings new students, we try to broaden the programs reach to a few new schools every year.~~Design & production of PEAK tradeshow marketing materials including a new marketing brochure and other targeted marketing pieces that are consistent with statewide marketing.
- Participate in community events that support marketing of program.
- Enhance the peakstudents.org website.

Energenius (~~statewide to be established~~PG&E only)

Each year, more than 10,000 teachers receive a targeted mailing that promotes the Energenius program materials. Annually, the Energenius program exhibits at 11 educational conferences to market the program to teachers. Educational conferences provide a way each year to contact more than 15,000 teachers and other educators.

The Energenius Program in 2013-14 will increase its marketing effort by implementing new internal collaborations within PG&E and expanding upon present efforts. Over the last decade the Energenius take home materials for families have included information that support the low-income programs, rebate offers, and home energy efficiency surveys. Each year up to 80,000 families have received this information brought home by their children who have used the Energenius student materials. In addition, PG&E materials on energy efficiency and those on low-income programs are always available at the teacher conferences where the Energenius program is exhibited. Samples of these materials in languages other than English are also displayed.

Going forward, the Energenius program will help facilitate the promotion of the educational materials by staff working with the low-income programs. While in the communities they could distribute Energenius promotional posters and flyers. In addition within PG&E there are staff and volunteers (e.g. Ambassadors, Junior Achievement) who are in contact with schools and/or teachers that could help promote the programs.

In 2013-14 PG&E will be researching ways to link the Energenius information on its website with external partners that interact with schools in its service area.
~~The Energenius program will be marketed in three major ways. A targeted mailing is done twice a year, September and February to about 10,000 teachers statewide. The teacher names are acquired through Market Data Retrieval and the mailing is done by the fulfillment house. Another method of marketing includes attending up to 10 teacher conferences a year. Energenius materials are displayed and teachers can order them at the conference or instructed to go online. Program staff attend professional association meetings, distributing information on educational programs, including but not limited to: The Coalition of Adequate School Housing (CASH), California Association of School Business Officials (CASBO); Small School Districts Association and American Association of School Administrators. Additionally, Energenius staff will make presentations to school district facility managers and school administrator meetings.~~

~~i. A great majority of teachers that order these materials year after year and have made it part of their regular curriculum.~~

~~ii. Our marketing will target low income and disadvantaged communities and, our goal is that 50% of program participants come from the low income and disadvantaged groups.~~

Green Pathways (PG&E only)

Green Pathways will be marketed within the PG&E service area. As a green career curricular resource, Green Pathways complements a range of curriculum and program offerings in schools, CBOs, and for independent and home school students. Environmental and green curricular offerings such as other IOU Connections and Centergies programs, Green and New Energy Academies, Career Technical Education, and ROP and AP classes will be targeted. Other marketing targets include courses that prepare students for their senior year internships, as well as after school programs, green clubs, and career preparation programs through community organizations.

Each target program has corresponding local or state conferences and meetings at which Green Pathways will present informational material. Webinars or short online dialogues will be hosted to share information about Green Pathways. Collaboration and co-marketing with other programs will expand our reach. Social media including Facebook, Twitter, and Green Pathways offer avenues to reach educators, organizations, and Green Gurus.

~~LivingWise~~LivingWise® (SCG and SCE)

Marketing consists of targeted mailing to schools and districts within the affected service area. Information about the program is mailed, emailed, faxed and made available via a web site. Interested schools or teachers would contact the third party vendor to participate in the program. The third party vendor first validates the schools are in IOU service area by contacting the IOU. Once schools have been involved with the program, they request it again in following years as well as refer other teacher to the program.

- Our marketing will also target low income and disadvantaged communities and, our goal is that 50% of program participants come from the low income and disadvantaged groups. Low income and disadvantaged communities are identified by the percentage of students on a school lunch program.
- Information about our residential EE, DR, DG, and renewable energy programs are provided through the ~~LivingWise~~LivingWise® program. This information will be included as part of class discussion as well as taken home to be discussed with parents.
- Teachers truly see the benefit of this program and the impact it has on the students and their families and, it is evidenced by requests year after year to have this program at their schools.

Green Schools (SCE)

Since this program is implemented at the district level, this program is target marketed to school districts in the IOU service area. The program will also continue to expand the reach to low-income students ~~(currently 68% of schools~~

~~have greater than 50% qualifying for reduced school lunches)~~. This is a K-12 school program but ~~at the request of the PUC, we~~ in support of the California Needs Assessment, will make every effort to enroll a greater number of high schools in the program so as to prepare students for careers in the green workforce and/or higher education with an emphasis in a green career.

- Information about our residential EE, DR, DG, and renewable energy programs are provided through the Green Schools program. This information will be included as part of class discussion as well as taken home to be discussed with parents.

~~iii. This program was a two-year program for program cycle 2006-2008 but will be changing to a one-year program starting in 2010-2012~~2013-2014~~. The reason for making this program change was to make this program available to more districts/schools/teachers. We receive many district requests asking us to continue the program; however, we cannot forsake all other customers in our service area. We explain that our hope was for the program to provide a foundation for energy conservation to continue at your school district and, offer our support in other ways.~~

K-College Outreach

Mobile Education Unit (SCE only)

SCE will also use specially trained individuals teach students about energy and promote integrated tools and services to customers, and to help SCE build awareness, while creating a real-time, interactive connection with the customer.

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

- Will continue to work with State Department of Education (Curriculum Commission) on the development of Energy and Utilities Sector Curriculum Standards ~~to be included in curriculum development advisory boards so that we can contribute to tailored K-12 curriculum~~ that includes the science of energy, energy efficiency and some discussion about green careers.
- Will also work with the UC Office of the President of Academic Affairs and the CSU Office of Degree Programs and Educational Opportunities to 1) promote energy minor or major degree programs, 2) collaborate and/or provide expertise in the development of complementary new and revised courses that will form a comprehensive integrated approach to energy education, and 3) consult with campus-specific administrators to define additional courses needed to meet the growing need for graduates with skills in energy efficiency and related fields.

- Will work with CBOs, FBOs, NGOs, and others as part of the through a WE&T taskforce in an effort to advance WE&T goals.
- Will work with water management agencies, air management agencies or other government entities to establish a network of internship opportunities for students in pursuit of a green career.

~~v.~~vi. Similar IOU and POU programs

Similar IOU programs have been described, and no similar POU programs have been brought to our attention.

b) Program delivery and coordination

i. Emerging Technologies program

This program will have regular communication with the ETP, as emerging technologies will be very important in what is taught all levels of the education system.

ii. Codes and Standards program

We have discussed this WE&T effort with Codes and Standards and have agreed to keep the lines of communication open and schedule ongoing discussions.

iii. WE&T efforts

The WE&T Connections Sub-Program will support the other IOU EE Programs as appropriate.

iv. Program-specific marketing and outreach efforts (Budget provide in Table 1)

Refer to Section 6.2.a.iv. for all discussion of marketing and outreach plans.

v. Non-IOU Programs

We currently collaborate with local water agencies with a few of our programs and will continue doing so for the ~~2010-2012~~2013-2014 cycle. Additionally, we will work to involve and coordinate some of our educational efforts with environmental agencies/groups to show the linkages between energy conservation and the environment.

vi. CEC work on PIER

No anticipated direct work with PIER from this Sub-Program's activities.

vii. CEC work on codes and standards

The IOUs will work with the CEC and the IOU Codes and Standards programs to improve code compliance through coordinated education and training delivery.

viii. Non-utility market initiatives

Refer to WE&T Planning Sub-Program Section 6.3 for more discussion on efforts in the education and community sectors.

c) Best Practices

~~2006-2008 Process Evaluations are not yet complete but, we are prepared to make modifications to programs once a list of improvements are provided.~~These programs have incorporated already California Needs Assessment Study recommendations and will work to incorporate Opinion Dynamics study recommendations as the study is released in 2012.

Green Campus – Lessons learned from past program cycles have been transformed into best practices as well as feedback of past process and impact evaluations, and included in program re-designs. Some recommendations provided in mid-cycle that were feasible for implementation, were implemented successfully. Additionally, ~~initial feedback from 2006-2008 process and impact evaluations~~ the California Needs Assessment recommendation have incorporated has been included in the redesign for ~~the 2010-2012~~2013-2014. ~~transition period program cycle. Final evaluation reports and recommendations are not yet available.~~

DEEP – DEEP was created as a result of the CA Needs Assessment study form 2011. The study identified a gap in service for this community college sector and SCE moved quickly to close that gap by developing an innovative community college program.

CLEO - Media marketing has proven to be the primary mechanism to generate community awareness about the CLEO Program and its offerings. Internal metrics further outline the importance of the marketing mix, as well.

The program relies on a dynamic EM&V to gauge the program's success and to listen to the customer for feedback. These are transformed to 'lessons learned' and incorporated in to the program strategy and offerings. For example, in 2006-2008, costly television spots were swapped for effective newspaper and radio spots, as illustrated above.

PEAK – The first PEAK program was launched in Laguna Beach in 1979 and since then has evolved into the comprehensive, standards based program that exists today, reaching thousands of students across California. Past experiences have lead to best practices in the following years. Additionally, PEAK is the recipient of the 2010 Governor's Environmental and Economic Leadership Award.

Energenius - This educational series continually evolves to address the changing needs of classroom teachers and their students. The Energenius program strives to create quality materials that reflect California State Department of Education (CDE) frameworks and connect with content standards.

Another important practice that has increased in importance over the years is the early involvement of classroom teachers beginning with pre-development focus groups. Teachers are recruited to review draft materials and submit written evaluations. The piloting of selected lessons and activities with students is encouraged. Input from teachers, both formal and informal, has been valuable in the development of the teacher guides, student activity books and other materials found in the eight Energenius programs.

Exhibiting and meeting teachers at educational conferences has been another important practice. Besides providing a "pulse" to what is going on in schools teachers at these conferences offer numerous comments and ideas related to existing and future materials. Teachers for example, at an early childhood conferences were asking when PG&E will have its pre-kindergarten program as we know that "good energy-saving habits" begin early. With this encouragement, a new Energenius pre-K program is being launched in 2012. ~~The Energenius educational program series has flourished since 1991. Over the years the program materials have been updated and enhanced and at present new units are under development. Teachers are always used to review and field test materials during the development phase and on-going evaluation of existing materials allow educators to have input into updates and revisions.~~

~~Energenius materials now under development will all have content related to green careers and jobs, greenhouse gas emissions, global climate change, environmental impacts of energy production and use. As age appropriate this content will also be added to the existing program K-8 materials. The appeal of all the Energenius program materials includes that lessons and activities make clear connections to California Content Standards in science and other disciplines. These correlations to the Energenius materials are important to teachers and school administrators and help ensure that the content is taught.~~

LivingWise® - Lessons learned from past program cycles have been transformed into best practices as well as feedback of past process and impact evaluations, and included in program re-designs. Some recommendations provided in mid-cycle that were feasible for implementation, were implemented successfully. Additionally, the California Needs Assessment recommendations have been incorporated ~~initial feedback from 2006-2008 process and impact evaluations has been included~~ in the redesign for ~~the~~ ~~2010-2012~~2013-2014~~transition period~~~~program cycle~~.
~~Final evaluation reports and recommendations are not yet available.~~

Green Schools - Lessons learned from past program cycles have been transformed into best practices as well as feedback of past process and impact evaluations, and included in program re-designs. Some recommendations provided in mid-cycle that were feasible for

implementation, were implemented successfully. Additionally, the California Needs Assessment recommendations have been incorporated in the redesign for ~~the~~ 2013-2014 ~~transition period~~.
~~Additionally, initial feedback from 2006-2008 process and impact evaluations has been included in the redesign for the 2010-2012~~2013-2014 ~~program cycle. Final evaluation reports and recommendations are not yet available.~~

d) Innovation

DEEP – This program was developed and implemented to address a gap in services identified in the CA Needs Assessment study of 2011.

Energenius - The program materials have been developed by PG&E so the cost for implementing statewide (printing and developing new programs with statewide reach) keeps the cost low. It is relatively easy to make changes to the curriculum and incorporate information about energy efficiency programs and services, issues related to global climate change, and green careers.
~~**Green Schools** - Its unique approach integrates school facility energy savings with energy savings instruction and action for students to use in school, their homes and their community.~~

e) Integrated/coordinated Demand Side Management

~~Refer back to Section 6.2.a.ii for more information.~~
IDSM concepts are incorporated in Connections programs on an age appropriate basis, as described in previous sections.

f) Integration across resource types

All of the University, Community College, and K-12 components will ~~ensure that~~include curriculum to help students understand the science of energy, energy efficiency and conservation, demand response, and renewable and distributed generation, as well as the environmental and economic impacts of energy consumption. Also, the goal is for students to understand the energy-related environmental connections, such as global climate change and the linkage between greenhouse gas emissions and energy use. In addition, materials will go beyond the energy efficiency fundamentals and introduce information on careers and job opportunities in energy-related fields and in the green economy.

g) Pilots

PG&E's Green Pathways program will be transitioned to a local program in 2013-2014, as previously described.

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 plan will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the utilities and the Energy Division. Development of these plans will occur after the final program design is approved by the CPUC and, in many cases after program implementation has begun, since the plans need to be based on identified program design and implementation issues.

~~IOUs will continue to work with EM&V to assess market effectiveness and impacts of educational education training programs. IOUs will also work collaboratively in the development of their pilot projects described in Section 6.1.g. The IOUs currently working with Opinion Dynamics with regard to final process and impact program evaluations conducted in 2008. Once the evaluations are complete, the IOUs will review and determine if and how to incorporate into our program plans.~~

7) Program Diagram

See above Section 6.2.

8) Program Logic

Below is the logic model for the WE&T Connections Subprogram. ~~:~~

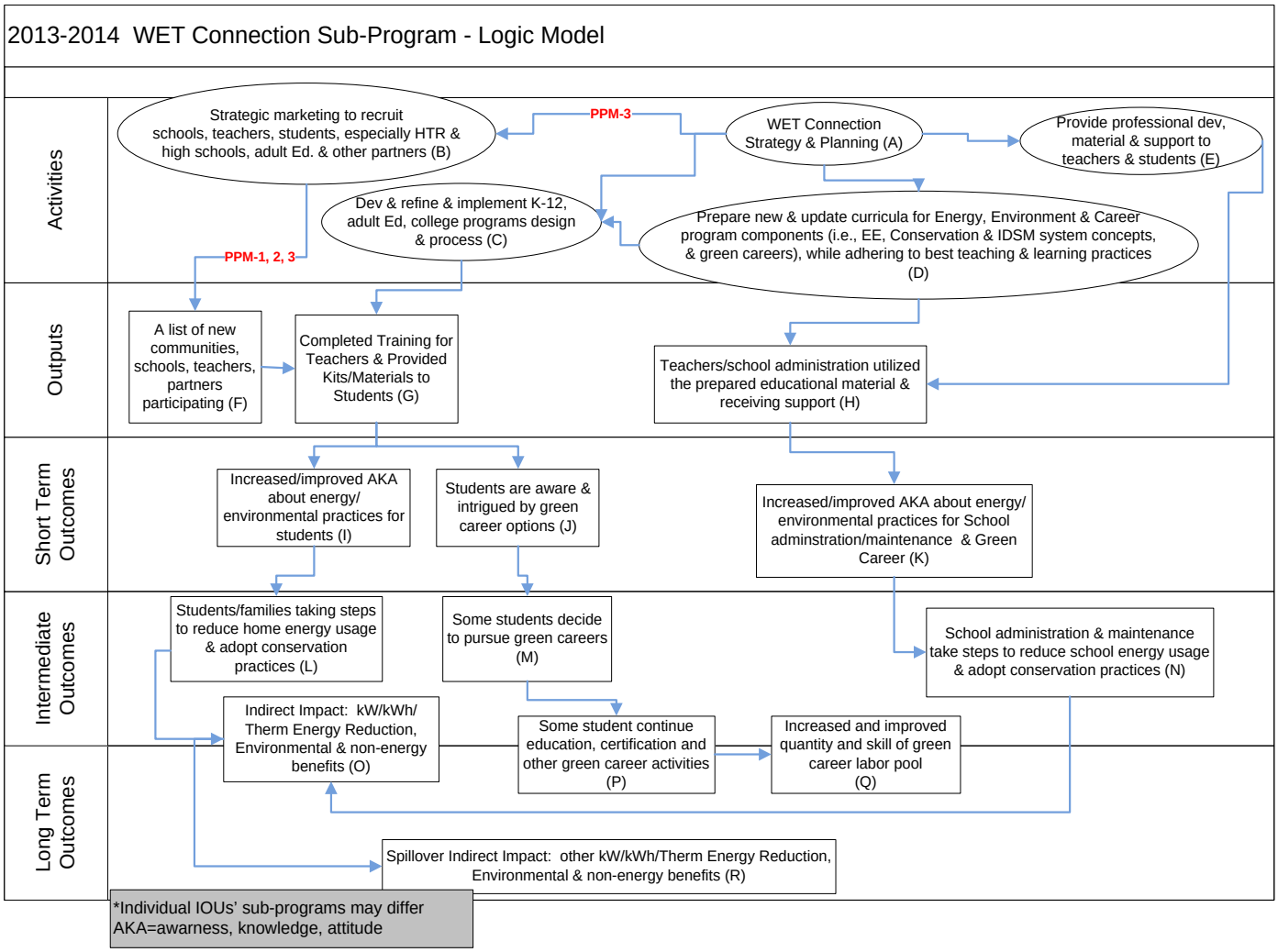
The activities shown in the Connections logic model fall into two primary categories. The first is focused on marketing programs, especially to hard-to-reach and disadvantaged communities. In addition to marketing efforts directed at Title 1 schools, this activity will include partnering with organizations that operate in the communities of Title 1 schools.

The second focus of the Connections activities is on preparing new curricula and refining program design and processes. It is expected that these activities will produce programs and curricula that lead students to understand energy and conservation and their importance, as well as how to use energy efficiently in their households. They are also expected, as a result, to influence their families to do the same. Likewise, some curricula support the incorporation of energy efficient practices and technologies in classrooms and schools.

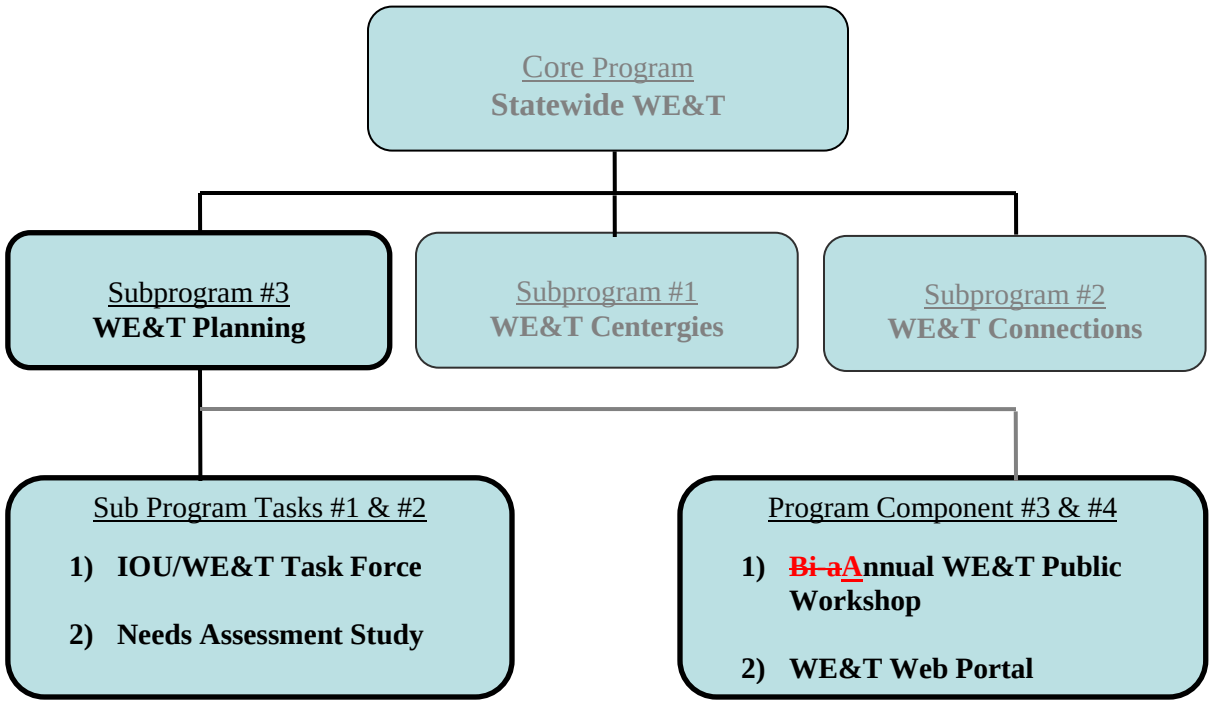
The curricula and program design will include information and resources on career options in energy-related fields, with an intended outcome being that some of the students exposed to green career resources will ultimately decide to pursue green careers as a result.

All of these activities are expected to lead to classes that improve AKA of students, their families and teachers and encourage students to pursue green career options. Activities focusing on saving energy on school campuses will also lead to improved AKA about

energy and environmental practices within the school and at home for the students. Ultimately, these activities and outputs are expected to result in indirect energy savings.



6.3) Sub-Program Implementation – WE&T Planning, PGE21073



a) Statewide IOU Coordination

i. Program name

Statewide WE&T Planning is a Sub-Program within the Statewide WE&T Core Program, formed by the IOUs as a direct response to the California Long-Term Energy Efficiency Strategic Plan (Strategic Plan). The WE&T Planning Sub-Program involves management and execution of several strategic statewide planning tasks intended to help sustain momentum in long-term WE&T development and strategic planning, including identification of funding streams and market sector specific needs.

The WE&T Planning Sub-Program was created to facilitate implementation and completion of the four key strategic tasks identified in the Strategic Plan to drive long-term WE&T development:

1) Form an IOU/CPUC WE&T Task Force
2) Conduct a Needs Assessment
3) Create a WE&T Specific Web Portal
4) Annual WE&T Public Workshops

In order to meet the state's growing workforce demand, a concerted planning effort that includes a variety of initiatives and funding sources beyond ratepayer funds is required. Such an effort will demand the collaboration and involvement of secondary and post-secondary education leaders, technical and professional organizations, state agencies, economic and labor development organizations, utilities, and construction and manufacturing businesses that deliver energy efficiency solutions. The IOUs will support the larger statewide effort, and will help ongoing development of WE&T programs through their WE&T Planning coordination.

ii. Program delivery mechanisms

Implementation activities will be informed by the statewide scoping study and needs assessment. The IOUs are expected to direct much of the work needed to complete the assessment, which will identify existing WE&T infrastructure and capacity, anticipate future needs, and specify urgent gaps that need to be addressed.

Based on the statewide needs assessment, a strategic plan, outlining at least existing and anticipated green collar jobs and the skill sets that are likely to be demanded by industry, will be presented. Organizing these skill sets into practical career paths should influence communication, development, and implementation of future WE&T programs.

Funding for actions based on the above mentioned scoping study, needs assessment, dialogue with stakeholders and task force conclusions will be required to impact the WE&T needs in time to support the urgent needs of the Integrated Demand Side Management (IDSM) Portfolio. Such implementation actions may include collaboration with appropriate educational sectors as prioritized by the needs assessment to act as catalysts to enhance conventional educational efforts to accelerate the mainstream adoption of green career support.

The statewide IOU Planning tasks will be shared among any other statewide planning and training implementers and be coordinated, where plausible, with the IOU WE&T Centergies and IOU WE&T Connections Sub Programs. A statewide WE&T web portal could ultimately serve as a central repository for exchanging training and job opportunities, as well as statewide and national developments linked to California workforce initiatives.

Four specific key actions to be completed in the near term to drive long-term WE&T development and strategic planning. The Taskforce formed from the California strategic plan is intended to identify funding streams other than ratepayer funding, identify market sector specific needs, and inform short-term actions to initiate longer-term strategies for each market and educational sector.

1) Energy Efficiency WE&T Task Force. The Task Force is expected to be comprised of energy efficiency and demand side management IOU

program representatives, CPUC staff, labor, industry representatives, and educational experts to fulfill administrative functions including: developing a needs assessment RFP; selecting the third party to conduct the needs assessment; and managing the needs assessment evaluation. The Task Force members will continue to help implement the goals and strategies set forth in this Strategic Plan. Beyond the representation listed above, the WE&T Task Force will rely on commitments for involvement from educators and educational administrators, labor representatives, community-based job training leaders and other non-IOU energy efficiency program implementers

The WE&T Task Force is in the early stages of formulation. Reports on existing WE&T related programs and efforts as well as discussion of new WE&T programs and efforts will be core topics of these meeting sessions. The Taskforce will provide a formal framework for all members to get updates, provide feedback and be actively involved in discussing studies, programs, projects, and WE&T efforts being implemented under the strategic plan and other related state initiatives. Task force meetings represent work sessions to review and refine WE&T coordination efforts among stakeholders.

During 2013-2014, the Task Force is no longer in its early stages of formulation and will continue to engage with stakeholders and provide updated reports on WE&T programs and efforts.

An update on Needs Assessment recommendations was provided in the Joint IOU WE&T Annual Report, submitted on May 1, 2012. Per the Guidance Decision, the IOUs will work with Commission Staff on the WE&T Task Force to develop a data request template to be submitted by Staff as needed for periodic updates on the status of the utility's Sector Strategy activities. This provides a more specific and extended role for the Task Force.

2) *WE&T Needs Assessment:* ~~An in-depth formal statewide training and education resource inventory and needs assessment is necessary for long-range strategic planning and delivery. The needs assessment and resource inventory will be structured to produce short-, near- and long-term workforce strategies to support each sector defined in the Plan. The assessment will be completed by a third-party with its process managed by the CPUC and IOUs, in collaboration with the California Department of Education and other involved stakeholders. .~~ The Workforce Needs Assessment study identifies preliminary findings, and in some instances, recommendations, for statewide WET program and/or subprogram considerations. The Joint Utilities ~~will~~ worked collaboratively with Energy Division staff to select a subset of these findings and/or recommendations to evaluate implementation feasibility as part of the

2010-2012 program activities, which were approved by the Commission through a joint WE&T Advice Letter. The findings of the Needs Assessment (ordered in Decision 08-09-040) and recommendations ~~will be~~were presented within one month of dissemination at a public workshop to allow for public comments and further discussion. The findings ~~will~~ were ~~also be~~ made publicly available through posting to the energy efficiency web portal (engage360.com) to the service list in this proceeding and the Distributed Generation and Demand Response proceedings. Within 60 days from the date of the workshop the utilities will jointly file an Advice Letter to modify the existing Workforce Education and Training statewide program consistent with the Needs Assessment.

May 2012 PIP Addendum update: In compliance with Commission Decision 09-09-047, a joint IOU advice letter was approved by Energy Division by letter dated October 28, 2011. PG&E Advice 3212-G-B/3852-E-B can be found at this link: http://www.pge.com/nots/rates/tariffs/tm2/pdf/ELEC_3852-E-B.pdf.
In addition to the information provided in PG&E's Advice 3212-G-B/3852-E-B, in 2012, PG&E launched a Commercial EE Sector Strategy at a Strategic Convening (Convening) in order to get alignment and coordination around the creation of the Commercial EE jobs necessary to reach PG&E's portfolio goals, as well as initiate new partnerships. PG&E has initiated steps to develop sector strategies in other sectors, including the commercial building HVAC sector, the architectural design sector, and small/medium business building audits. PG&E has restructured educational programs toward structured course series to serve particular sectors. PG&E has also allocated resources and partnered with community colleges and workforce investment boards to assist unemployed building operators toward completing a certificate program series.
Details on these efforts will be provided in the 2012 WE&T Annual Report.

IOUs will implement WE&T sector strategy programs started in 2012. In compliance with Decision (D.) 09-09-047, the Investor Owned Utilities submitted for approval their joint IOU Advice Letter (AL) and supplemental filing proposing modifications to the existing Statewide Workforce Education and Training (WE&T) program based on the recommendations of the WE&T Needs Assessment. The Needs Assessment recommendations focused on a Sector Strategies approach, working closer with trades associations, collaborating with more parties on credentials and certifications, restructuring Energy Center course presentment, support for curricula development, targeting of disadvantaged workers, and evaluation of workforce outcomes. Other relevant Needs Assessment recommendations focused on collaboration with the all educational sectors, career education, and evaluation plans on K-12 programs. The WE&T Advice Letter provided a general outline of the plan the IOUs would be following

to achieve progress for enhancing and more clearly demonstrating necessary changes to the IOU WE&T program to align with shifts in IOU resource program requirements and industry workforce demands. Comments submitted prior ~~previous~~ to the Guidance ~~d~~Decision illustrate the varying uncertainty on long-term career pathways into green jobs. The IOUs indicated actions to be achieved during 2012 based primarily in response to the Needs Assessment recommendations, recognizing there were impending change forthcoming in such areas as IOU Residential, Commercial and HVAC SW programs. The current 2013-2014 Guidance Decision ~~09-11-014~~ provides significant guidance that will allow the IOUs to move more decisively on its Sector Strategies action plan. The general plan of action proposed for 2012 will take greater shape and the 2013-2014 period will provide a critical space to apply and align Sector Strategies approaches with the Residential sector Energy Upgrade California program, Emerging Technologies, Commercial Buildings programs and Codes & Standards.

Per the Joint IOU Advice Letter, activities to develop sector strategies that are currently in progress and will be put into place as other workforce sectors become part of the Energy Centers' focus include:

- Develop partner criteria desired to help achieve goals and objectives for each targeted Sector Strategy area
- Identify potential Sector Strategy Partners based on desired criteria and existing collaborations as well as necessary "new" ones for each targeted Sector Strategy area
- Outreach to identified partners for each targeted Sector Strategy area
- Initiate IOU / Partner working group for each targeted Sector Strategy area.
- Identify shared goals & objective for each targeted Sector Strategy area.
- Develop a shared vision & mission statement with corresponding goals & objectives for each targeted Sector Strategy IOU / Partner working group
- Identify and develop timelines & roadmaps / action items / roles & responsibilities for each targeted Sector Strategy IOU / Partner working group
- Identify reporting vehicles and reporting schedule for each targeted Sector Strategy IOU / Partner working group
- Within each Sector Strategy working group, initiate identification of lessons learned / best practices and executable partnership activities that help achieve goals and objectives previously identified. These lessons learned, best practices and activities will be included in program planning for the next program cycle.

The IOUs propose continuation of the approved joint WE&T Advice Letter plan of action through 2013-2014 in coordination with changes occurring among resource programs directed in the Guidance Decision, as well as workforce skills and qualifications demanded in the market place.

PG&E, through its PowerPathway partnership network, will continue to provide articulated curricula and train the trainer sessions to extend the reach of our workforce education and training beyond our current student base.

3) *WE&T Web Portal:* The web portal will include links to various demand-side management (DSM) related training programs and will allow for a single point of communication. The portal will also serve as a repository for demand-side management and energy efficiency training, educational conferences, and career opportunities. This portal will be created and funded in collaboration with other appropriate entities, and linked to the statewide energy efficiency web portal.

The initial planning was to develop the WE&T web portal within the existing EE Web Portal (www.engage360.com). However, the October 13, 2011 Assigned Commissioner's Ruling from Commissioner Ferron required that IOUs suspend all spending on the EE web portal. Further direction was provided in D. 12-05-015 (OP 127) that the web portal content from Engage 360, shall be fully migrated to the Energy Upgrade California web portal, with the Engage 360 web portal decommissioned, by no later than the end of 2013. Once the web portal content has been migrated, the WE&T Program seeks to also minimize web portal maintenance costs while maintaining its commitment to delivering a workforce portal. IOUs will work with the ME&O program to explore creating web content linked to the statewide Energy Upgrade California web portal.

IOUs propose continuing portal development of relevant WE&T functionality under the EUC portal in 2013-2014:

- Include links to training programs, adult educational facilities, labor and trade organizations, as well as IOU training.
- Include an events and activities component that highlights upcoming green energy conferences and workshops.
- Feature a Career Center that will be organized around the Energy Upgrade California Program.
- Include information on industry authorities, associations and advisory bodies, including the WE&T statewide Task Force.
- Leverage features of the EUC web portal that support profile pages, online repository and connectivity with IOU programs and market opportunities. Integrate/utilize available social web technologies/applications to build online interaction.

- Leverage connectivity tools/functionality of the EUC web portal to connect users with specific interests, job listings, training program announcements, webinars, and conferences.
- Explore the ability for users to communicate with other users, hosted on the site.

4) *Identify And Implement Specific Programs For Each Educational Sector:* WE&T needs are best studied and approached by supporting educational sectors. Thus, five educational sectors have been identified as key in fulfilling WE&T needs and opportunities: Kindergarten through high school, adult education and community colleges, technical training, colleges and universities, and minority, low income and disadvantaged communities.

iii. Incentive levels

Not applicable

iv. Marketing and outreach plans

Market Transformation Information

Completion of the Needs Assessment, along with the aggregation of other developing study workforce training could be used to establish baselines from which to establish measureable goals. A few reasonable metrics to measure market transformation in the interim might be identifying funding streams for statewide parties to implement WE&T programs; WE&T Taskforce initiated actions, status and results; measuring utilization of WE&T web portal statistics.

Market Barriers and Solutions

The WE&T Planning Sub Program is intended to focus performs tasks that keep statewide stakeholders connected and focuses on delivering a sustainable long-term education and training network that creates a green jobs workforce. The tasks to be completed involve leveraging the resources of the CA-IOUs to help disseminate available statewide energy efficiency curricula and training from among education, labor, industry and grassroots community sectors. This will require a considerable commitment and trust among disparate agencies and entities that make up these sectors where there are inherent barriers which mike it difficult to form an effective energy career training network.

The WE&T Planning is a complimentary program to make the best use of IOU resources to achieve multiple objectives. The IOU education and training activities primarily center around utilization of Energy Center and Training Center assets, but training efforts now reach beyond the internal walls of IOU facilities shown in the form of relationships with non-IOU training contractors, education institutions, community groups and governmental agencies. This is

important in order for IOUs to help share a role in the growth of coordinated statewide workforce education and training. But just as the IOUs have pursued statewide consistency in offering education and training over several years, expectations to see the same occur among California's various education and training stakeholders cannot be over simplified.

The IOUs have represented a reliable and experienced delivery channel of education and training program curricula when few other options have been available. Like other service providers, all parties must expect a process that will involve progressive steps toward solutions that make achievement the State's energy objectives reasonably possible.

Advancing Strategic Plan goals and objectives

In support of the Strategic Plan vision that "by 2020 California's workforce is trained and engaged to provide the human capital necessary to achieve California's economic energy efficiency and demand-side management potential," IOUs plan to implement a variety of workforce development strategies that encourage and nurture the development of "green collar" jobs through their strategic planning initiatives, and education and training programs.

Training that advances the business of DSM, EE, and green energy technology benefits students, who then enter green careers and advance the State's very intense energy efficiency goals. Statewide IOU representatives, key traditional education sector representatives, the business community and professional / industry associations at all levels will work together to share protocols and best practices for energy efficiency education through the WE&T Taskforce.

WE&T Planning tasks are intended to outreach to minority, low income and disadvantaged communities for greater participation. This more focused and targeted step will be coordinated with IOU Low-income, Community outreach and Community affairs departments, as well as coordination, where possible, with Marketing, Education and Outreach.

California must quickly increase and integrate statewide efforts to train people at all levels to plan, administer, and deliver energy efficiency in the public and private sectors. The effort will require planning among secondary and post-secondary educational leaders, technical and professional organizations, state agencies, economic and labor development organizations, utilities, and construction and manufacturing businesses that deliver energy efficiency solutions. The Statewide IOU WE&T Program is directed to initiate ongoing dialogue with market participants and education stakeholders by means of annual stakeholder public workshops to help advance a long-term workforce training designs and plans at all levels of California's educational systems and accommodate the dramatic increase in energy efficiency potential envisioned by the Strategic Plan.

The proposed Statewide IOU WET Program relies on collaboration among CPUC Staff, representatives from the education sector, state bodies, each of the IOUs, professional/trade organizations, and the business community to be successful in initiating energy efficiency training needs, along with recommended existing and potential educational delivery strategies and resources that will serve each market an educational sector in the Strategic Plan through 2020 and beyond.

The WE&T Program is constructed to work in cooperation with the IOUs and the WE&T Taskforce to identify sponsors and funding sources to design and expand effective workforce training activities and projects throughout the state.

Strategy 1-1: Define, initiate and drive long-term WE&T development and strategic planning, including identification of funding streams and market sector specific needs.

Implementation Actions:

Potential Stakeholders	• Statewide IOU Team, including other utilities as well as internal partners • CPUC Staff • Key traditional education sector representatives, including UC/CSU, community colleges, and accreditation programs • Business Community • Professional organizations, including the AIA and United States Green Building Council
Sub Program Implementation	• Conduct an in-depth formal statewide energy efficiency training and education resource inventory and needs assessment. • Assess current and alternative funding and partnership mechanisms for WE&T activities. • Create a WE&T specific Web portal and identify entities to co-fund and co-sponsor the Web portal with utilities. Partners shall contribute content toward Web portal • Initiate regular on-going dialogue with broad group of market participant and education stakeholders by way of annual workshops. • Establish task force to oversee and help to evaluate utility specific WE&T activities.
Delivery Channel	*WE&T Taskforce* – Conduct resource inventory and needs assessment. *WE&T Taskforce* – Assess and summarize various funding mechanisms for WE&T activities as a needs assessment element. *WE&T Taskforce* – Work with statewide team to develop Web portal for workforce needs. *WE&T Taskforce* – Facilitate the convening of stakeholders for initial and ongoing dialogue with stakeholders. *Ed Train* - Collaborate with WE&T program to inform the process. *WE&T* – Be specific about the scope of work to define what can/will be done and what lies outside the scope of the task force.

Other long-term strategies and implementation efforts included as goals for the Statewide IOU WE&T Program are addressed in detail within the WE&T Centergies and WE&T Connections Sub-Program sections of the PIP. In summary however, they include:

Strategy 1-2: Support the community college and adult education efforts to allow students to develop their education based on visible career paths in energy efficiency and related fields

Potential Stakeholders	• California Community Colleges Chancellor's Office • California Board of Education • Adult Education Leadership • Department of Employment Development • Industry and Labor Associations • Business Community • Professional organizations with members who need to maintain accreditation • Building Operators Certification Program (BOC)
Sub Program Implementation	• Utilize community colleges to provide technical training, such as HVAC maintenance and building operator certification. • Develop appropriate linkages with K-12 programs, focusing on high-school "green academy." • Coordinate with the community colleges and adult education sector to incorporate energy and resource efficiency. Component into their career laddering concept. • Explore ways of disseminating materials electronically through effective use of the Internet.

Strategy 1-3: Incorporate energy / resource efficiency and demand side energy management into traditional contractor and technician training, such as for plumbers and electricians, and expand training resources to produce target numbers of trained workers.

Summary:

Potential Stakeholders	• California Community Colleges Chancellor's Office • Community College HVAC program • California Board of Education • Adult Education Leadership • Department of Employment Development • Industry / Labor Associations • Technical and Vocational Training Programs
Sub Program Implementation	• Expand or establish training curricula and training and professional career development programs in building construction, services, building operator and other energy efficiency technical fields. • Establish or expand key financial and placement partnerships that demonstrate employment prospects for trained personnel. • Expand upon existing certification programs to try to include student certificate in "green workforce."

Strategy 1-4: Create or expand college and university programs with energy efficiency focus and foster green campus efforts to apply this knowledge in clear view of students and faculty.

Summary:

Potential Stakeholders	• California Community Colleges Chancellor's Office • WE&T Task Force • UC/CSU education system • ACEEE education committee
Sub Program Implementation	• Utilize existing UC/CSU extension programs to incorporate a continuing education curriculum component. • Work with Universities and colleges to expand professional energy related degree offerings and contribute to tailored curriculum. • Work with colleges and universities to formalize internship opportunities with energy and resource efficiency institutions, including engineering firms, architecture firms, and utility programs.

Strategy 1-5: Develop K-12 curriculum to include energy efficiency fundamentals (e.g., math, science, behavior) across various content areas and identify how career education in energy-related fields can be incorporated across the grades.

Summary:

Potential Stakeholders	• CPUC Staff • Key traditional education sector representatives • California Board of Education • WE&T Task Force • Business community • After-school community education programs
Sub Program Implementation	• Identify opportunities to leverage governor's career technical initiative. • Identify opportunities to work with the California Department of Education to develop curricula with specific content for energy and GHG issues. • Support outreach into • K-12 schools on energy, water and environmental issues. • Support K-12 schools to develop curricula that support their local communities as part of class assignments.

Strategy 2-1: Collaboratively identify appropriate goals and strategies to build California's energy efficiency workforce through 2020, focusing on training that increases participation from within minority, low-income and disadvantaged communities in achieving California's economic energy efficiency potential.

The number of units receiving education and weatherization services during 2010-2012 program period is expected to expand greatly. During 2009, WE&T will focus on expanding behavior modification in existing training programs to increase emphasis on energy efficient practices.

Additionally, training in the form of train-the-trainer sessions may be possible with third party groups to design and expand teaching of weatherization and energy efficiency in minority and disadvantage communities specifically.

Summary:

Potential Stakeholders	WE&T Task Force • CPUC • Key traditional education sector representatives • Business Community • California Community Colleges Chancellor's Office • Continuing Education Programs • Laney and Delta College HVAC program (PG&E) • Department of Employment Development • Industry / Labor Associations • Technical and Vocational Training Programs (e.g., State Prison System) • Community Youth Centers (e.g., YMCA)
Sub Program Implementation	• Leverage Marketing Education and Outreach and WE&T task forces to partner with community based organizations and provide targeted outreach on employment opportunities with energy efficiency. • Develop Low Income WE&T Plan • Train qualified diverse business enterprises from minority, low-income and disadvantaged communities to undertake or expand efficiency services.

b) Program delivery and coordination

WE&T Planning includes involvement from a wide range of stakeholders. Implemented in the appropriate manner, WE&T Taskforce members will represent technology, industry, government, community groups, utilities, education and non-energy segments which should facilitate discussion on ways to share current and emerging opportunities to expand the scope of existing WE&T training curriculum, but introduce new WE&T training activities in the area of emerging technologies, codes and standards, and non-IOU programs.

c) Best Practices

Formulation of statewide WE&T Taskforce and regularly scheduled meetings with statewide WE&T stakeholders represent a best practice that facilitates open discussion among are vested parties. The WE&T planning process will have best practice inputs gathered from evaluation of IOU education and training programs to rely upon in discussing real opportunities and the long-term considerations of programs being shared and presented to the WE&T taskforce and IOUs.

d) Innovation

The whole program can be considered innovative to the degree that statewide coordination and strategic planning is being done, which will help shape California economics in the near term.

e) Integrated/coordinated Demand Side Management

WE&T Planning includes involvement from a wide range of stakeholders. The IOU WE&T representatives in support of the long-term workforce strategy of California to achieve statewide coordination, will work to create coordinated technology demonstration and DSM training to ensure there are no missed opportunities for offering IDSM training and that opportunities to receive such training are made available to the fullest extent possible which will aid efforts in achieving energy neutral buildings by 2020.

f) Integration across resource types

WE&T Planning includes involvement from a wide range of stakeholders. Implemented in the appropriate manner, WE&T Taskforce members will represent technology, industry, government, community groups, utilities, education and non-energy segments and facilitate discussion on ways to share current and emerging opportunities to expand the scope of existing WE&T training curriculum to include water and GHG mitigation.

g) Pilots

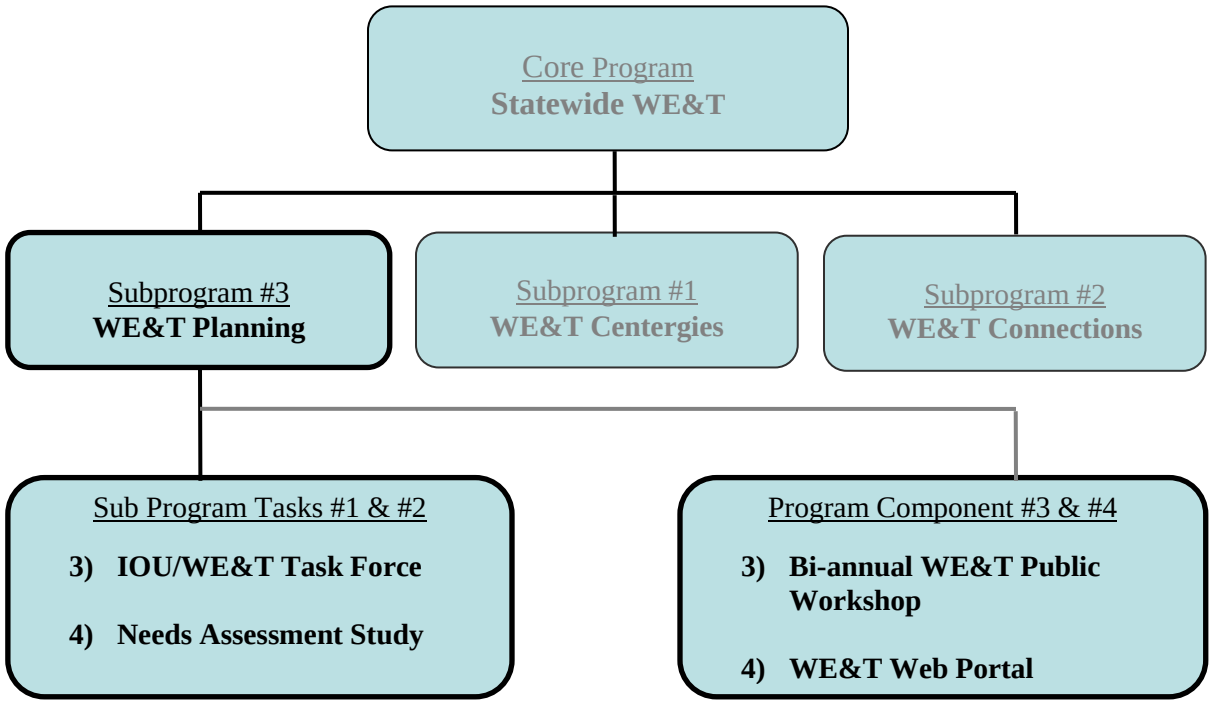
The whole program can be considered innovative to the degree that statewide coordination and strategic planning with regard to workforce training is being done in a manner that require iteration and learning in order to arrive at implementation models and action steps that can be deemed effective.

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 plan will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts will be developed collaboratively by the utilities and the Energy Division. Development of these plans will occur after the final program design is approved by the CPUC and, in many cases after program implementation has begun, since the plans need to be based on identified program design and implementation issues.

~~IOUs will continue to work with EM&V to assess market effectiveness and impacts of educational education training programs. Collaborating with the WE&T Taskforce, IOUs will take input from stakeholders on proposing reasonable and supportable ways to measure workforce training effectiveness, market transformation and progress in achieving long-term strategic goals.~~

7) Diagram of Program



8) Program Logic ~~Model~~

~~Note: On December 2, 2010, the Commission issued Resolution E-4385, approving Program Performance Metrics (PPMs) for Pacific Gas & 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 Workforce Education and Training.~~

See Centergies and Connections subprograms for revised logic models for 2013-2014, replacing all 2010-2012 logic models.

ATTACHMENT 1

2013-2014 WE&T Program Implementation Plan Addendum

Joint IOU Response to Staff Request for Additional Information[i]

Energy Division application guidance requested the IOUs include in this addendum the following information, as applicable, for relevant WE&T programs:

- Describe "soft skill" training efforts such as business and sales development, marketing skills, and hands-on training strategies.

  IOU Response:
  "Soft skill" training efforts include classes that teach students critical non-technical skills that will help them during the interview process and/or while on the job interacting with customers. Such skills include sales and marketing, communication skills, interview techniques, resume writing, and workplace conduct.

  There is some 'soft skill' training provided at IOU Energy Centers through, and as part of, industry member organizations. Rather than conduct these trainings themselves, the IOUs propose to provide students a list of resources available through existing organizations like workforce investment boards, community college courses, and professional development resources. Where appropriate, IOUs will also partner with organizations that provide such soft skills to better direct interested participants to resources for acquiring soft skills.

  PG&E will build upon its "soft skills" classes, including courses on financial analysis classes for selling energy efficiency. Such classes provide the energy efficiency workforce tools for calculating and presenting the right financial model for presenting a case to invest in energy efficiency to various audiences, including customers, CEOs, individual contributors, etc.

- Include estimates of training related costs for programs, participating contractors, and customers, as well as related increases in energy savings benefits, lower costs over lifecycle of equipment, and creation of higher quality jobs

  IOU Response:
  As the IOUs implement sector strategies, they will gather estimates of training related costs for programs, participating contractors, and customers. IOUs will work with EM&V to assess and track related increases in energy savings benefits, lower costs over lifecycle of equipment, and creation of higher quality jobs.

  At the time of drafting this Program Implementation Plan, since IOUs are in the process

of planning sector strategies for various sectors, information requested herein does not yet exist. However, requested information about CALCTP is provided in the Centergies Subprogram and provided again below for reference.

1) When the program requires CALCTP certified installers, the cost to the customer for the labor component of the project may be 10% - 15% more than prior when no certification was required.
2) Compliance and permitting cost are directly associated to the cost of proper training programs for designers, installers, manufacturers, etc. which may be equivalent to an additionally 20% to the project cost. However, proper collaboration with industry associations and manufacturers may offset this cost.
3) With proper incentive levels and education of the segment, it is anticipated that adoption/participation would increase since the misperceptions of advanced lighting control systems, potential for demand response and how DR or ADR works will be corrected causing more demand for the control solution.
4) It has been proven with advanced lighting control system assessment projects at PG&E, SCE and SDG&E that the customer will achieve a minimum of an additional 30% savings over traditional lighting efficiency measures. And dependent upon the level of control allowed to individual employees, savings may increase an additional 5% - 10%. With the opportunity to participation in DR, the customer will achieve even greater cost savings due to the ability to shave or control peak loads. The actual dollar values will be determined as the program adoption occurs and customer site performance is monitored and data collected.
5) Additional benefits include: a. systems do not get overridden due to better understanding as well as the system being designed and installed. Also, ease of proper training of customer personnel regardless of turnover with the local certified installer; b. SCE proved in their assessments, fewer, if any, call backs will be experienced when the system is installed by a certified installer. In contrast, an SDG&E project required numerous call backs before the system was able to be commissioned when a non-certified installer was used. c) increased proper maintenance, d) higher visibility of actual energy use in lighting due to the potential of graphic interfaces and other reporting. e) ability to track GHG emission reductions. f) create market disruption as customers begin talking to others about how well their advanced lighting control system is working and saving them money due to proper design and installation.

- Identify existing skill standards and certification supported by the training activities. Identify any new standards to be developed including identification of partnership entities that will help develop them. Include descriptions of efforts to ensure program contractors support high road strategies and track and report on these efforts.

IOU Response:
The IOUs will work with existing and new industry partnerships and applicable DSM programs to support and promote new skills standards training. Currently, the IOUs offer education and training from among the following continuing education and certificate programs and organizations:

- American Institute of Architects (AIA)
- American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)
- APPA: Leadership in Educational Facilities
- ASIS International
- Association of Energy Engineers (AEE)
- Association for Facilities Engineering (AFE)
- Building Owners and Managers Association (BOMA)
- BOMI International
- Building Performance Institute (BPI)
- California Home Energy Rating System (C-HERS)
- Carpet and Rug Institute (CRI)
- Cleaning Management Institute (CMI)
- CoreNet Global
- Counselors of Real Estate (CRE)
- Institute of Real Estate Management (IREM)
- International Brotherhood of Electrical Workers (IBEW)
- International Facility Management Association (IFMA)
- ISSA, The Worldwide Cleaning Industry Association
- National Association of the Remodeling Industry (NARI)
- National Council on Qualifications for the Lighting Professions (NCQLP)
- National Electrical Contractors Association (NECA)
- North American Technician Excellence (NATE)
- San Diego Association of Realtors (SDAR)
- Society for College and University Planning (SCUP)
- Society of Industrial and Office Realtors (SIOR)
- U.S. Green Building Council (USGBC)

As part of their shift toward a sector strategy approach and as identified in the Needs Assessment, where applicable and possible, IOUs will work with organizations to modify course content and/or create credential programs that result in stackable credentials that are of value to employers.

Residential and Commercial HVAC Quality Maintenance and Quality Installation programs in the portfolio ensure that contractors support high-road strategies through the programs' requirements that the minimum level of services conducted and incentivized through the programs are based on the HVAC industry's own set of quality standards that define the appropriate high-road level of installation and maintenance services for customers. Tracking of the success of these program requirements that demand high-road quality levels is done through the regular tracking of these HVAC programs that measure the increasing use of these practices as the uptake in the programs grow.

- Describe how the program will target low-income and disadvantaged populations for participation in training programs and/or demand side management (DSM) program delivery.

IOU Response:
IOUs will leverage existing communication channels to reach members of low-income and disadvantaged communities. At a local and regional level, IOUs work with local community-based organizations that have established relationships to support their low-income and disadvantaged population. This is often done with the aid of Public Affairs, Community Relations and Diverse Business Enterprises. IOUs will also collaborate with their individual low-income energy efficiency program managers and partners as another channel toward reaching low-income and disadvantaged persons and helping to increase their awareness and participation in IOU education and training opportunities.

Through its PowerPathway Training Network for Energy Efficiency (PPTNEE), PG&E will continue and expand its partnerships with organizations, including but not limited to RichmondBUILD, Rising Sun Energy Center, Proteus, Inc., and the Central Valley Opportunity Center, that have been serving members of the disadvantaged and low income communities. Such partnerships will allow PG&E to leverage their resources and subject matter expertise to work with organizations that already have those connections to low-income and disadvantaged populations.

- Describe how the program will support entry level career pipelines and pathways supporting development of entry level skills leading to higher skill sets utilizing state apprenticeship and pre-apprenticeship programs as appropriate.

IOU Response:
IOUs will collaborate with existing implementers of career skills development programs targeted to high school students with degrees, continuing education and post-secondary students for entry level career pipelines and pathways and higher skill sets aligned with pre-apprenticeship and state apprenticeships. Given the wide range of apprenticeship and pre-apprenticeship programs, IOUs will work with State agencies, including the California Division of Apprenticeship Standards, to determine which apprentice/pre-apprenticeship programs should be targeted during the 2013-2014 bridge period. The goal of the partnerships will be to increase awareness and participation in the wide range of training options for students to develop their careers. Trainings will support the spectrum of knowledge and skill level being applicable to someone just entering the energy field, to someone seeking to advance his/her place in a specific career path.

IOUs will collaborate on an effort to develop a statewide memorandum of understanding (MOU) with the California Division of Apprenticeship Standards. The MOU will provide a framework for partnering with labor, trade, and professional organizations that resembles the existing CALCTP program.

- For WE&T sector strategy efforts describe which characteristics will be sought for employer partners, such as level of joint investment in training efforts, support and participation in apprenticeship programs, enforcement of permitting, code, safety compliance, and other labor laws.

IOU Response:
IOUs will involve other organizations that can help to leverage existing and new IOU training opportunities. Potential partners will be sought from government agencies, employers, community colleges, labor organizations, manufacturers, professional organizations, and community-based organizations. IOUs will expect partners to commit direct and indirect resources toward developing specific sector strategies. Partners will need to help drive training program participation to their target audiences, and will be expected to support and participate in apprenticeship programs, support and enforcement of permitting, code and safety compliance and other laws, as appropriate to their roles and activities involved, include participating in leadership roles where possible.

- Also, describe the following: Describe the governance structure within sector strategy partnerships, such as processes for agenda development, recording minutes, and decision making;

  IOU Response:
  Each sector strategy effort will be led by one IOU with other IOUs as major contributors and partners. IOU sector strategies efforts will include a steering committee to drive overall development and governance over the strategy. Some sector strategy efforts could require an Advisory Council to drive specific issues within the strategy such as certifications or knowledge, skills, and abilities attached to a particular occupation. The lead IOU will be responsible for assuring that meeting logistics, including agenda development, meeting notices, and recording/disseminating minutes are well-orchestrated.

- Describe the process to develop a mutually agreed upon plan to support existing or new training certifications for each subsector or technology in the non-residential HVAC sector strategy effort and any other sector strategy efforts the IOUs pursue;

  IOU Response:
  All 2013-2014 sector strategy approaches will include a plan for cross-sector stakeholder support towards an existing or new certification, or other appropriate set of qualifications that lead to support of Strategic Plan goals. Such industry-recognized credentials are an essential and necessary hallmark of a successful sector strategy. IOUs will work closely with the internal and external team involved in the HVAC installation programs and associated stakeholders, including through the Western HVAC Performance (WHPA) to develop a mutually agreed plan to support any appropriate existing or new training certifications or set of qualifications for each aspect of the non-residential HVAC sector strategy effort. A similar approach is anticipated in coordinating a sector strategies approach on WE&T intervention for Emerging Technology adoption, codes adoption with Codes & Standards and targeted training of market agents critical to the success of Energy Upgrade California. Through careful and thorough assessment of options, and ongoing and open dialogue with varied stakeholders across the sector at issue, the strategy will be predicated on cross-stakeholder support towards an agreed-upon certification(s) or other appropriate set(s) of qualifications.

- Describe how the program will develop skill upgrade programs that are aligned with the state approved apprenticeship training programs. Skill upgrade programs should include robust entry prerequisites and pathways to other educational establishments.

  IOU Response:
  IOUs will collaborate with stakeholders in a manner similar to that of the WE&T Taskforce structure, taking input on revisions to the sector strategies approach, course portfolio, and training partnerships. IOUs will also work with implementers of career skills development on career pipelines and pathways that lead into higher skill set training equivalents to those of pre-apprenticeship and state approved apprenticeship. IOUs will create a forum for discussion among these stakeholders to continuously evaluate training alignment. Given the wide range of apprenticeship and pre-apprenticeship programs, IOUs will work under an MOU with State agencies, including the California Division of Apprenticeship Standards, to determine which pre-apprentice/apprenticeship programs should be targeted during 2013-2014. A core component of this plan will be the development of partnerships, which will include an implementation plan similar to that used in the CALCTP sector strategies approach

- Include a separate table indicating allocated funding for:

  - Sector strategy efforts

    IOU Response:
    The IOUs do not see Sector Strategy efforts as mutually exclusive of current WE&T Centergies implementation strategy. IOUs will support sector strategies as a way of restructuring portions of their programs to focus on specific audiences. IOU staff will be allocated on priority sector strategies efforts such as for Commercial HVAC, but in all cases being efficient and effective in funding sector strategies efforts.

    PG&E will continue to support CALCTP as a proven sector strategy approach toward upskilling the lighting sector, including electricians, installers, middle-management and salespersons. PG&E will lead the statewide sector strategy effort for commercial HVAC, considering both quality installation and quality maintenance efforts for the program WE&T connection, in order to determine a best path for a timely pilot, and so that the pilot can lead most directly to improvements of the broader HVAC workforce education and training effort. Other sector strategy efforts will include, but not be limited to the architectural design sector as well as small/medium business commercial building auditors. Where appropriate, all sector strategy efforts will be advised by stakeholders, including community colleges, 4-year colleges and universities, trade organizations, labor organizations, professional organizations, and state agencies.

  - Efforts to target low-income and disadvantaged populations

IOU Response:
IOUs will proactively partner with community-based organizations, workforce investment boards, community colleges and other local workforce development and training programs to both articulate training leading to certification and assist in easy access to energy center offerings. In addition, where applicable, IOUs will continue to or begin to partner with their internal groups that serve low income and disadvantaged communities.

PG&E will continue its support of the Energy Savings Assistance Program (ESAP). ESAP provides no-cost weatherization services to low-income households who meet the CARE income guidelines. Services provided include attic insulation, energy efficient refrigerators, energy efficient furnaces, weather-stripping, caulking, low-flow showerheads, water heater blankets, and door and building envelope repairs which reduce air infiltration.

- Describe an evaluation plan that will collect, monitor, and track:
  - Hours of instruction and locations of classes;
  - Partner organizations and related co-funding / resource sharing arrangements;
  - Specific commitments from employers that support high-road strategies
  - Number, specific occupation, skill level, and demographic characteristics of participants;
  - Associated certifications and skill standard requirements being leveraged with current training efforts. Track new standards developed and/or required for DSM program delivery;
  - Training completion and job placement rates;
  - A listing of resource programs that are aligned with training and certification WE&T efforts ;
    - Include a description of career pathways in which the relevant resource program is embedded, including points of entry and paths for advancement;
  - Improvements in the quality of installations and / or service activities for contractors participating in the sector strategy.
  - Strategies to identify job creation and metrics that result from sector strategy training activities and coordination of training activities with core DSM programs.

IOU Response:
IOUs have been making changes to their tracking methods, processes, and infrastructure. To protect customer privacy, certain data such as specific occupation, skill level, and demographic characteristics of participants will be collected on a voluntary basis during time of registration.

Data such as job placement rates, commitments from employers, strategies to identify job creation will be tracked for specific sector strategies as opposed to the thousands of energy center participants that participate in energy center classes.

Tracking information such as improvements in the quality of installations and/or service activities for contractors participating in IOU sector strategy efforts and strategies to identify metrics that result from sector strategy training activities and coordination of training activities with core DSM programs will be considered and monitored with assistance from IOU EM&V groups within the collaborative EM&V effort managed by CPUC Energy Division.

[i] Attachment 1 is additional information the Staff requested be provided in its May 24, 2012 guidance documents, Appendix F.