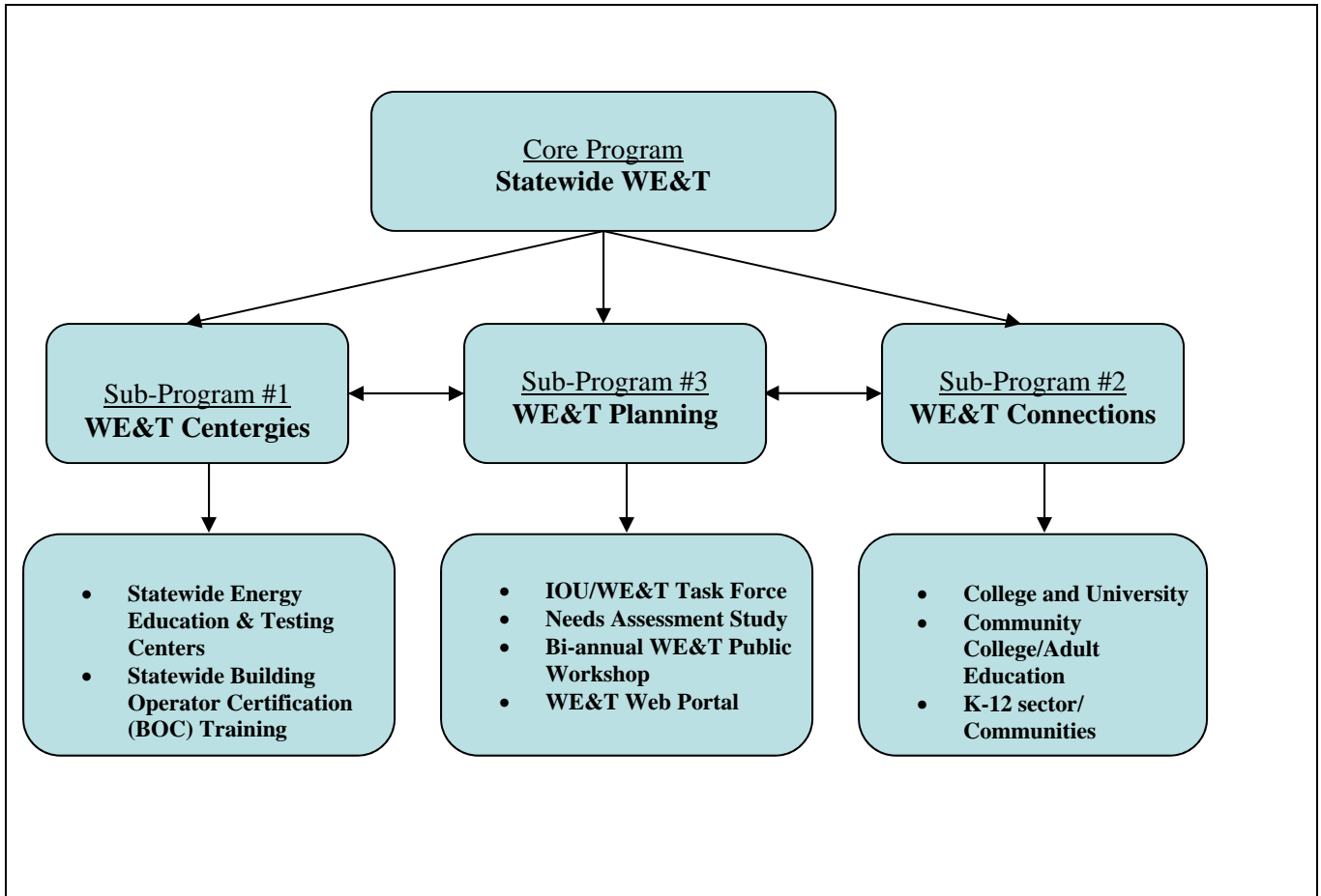


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- 1. Program Name:** Statewide Workforce, Education & Training Program
Program ID: SCG3729 – SW-WE&T-Centergies
 SCG3730 – SW-WE&T-Connections
 SCG3731 – SW-WE&T-Strategic Planning
Program Type: Statewide Core Program

Diagram I: Statewide WE&T Core Program Implementation Structure¹



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.

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2. Projected Program Budget Table

Table 1: Total Projected Program Budget by Category

Program #	Main/Sub Program Name	Administrative Amount	Marketing Amount	Direct Implementation Amount	Incentive Amount	Total Program Budget Amount
	SW Workforce Education & Training Program					
3729	SW-WE&T-Centergies	\$452,313	\$258,206	\$4,289,453	\$0	\$4,999,972
3730	SW-WE&T-Connections	\$52,399	\$0	\$802,182	\$0	\$854,580
3731	SW-WE&T-Strategic Planning	\$15,812	\$0	\$284,188	\$0	\$300,001
	TOTAL:	\$520,524	\$258,206	\$5,375,823	\$0	\$6,154,553

See Attachment 3 to the WE&T PIP for additional funding information for energy center classes, sector strategy efforts and training partnerships as requested in Commission Decision 12-11-015 Approving 2013-2014 Energy Efficiency Programs and Budgets (EE Decision) OP 36.

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 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.

Table 2: Total Projected Program Savings by Subprogram

Program #	Main/Sub Program Name	2013-2014 Gross kW Savings	2013-2014 Gross kWh Savings	2013-2014 Gross Therm Savings
	SW Workforce Education & Training Program			
3729	SW-WE&T-Centergies	0	0	0
3730	SW-WE&T-Connections	0	0	0
3731	SW-WE&T-Strategic Planning	0	0	0
	TOTAL:	0	0	0

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 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 (SOCALGAS). Education and training are vital components of each of the IOU's energy efficiency portfolio filings for 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.

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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."² 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 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

² California Long Term Energy Efficiency Strategic Plan, p. 74.

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delivery methods to incorporate feedback and guidance from sources, including the California WE&T Needs Assessment, customer feedback from the 2010-2012 Process Evaluation, the Guidance Decision the Final Decision 2013-2014 energy efficiency programs and budgets. 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 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

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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. 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. Attached to this addendum as Attachment 2 is Socalgas's list of courses and programs planned for 2013-2014, using the template provided in the Guidance

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Decision (Appendix C). Course offerings may be modified, based on market training demands and input from industry stakeholders.

- 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 in Section 6.1. BOC will also track certification statistics.
- 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.

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- 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).

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- 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
- HVAC 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."³ The Strategic Plan recognizes that process of transformation is harder to define

³ California Public Utilities Commission Decision, D.98-04-063, Appendix A.

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than its end state, and that new programs are needed to support the continuous transformation of markets around successive generations of new technologies⁴.

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 structures⁵. Markets are social institutions⁶, 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 chains⁷ 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 progress⁸. According to York⁹, “Market transformation is not likely to be achieved without significant, permanent increases in energy prices. From an economic perspective, there are 3 ways to achieve market transformation: (1) fundamental changes in behavior, (2) provide proper price signals, and (3) permanent subsidy.”

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

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

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

⁶ Blumstein, C., Goldstone, S., & Lutzenhiser, L. (2001) “From technology transfer to market transformation”. Proceedings of the European Council for an Energy Efficient Economy Summer Study. Available at http://www.ecee.org/conference_proceedings/ecee/2001/Panel_2/p2_7/Paper/

⁷ 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.

⁸ 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*.

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

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successful market transformation¹⁰. 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 theory¹¹, 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 decades¹². Market share tracking studies conducted 3, 5 or even 10 years after the start of an MT program may reveal only small market transformation effects¹³. The ability to make causal connections between these market transformation effects and any particular program's activities fades with time, as markets continually change and other influences come into play.

These challenges mentioned above are in reference to programs that were specifically designed to achieve market transformation; and these challenges are only compounded for programs that were primarily designed to achieve energy and demand savings. However, since the inception of market transformation programs almost two decades ago, many lessons have been learned about what the characteristics of successful MT programs are. First and foremost, they need to be designed specifically to address market transformation. "The main reason that (most) programs do not accomplish lasting market effects is because they are not designed specifically to address this goal (often because of regulatory policy directions given to program designers.)"¹⁴ The Strategic Plan recognizes that regulatory policies are not yet in place to support the success of market transformation efforts¹⁵, 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 interventions¹⁶. 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

¹⁰ 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>

¹¹ Rogers (1995) Diffusion of Innovations, 5th Ed.

¹² Example in bottom chart of this graphic from NYTimes:

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

¹³ Sebold et al (2001) p. 6-5,

¹⁴ Nadel, Thorne, Saches, Prindle & Elliot (2003).

¹⁵ CPUC (2008) Strategic Plan, p. 5.

¹⁶ Nadel, Thorne, Saches, Prindle & Elliot (2003).

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Center of Wisconsin’s guide for MT program developers¹⁷ 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)

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

Table 3.1: Short-Term PPMs

Below are the approved PPMs and metric types for the Workforce Education & Training Statewide Program (Resolution E-4385, Appendix A). The WE&T Program staff have 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)		
<i>Subprogram</i>	PROGRAM PERFORMANCE METRIC (PPM)	Metric Type
<i>Centergies</i>	Percent increase in educational collaboration with partners from 2011 baseline. <u>(Tracked and reported by educational level, and by number of partners operating in Title-1 communities.)</u> * Educational “collaboration” is defined as: seminars, outreach events and consultations as	2b

¹⁷ Pelozo & York, (1999).

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	needed. These collaborations include exchanges of monetary or in-kind support and services (i.e., sharing meeting facilities, marketing/promotional services, etc.).	
	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. (<u>Tracked and reported by educational level, and by number of partners operating in Title-1 communities.</u>) * 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 <u>baseline study to determine the current number of partnerships.</u> (Y/N) 3b: Number of high school continuing education outreach partnerships** in WET Connection	2a* * Starting 2011.
WE&T HVAC	4. Status of progress towards completion (activities, concrete actions taken) of detailed WE&T roadmap (plans, goals, timelines and recommendations).	2a

Table 3.2 Long Term PPMs

SoCalGas includes long term PPMs¹⁸ per Energy Division guidance received in December 2012. As stated in the Joint Utilities’ comments to the Commission in R. 09-11-014 dated November 21, 2011, and discussed between IOUs and ED on January 9, 2013, IOUs plan to finalize long term PPMs in further discussions with involved stakeholders and propose updates to Energy Division at a later date.

MTI Index#	RE-CATEGORIZED Metric (LTPPM - or SPI) [E-4385 Appendix B original text except for noted edits]	Unresolved Issues
HVAC-6	<u>MT Indicator 1</u> – Percentage of California HVAC-training institutions offering courses using Quality Installation and Quality Maintenance standards.	

b) Market Transformation Information

Per Resolution E-4385, a subset of market transformation indicators (MTIs) for statewide energy efficiency programs and subprograms 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. Although WE&T was not identified in the Guidance Decision as a market transformation oriented program, the IOU EM&V staff plan to participate in the collaborative effort to determine market

¹⁸ From the Energy Division’s file “Revised MTIs_10 27 11-formal-release-ED-May-2012.xlsx”

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transformation indicators for IOU energy efficiency programs. Per guidance from Energy Division received in December 2012, the approved Market Transformation Indicators for 2013-2014 are filed as a Joint IOU matrix, included as Appendix F.

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.

IOUs recognize that there is a need to better serve low income and disadvantaged communities through IOU WE&T efforts. IOU efforts to better serve low income and disadvantaged communities may include, but not be limited to collaborating with organizations who are already serving those communities to co-fund curriculum development, co-fund existing curriculum licensing, serve as subject matter experts on curriculum advice and development, serve as guest lecturers and instructors, increase awareness of existing programs, serve as a board member, and implement regular communications.

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WE&T Connections

Energy education is critical to assuring a stable and reliable supply of energy 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 as 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

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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 updated 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. Distribution is expected in January 2013.
- IOUs are coordinating with partners in the educational community through our Education Sector Strategy’s K-Post Secondary committee established in 2012 to work collaboratively 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

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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:

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

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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 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.

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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., 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.

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 Energy Upgrade California (EUC) web portal project with WE&T specific content to ensure that "green education" opportunities are accessible through the web portal once the ME&O program and web portal enhancements for 2013-2014 are approved by the Commission.

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.

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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 ESA program is expected to dramatically expand the number of units that will receive education and weatherization services during the 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

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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 (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 (SOCALGAS,/SDGE,SCE)	WE&T (Energy Centers) BIA – Remodelers; Statewide Residential Resource Programs; New Construction; BPI; 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

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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 Program**
The Statewide WE&T Program is collaborating 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 are supporting implementation of these new technologies disseminating information and training to enhance market transformation and acceptance into the marketplace.

- ii. **Codes and Standards 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 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 is maintaining 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**

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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 Electric Program Investment Charge (EPIC)
Not 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.

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- e) Integrated/coordinated Demand Side Management (IDSM)
The statewide WE&T team continue to coordinate IDSM education and training efforts by working with IDSM program staff. SoCalGas is able to provide meaningful support to IDSM strategies delivering classes where the curriculum meet the revised statewide definition for integrated content that ED and the IOUs agreed upon in 2011. Per direction from Energy Division, the IOUs will file an advice letter to formalize the revised integrated training definition.

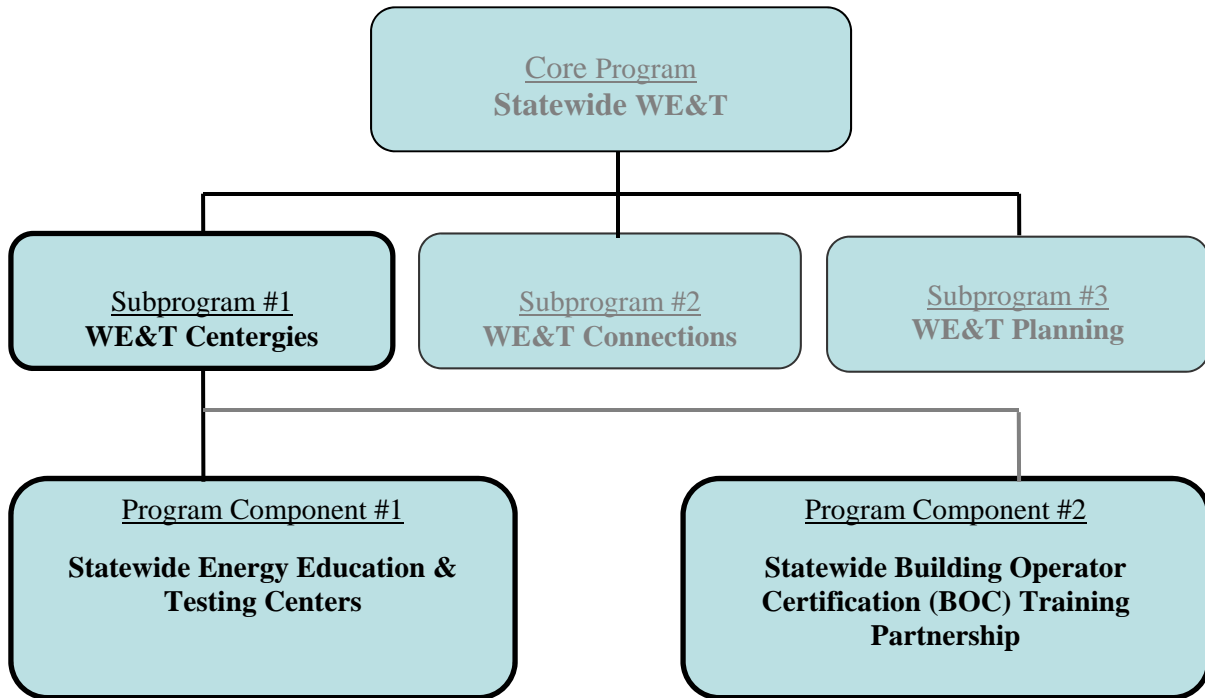
- f) Integration across resource types
Refer to Section 6.f. for each Sub-Program, if applicable.

- g) Pilots
No pilot programs are planned for WE&T in 2013-2014.

- 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.

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6.1) Sub-Program Implementation – WE&T Centergies – SCG3729



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

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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 2013-2014 transition 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

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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 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, 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

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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	SoCal Gas ERC	SoCal Gas 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	Yes	TBE	Yes	Yes	TBE	Yes	N/A	N/A
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

SoCalGas - Centergies Program Goals

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Program Name	Program Target 2013	Program Target 2014	Totals
WE&T Seminars / Trainings	125	125	250
Technical Consultations	220	220	440
Outreach	40	40	80
Tool Lending Library*	0	0	0

NOTE: Goals are expressed as full-year performance to be prorated according to the effective date of the final decision approving the 2013-2014 portfolio.

* SoCalGas continues efforts to identify feasible opportunities for gas-only applications.

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.

1. 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 began 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 tested a non-residential HVAC sector strategy. A core component will be the

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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 began with Quality Maintenance to provide the foundation, and then included 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.

Starting in 2012, PG&E embarked upon leading a statewide HVAC Sector Strategy. Detailed objectives and milestones for this sector strategy effort include the following phases

Phase 1	<ul style="list-style-type: none"> ● Finalize project plans and develop agreements for partnership implementation, including establishing respective roles and financial contributions ● Begin project plan execution ● Determine success metrics ● Link HVAC pilot(s) to other relevant IOU sector strategies such as PG&E’s Energy Workforce Sector Strategy ● Re-assess stakeholders and modify Committee(s), as needed
Phase 2	<ul style="list-style-type: none"> ● Continue project plan execution ● Assess initial progress made via success metrics developed ● Expand project plan to include additional HVAC sector WE&T needs and develop agreements for partnership implementation ● Enhance and/or form additional Steering Committee and/or Advisory Committees, as needed ● Develop specific timeline and budget for 2014
Phase 3	<ul style="list-style-type: none"> ● Continue project plan execution ● Begin to identify any lessons learned from 2012-13 activities
Phase 4	<ul style="list-style-type: none"> ● Complete project plan execution ● Quantify and formalize lessons learned from 2012-14 activities

IOUs have collaborated 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

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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 any lessons learned from 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 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.

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.

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In order to estimate costs associated with requiring certification or sector strategy-induced skills standards, the IOUs have started to collaborate 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.

2. 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 (at p. 283), 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) There is no comprehensive current research on the cost of labor to install advanced lighting controls by a CALCTP certified contractor versus a non-certified contractor. However, evidence from six CALCTP pilot studies indicates savings in the range of 10 - 30% ²¹ . An

²¹ Office of the Future Landmark Square Pilot Results (Design and Engineering Services, SCE, October 2010); Office of the Future 25% Solution Assessment (Emerging Technology Solutions, December 2010) ; Advanced Office Lighting Systems (Energy Research and Development, SMUD); High Efficiency Office, Low

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	<p>overall savings estimate of 15% is reasonable. Lower costs are due to CALCTP training, which enables more accurate bids, faster installation, and higher initial system performance as a result of greater familiarity and expertise with advanced lighting controls²².</p>
<p>(2) data or estimation of the average and range of permitting/compliance costs across permitting jurisdictions in the IOUs' service territories;</p>	<p>(2) Currently, no cities, towns, counties, or other governmental agencies in California require CALCTP certification so there are not permitting or compliance costs related to CALCTP installations.</p>
<p>(3) data or estimation of impacts, if any, mandatory skill standards would have on program participation rates;</p>	<p>(3) Over the years, IOU incentive programs for lighting controls have had relatively low participation rates, in large part due to the poor performance of the control systems which has been linked to substandard installation, inadequate commissioning, and lack of proper maintenance. As a result of the poor performance, many customers were not willing to invest in the systems - even with an incentive.</p> <p>With proper incentive levels and education of the segment, it is anticipated that adoption/participation could increase significantly because CALCTP installed systems work properly and enable customers to realize expected energy and cost savings. The optimum performance of CALCTP installed systems is already beginning to change customer perception of the value of investing in advanced lighting control systems. IOU incentives based on mandatory skill standards could drive up control system performance, which would have a major impact on the reputation of the systems, which in turn would likely push participation rates to a much higher level²³.</p>
<p>(4) data or estimates of the</p>	<p>(4) A literature review by Lawrence Berkeley Lab</p>

Ambient/Task Lighting Pilot Project (Large Office) Heschong Mahone Group; Low Ambient/Task Lighting Pilot Project (Small Office) Emerging Technologies Associates; Advanced Lighting Controls System Assessment (Emerging Technology Associates)

²² Brookfield Properties, SCE Engineering Services for Case Study

²³ IBID

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<p>incremental energy savings and customer cost savings over the life of the equipment;</p>	<p>indicates that customers who install advanced lighting controls will achieve a minimum savings of 25%²⁴ over traditional lighting efficiency measures. Depending on the level of control, and the comprehensiveness of the lighting control system, savings may increase an additional 5% - 10%. Actual dollar values will be determined as incentive program adoption occurs, customer site performance is monitored, and data is collected.</p>
<p>(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 measures based on higher quality and certainty.</p>	<p>(5) Additional benefits include:</p> <p>Because CALCTP training translates into high performance operation and maintenance, operational data on CALCTP installed systems, to date, indicates an extremely low rate of installation difficulties, callbacks, re-works, changes, etc. CALCTP training also enables contractors and electricians to properly train facility managers in the effective operation of the control systems²⁵. Therefore, CALCTP installed lighting control systems installed to date have not been overridden. Long term expectations are that the frequency of customers overriding control systems would be extremely low²⁶.</p> <p>IOU assessments have shown that fewer, if any, callbacks will be experienced when the system is installed by a CALCTP certified installer. This positive experience is in marked contrast to non-CALCTP certified installations where numerous call backs, change orders, and other problems have been experienced.</p> <p>Optimum energy saving operation and increased proper maintenance both contribute to lower lifecycle costs. Energy, long term maintenance, and lamp replacement costs are all lowered because of reduced loads and hours of operation as well as lower system stress.</p>

²⁴ Leukos, Volume 8, Number 3 (Lawrence Berkeley Labs) Lighting Controls in Commercial Buildings, (Williams, Atkinson, et. al)

²⁵ "Lighting Controls: Savings, Solutions, Payback and Vendor Profiles" CleanTech Article

²⁶ "Advanced Lighting Control Can Reduce Operating Costs and Improve Worker Satisfaction" Encelium Technologies article, March 2010

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Additional system related benefits will accrue when graphic interfaces and other higher visibility applications are utilized to report actual lighting energy use, and track GHG emission reductions.

Finally, all the above benefits and advantages will combine to create a positive industry “buzz” as customers begin talking about how well their advanced lighting control systems perform and how much money they are saving. That buzz will fuel even higher rates of participation for the mandatory skill standards incentive program.

3. Coordination with Energy Upgrade California (EUC)

The IOUs will continue to develop and produce a core set of offerings in 2013-2014 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 EUC.

To increase emphasis on workforce training for EUC, 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 EUC, and thereby improve the quality of energy efficient products installed throughout California.

SoCalGas 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.

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

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

SoCalGas 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 engaged with various Community Based Organizations, Local Training Facilities and 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.

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.

The community colleges and the community based organizations 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. Building upon the initial success with these partnerships, IOUs will lend other support to these partners through curriculum development, in-kind resources and developing new connections via the IOUs' sector strategy activities. This will begin to be developed in the first quarter of 2013, deployed throughout the second and third quarters of 2013.

On an ongoing and regular basis, the IOUs will collaborate with other market actors, including workforce investment boards, non-profit organizations, and post-secondary systems that serve disadvantaged and low income populations to identify people that may benefit from the

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IOU's WE&T efforts. The IOUs will leverage these market actors to identify currently unemployed workers who may already be equipped with the skills needed to meet energy efficiency program needs.

In the first half of 2013, the IOUs will explore best practices and consider possible initiatives that offer disadvantaged workers employment opportunities upon training completion. The IOUs will explore weaving this approach into their existing sector strategy activities currently underway.

- **Real Estate Agent Training**

In 2012 the IOUs began work seeking 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 evaluated initial entries into partnerships with various real estate groups within their territories in an attempt to gauge possible obstacles to EUC 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 EUC in real estate transactions. Consultations with relevant stakeholders were planned into 2013-2014, so that ongoing feedback can lead to continuous improvement of these efforts.

4. 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

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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 transition the linkages and integrate sector strategy approaches.

SoCalGas has begun implementing a sector strategy to accelerate the development of the Commercial demand-side management workforce needed by 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. Moving forward, SoCalGas 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.

In 2010-2012, hundreds of IOU customers participated in IOU-sponsored benchmarking and IDSM classes. These classes were developed in collaboration with groups outside of WE&T to assure that IOU program information was part of the course content. In 2013-2014, IOUs will continue to work with their internal benchmarking and IDSM program managers on course content that provides participants with do's and don'ts on building benchmarking relative to legislation.

In 2013-2014, the IOUs will continue relationships with internal and external organizations (e.g. Building Operator and Manager Association, International Facilities Managers Association, and the Institute of Real Estate Managers) to educate course participants about benchmarking, These benchmarking and IDSM courses will include speakers and course

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material from IOU benchmarking, energy efficiency, demand response, and distributed generation groups outside of WE&T.

- **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.

SoCalGas through many of its contractor training programs 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 the Energy Savings Assistance Program's weatherization programs, and augmented Building Performance Institute (BPI) protocols for non-low income weatherization programs.

- **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 in Attachment 2 is SoCalGas'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 Letter²⁷, IOUs will redesign and structure select courses offered in 2013-2014 such that they become part of a series.

Attached to this addendum as Attachment 3 is SoCalGas's budget breakdown of funding for energy centers, sector strategy efforts, and training partnerships, as required in the EE Decision. Also included in Attachment 3 is an updated narrative description of SoCalGas's training partnerships and sector strategy initiatives and activities.

²⁷ SDG&E 2260-E-B/2041-G-B, SOCALGAS 4249-B, SCE 2588-E-B, and PG&E 3212-G-B/3852-E-B

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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.

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.

BOC Beyond the Classroom

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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;

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- 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	3	1	2	3	1	2
SoCalGas	0	1	1	1	0	1
SDG&E	2	1	4	2	1	4

iii. Incentive levels

Not applicable.

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

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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 SoCalGas's Internet Event Business Management System (IEBMS) training website (www.SoCalGas.com/erc), the Energy California Upgrade web site, 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 Energy Centers and their education programs to prospective participants.

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 Energy Centers have been able to certify many of its 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. The Energy Centers 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 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 Energy Centers will partner with the Energy Savings Assistance Program (ESA) to improve, expand, and extend training offerings to disadvantaged communities. The Energy Centers will also coordinate with the ESA Program to enhance recruitment of low-income workers.

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FSTC works directly with SCE and SoCalGas on coordinating the seminars and events relating to food service. The statewide food service energy center team provides the technical support for the statewide 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 – Energy Centers will support AB32 compliance by incorporating waste and greenhouse gas (GHG) emissions reduction information into all appropriate training courses. Energy Centers 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 2030 will 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.

As described in the Statewide WE&T C&S PIPs, the programs will continue to coordinate activities that will enhance support for the appropriate market actor roles responsible for current, new and emerging C&S implementation according to priorities established by the Needs Assessment. In 2013-2014, the IOUs will build on the relationships that are developed in the classroom between building department personnel and C&S experts. Similarly, the Standards Essentials courses recently developed specifically for energy consultants will continue to be delivered at the energy training centers. All of these courses will be updated to help prepare the audiences for implementing the new code on January 1, 2014.

FSTC and the statewide food service energy center team provide 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

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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 (SoCalGas), and the Energy Innovations Center (SDG&E) 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

Between 2013-2014, 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.

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i. Emerging Technologies program

The Energy Centers 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 ERC 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 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 ERC 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 ERC will continue to go “beyond code” by providing state-of-the-art, building

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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 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

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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, 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

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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 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.

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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. 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.

BOC has and will continue to support CEC adoption of minimum energy efficiency standards.

- vii. CEC work on Electric Program Investment California (EPIC)

Not Applicable

- 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.

- 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 their relationships with ENERGY STAR and various restaurant and food service industry organizations to promote their programs and leverage these relationships to pursue efficiency objectives. (Refer to Section 6.2.b.v. above.)

- c) Best Practices

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.

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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.

Throughout the 2013-2014 transition period, the Energy Centers 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.

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,

- 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

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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

In 2010-2012, the IOUs and Energy Division staff revised the definition of integrated content:

If a training program meets either or both of these criteria, the programs are classified as “integrated”:

1. Integration through a balance of building systems content
Course content includes material on at least two building systems (i.e. mechanical, building envelope, lighting, solar, water, etc.) their relevance to one another, and how an integrated systems approach optimizes overall demand management with impacts that address energy efficiency, demand response, and smaller renewable energy systems.
2. Integration through technology content
Technologies discussed can be used to fulfill at least two of the three subjects of Integrated Demand Side Management (EE, DR, DG). IDSM technology examples would include dimming ballasts, Energy Management Systems, controls, or any technology with a work paper that includes both kW and kWh savings. Energy efficiency technologies result in permanent load reduction. Demand response technologies have the ability to respond to a demand response event for temporary load reduction. Distributed generation technologies deliver power to an individual building or set of buildings.

Per Energy Division guidance, the IOUs will file an advice letter to formalize the above definition of integrated content for training courses.

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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 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 IDSMS 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

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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 Model

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.

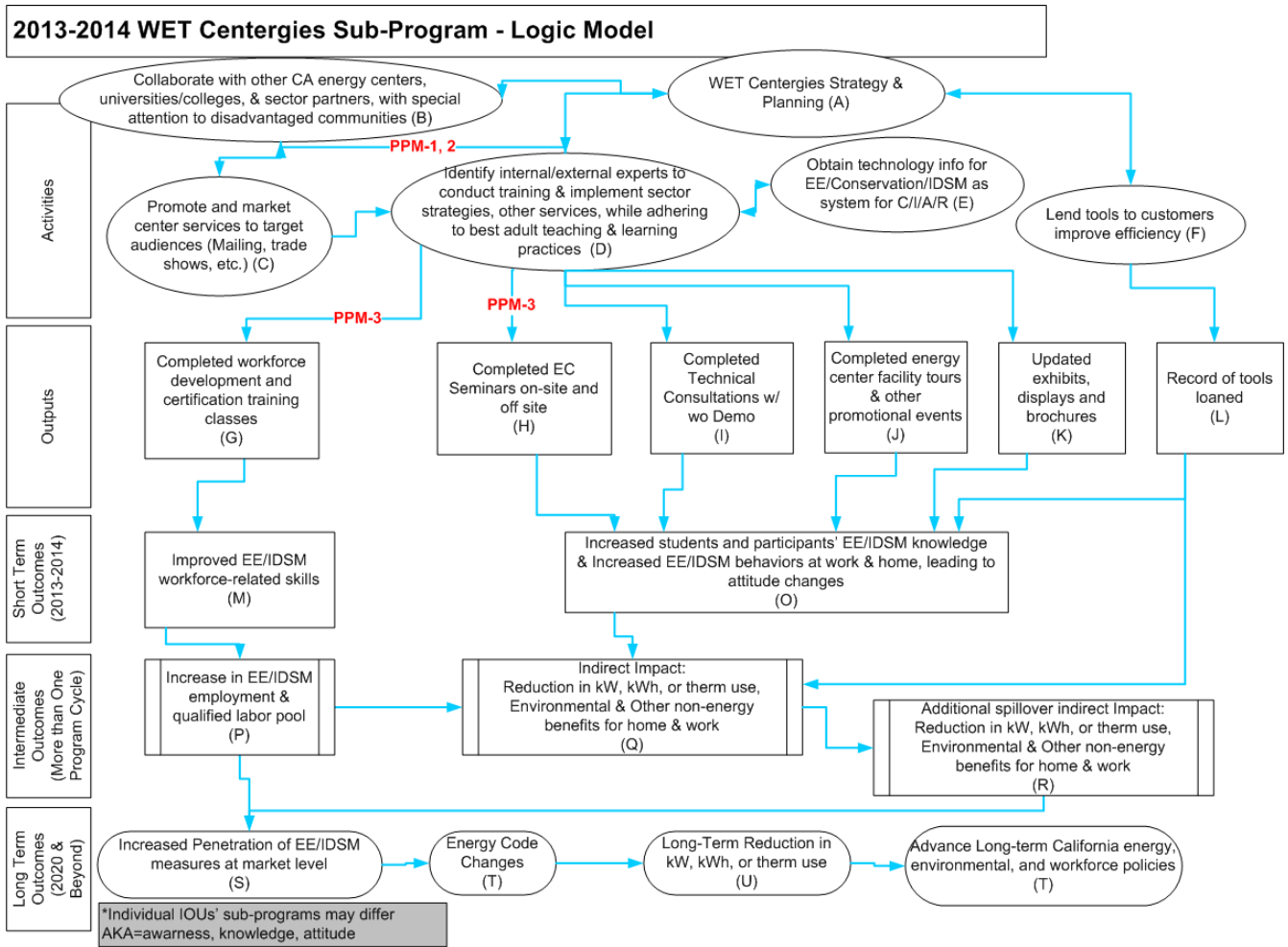
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A third activity focus is to identify internal and external experts to conduct training and other services, while adhering to best practices in adult learning. The centers are developing and using many new training props to give students first-hand 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.

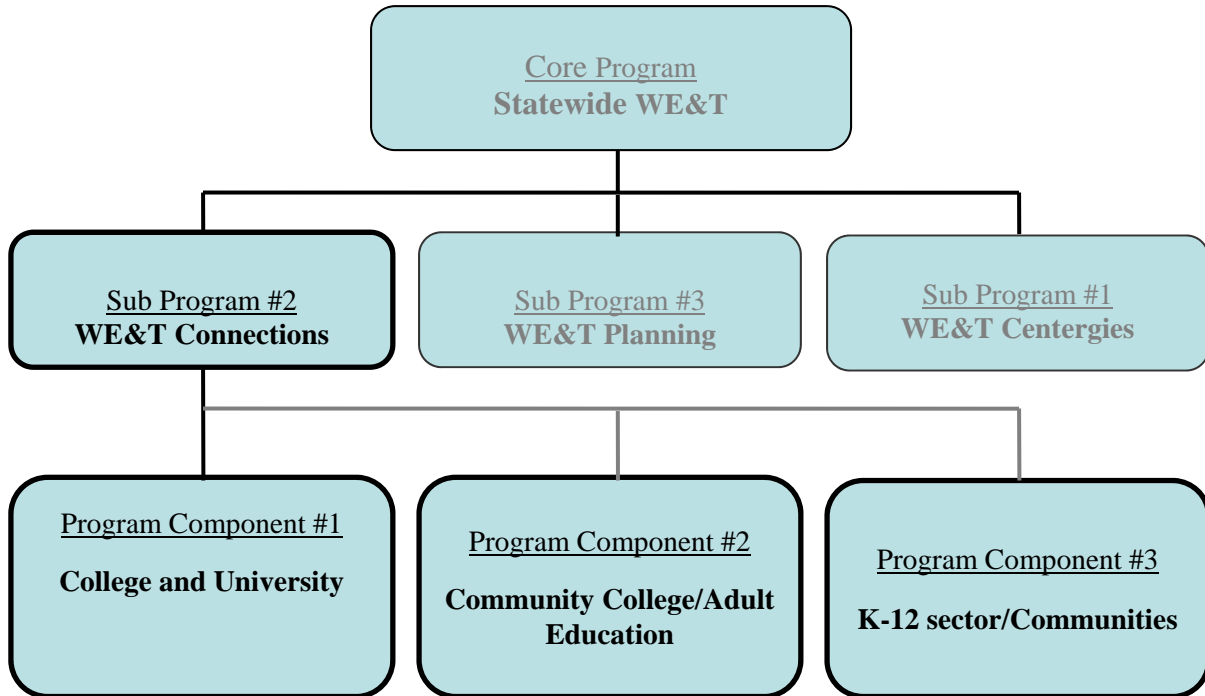
All of these activities are all expected to result in classes, consultations, promotional events, exhibits, and tool lending that increase participants' energy efficiency and IDSM knowledge and behaviors. Ultimately, these activities and outputs are expected to result in indirect energy savings.

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6.2) Sub-Program Implementation – WE&T Connections SCG3730



2. Program Description

a) Describe 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 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

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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 greenhouse 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.
- Finally, marketing efforts will increase focus on building partnerships with community colleges and adult education, CBOs, and other government and non-government gateways to reaching the disadvantaged population, attention will be given to including relevant green job and training information from trade organizations.

b) List measures

WE&T Connections program offers seven energy education program components—Green Campus, DEEP, PEAK, Energenius, LivingWise, Green 360 program (formerly 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, greenhouse 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.

c) List non-incentive customer services

WE&T Connections is a non-incentive based, education and training sub-program.

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3. Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

See core program Section 5.a. for program performance metrics (PPMs) and Section 5.b. market transformation information.

b) Market Transformation Indicators (MTIs)

There were no market transformation indicators (MTIs) identified for the WE&T program.

c) Program Design to Overcome Barriers

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.

The program will address lost opportunities in the school 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 greenhouse gases and their impact to the environment, with the goal of influencing day-to-day decisions of students and their households, and 3) also designed to educate schools/facilities on the benefits of implementing energy efficiency policies and demand response programs at their sites to impact energy use in schools and, universities and to project energy and environmental leadership by example.
- The program components are 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.

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- Collaboration and integration with residential and business incentive programs that result in firm energy savings for homes and schools.

Energy costs for schools can be an enormous expense and are often the second largest expense for schools after employee salaries. Declines in school funding over the last 20 years have left little to no room in budgets for incorporating high performance measures during major repairs or renovation in existing buildings. This is where our business incentives programs come into play when promoting these educational programs to schools. Not only are these educational components funded by the IOUs, but the schools can also see a measurable utility savings. Also, when the schools teach something that children can take home that helps parents save on their utility bills, the parents are more likely to be active in their students' education. Failure to take advantage of these educational and facility programs represents a significant missed opportunity.

The U.S. Department of Energy estimates that schools could save approximately 20% of their energy costs by incorporating energy efficiency measures²⁸. To start, schools can begin with no cost behavioral and operational changes. Additional funds and/or incentives are needed before schools would seriously consider the more serious energy efficient options.

IOUs will continue to promote low-to-no-cost energy efficiency measures, as well as retrofits programs for their school facilities. In most cases, the benefit of the IOUs assisting school in ways to save on energy cost is the selling point to getting school district cooperation in implementing the educational components. Schools practicing what they teach with respect to energy efficiency, demand response, distributed generation and other helps reinforce the importance of practicing smart energy management with students, thus creating a new generation of energy smart citizens and potential future members of a green workforce.

The WE&T Connections program will address the needs of schools through a combination of student, teacher and school administrator education programs and increase their awareness and knowledge as well as provide curriculum and/or lesson plans that support these objectives. Also, once school-aged children learn something new like energy efficiency, they are great advocates for 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 as well as campus administrators about energy efficiency:

- Students are effective advocates, able to reach their peers, communities and high-level decision makers in promoting green jobs on campus.
- Educational campaigns can result in significant energy savings on campus facilities and dorms by changing behaviors and purchasing decisions.

²⁸ Per DOE website. [<http://www.eere.energy.gov/buildings/info/schools/>]
[http://eere.energy.gov/buildings/energysmartschools/howto_operating.html]

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- The IOUs and/or our third-party vendors will develop curriculum and lesson plans for K-12 as well as work with the appropriate community college and university agencies responsible for, college courses and programs needed to educate students about energy, energy efficiency and prepare them for a green career path.

Addressing the interaction between energy and water use is essential, as well as the link between energy conservation and the reduction in greenhouse gases. Water conservation lowers energy use and energy bills; particularly, when energy used to heat water can be reduced and energy conservation reduces emission and global warming. The utilities and water agencies will extend the reach of their programs and services and promote integrated solutions.

The primary goal of the program is to educate and create awareness among K-12 and college students about the importance of energy and water efficiency and how to apply at home and in their communities what is learned at school and to promote green careers to K-12 and college students to meet California's need for green jobs, A secondary goal of the program is to improve public education facilities and inform facility operators and administrators about the benefits of energy efficient equipment and operation practices.

The basis of the program theory is that increased awareness will result in increased levels of energy and water efficiency in communities and at home where energy conservation starts, and increase conservation efforts at schools and universities. The combination of education and environmental awareness at schools and campuses are expected to motivate students not only to change their energy use behavior, but also to provide them with another very real and worthy option for a career path.

d) Program Targets

The proposed targets may be modified due to funding restrictions.

Program Name	Program Target 2013	Program Target 2014
University Sector		
Green Campus (Statewide)	14-16 campuses**	14-16 campuses**
Community College Sector		
DEEP (SCE only)	3 campuses	3 campuses
K-12 Sector		
PEAK (Statewide)	18,000 students**	18,000 students**
Energenius (PG&E)	60,000 students	60,000 students
Green 360* (PG&E)	1,000 Online Course/Community	3,300 Online Course/Community

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	Participants	Participants
LivingWise (SoCalGas, SCE)	20,000 - 30,000 students**	20,000 - 30,000 students**
Green Schools (SCE)	25,000 students	25,000 students
* Green 360 serves grades 9-12; goals will be determined upon approval of final budget. Transition ** Program targets have been revised to reflect statewide budget reductions and reallocations as required in the decision.		

- e) Advancing Strategic Plan goals and objectives
See core program PIP.

4. Program Implementation

- a) Statewide IOU Coordination

- i. 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:

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- 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.

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College and University sector

Green Campus (statewide)

The Green Campus Program is implemented on 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 courses/programs as well as work with 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,

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utility partners and ESCOs as they identify their objectives and draft a detailed implementation plan.

- Hold two planning meetings per year with 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, 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
- *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)

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- *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. Interns outreach to high schools, community colleges and CBO's. Outreach consists of mentoring, training, energy assessments, etc.
- *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 business incentive 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 projects are needed for numerous reasons 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

CCC IOU Partnership

The 2013-2014 California Community College program will build upon, enhance, and streamline the implementation strategies employed in the 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 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.

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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 SoCalGas’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

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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) SoCalGas

For 2013-2014, PEAK is proposed as a continuation of a successful program by PG&E, SDG&E, SoCalGas and SCE. The participating IOUs will continue to work together to ensure that the program design and delivery is consistent across the IOUs.. Other changes planned for 2013-2014 are revisions to include lessons on Water/Energy Nexus to reflect WE&T goals.

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.

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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 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

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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

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.

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

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behaviors at home and in the community. The web page will be expanded to include new program features; renewable energy; demand response; greenhouse 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, greenhouse 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.

LivingWise (SoCalGas and SCE)

For 2013-2014, LivingWise® is proposed as a continuation of a successful program partnership between SCE and SoCalGas. 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® Program in their service territories. LivingWise® provides

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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® 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 greenhouse 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

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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.

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.
- 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

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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.

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 SoCalGas 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 teacher conferences. 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.

- 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.

LivingWise® (SoCalGas 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

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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.

- 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® 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.

K-College Outreach

- Will continue to work with State Department of Education (Curriculum Commission) on the development of Energy and Utilities Sector Curriculum Standards 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.

b) Program delivery and coordination

- i. Emerging Technologies Program

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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 Subprogram 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 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 Subprogram'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 Subprogram Section 6.3 for more discussion on efforts in the education and community sectors.

c) Best Practices

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.

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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, the California Needs Assessment recommendation have incorporated has been included in the redesign for 2013-2014.

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.

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.

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 in the redesign for 2013-2014 .

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

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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 2013-2014.

d) Innovation

This area will be addressed once process evaluations are complete.

e) Integrated/coordinated Demand Side Management

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 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

No pilots are being proposed for SoCalGas.

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.

5. Program Diagram

See above Section 6.2.

6. Program Logic Model

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.

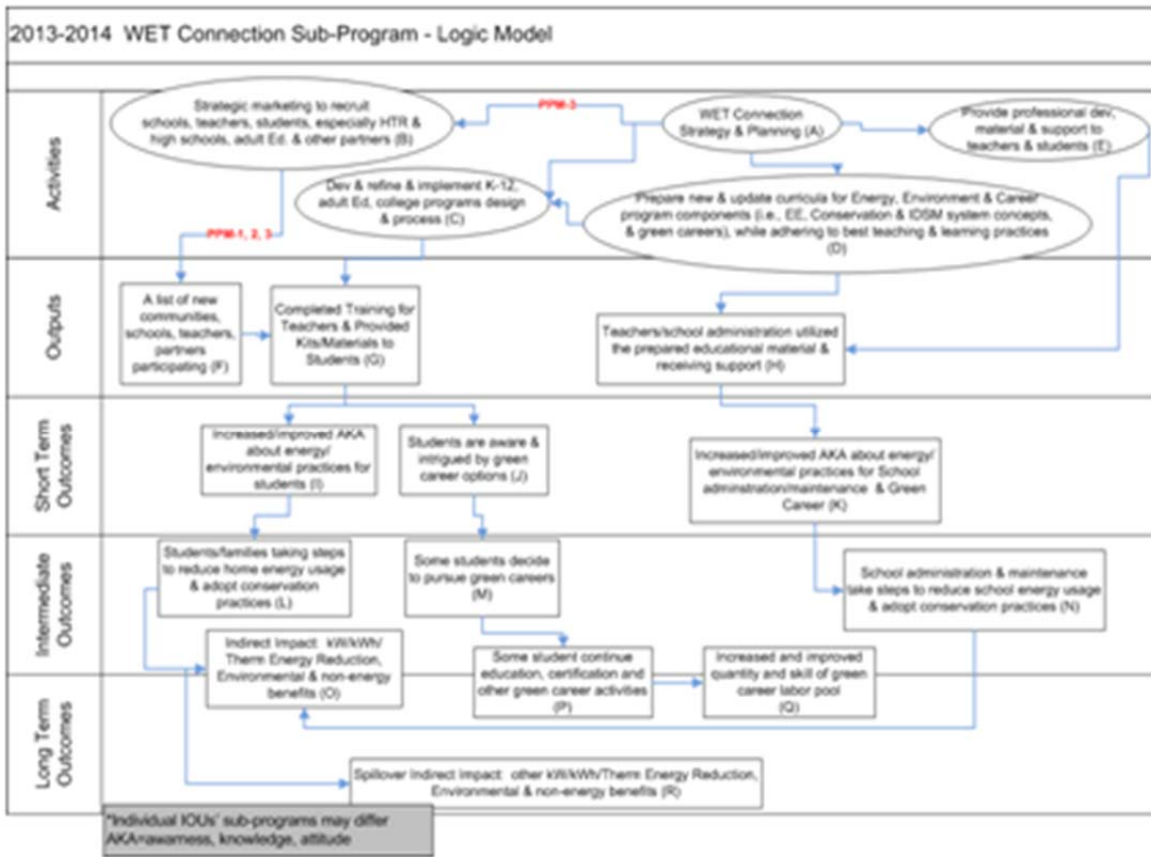
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The second focus of the Connections activities is on preparing new curricula and refining program design and processes. It is expected that these activities will produce programs and curricula that lead students to understand energy and conservation 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.

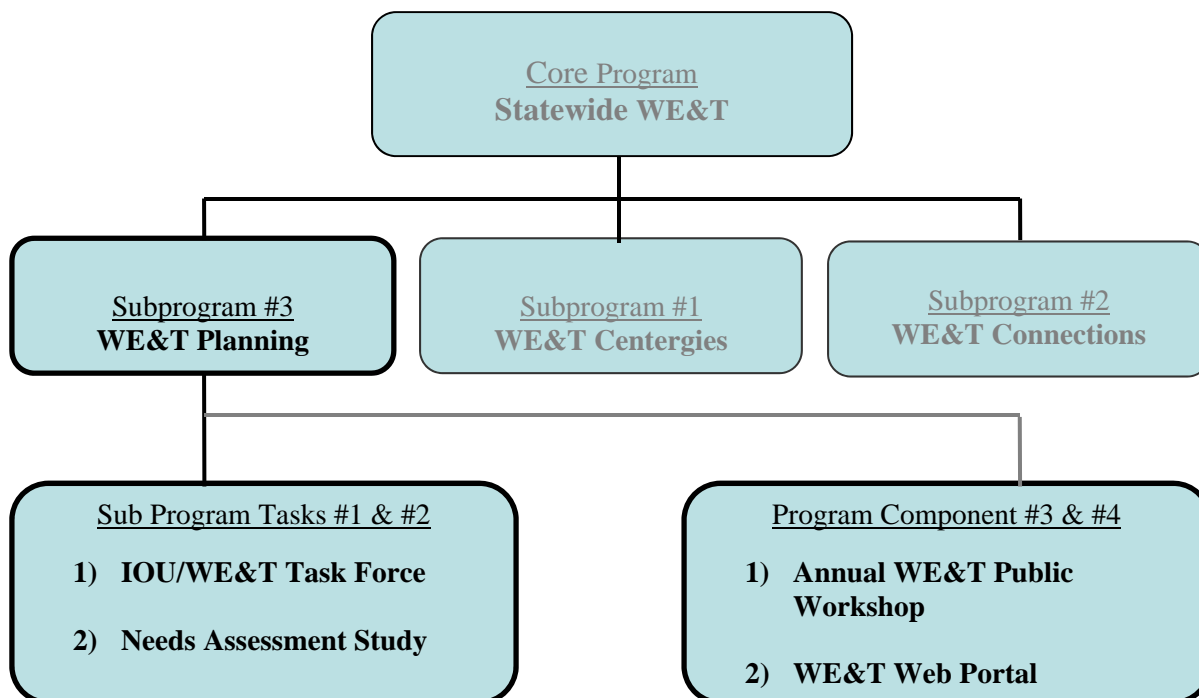
All of these activities are expected to lead to classes that improve AKA of students, their families and teachers and encourage students to pursue green career options. Activities focusing on saving energy on school campuses will also lead to improved AKA about energy and environmental practices within the school and at home for the students. Ultimately, these activities and outputs are expected to result in indirect energy savings.

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6.3) Sub-Program Implementation – WE&T Planning – SCG3731



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

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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.

Additionally, a relatively new aspect of the WE&T Planning Sub-Program was recently developed to optimize execution of WE&T goals outlined in the PIP, across the statewide WE&T value chain. This includes developing a statewide strategic implementation plan with the support of a workforce expert (or experts) who will support the IOUs in refining existing and building new strategies that facilitate reaching and exceeding Strategic plan goals. Specifically, the EE Decision suggests the external consultant should focus on:

- a. Explore ways to leverage (with green jobs programs, community-based and non-profit organizations, educational institutions, the business community, and labor organizations, etc.) wherever possible and incorporate teaching minority, local low-income, disabled, displaced, and other disadvantaged communities the skills needed to meet energy-efficiency program needs, where feasible.
- b. Explore ways to leverage these same potential partners, wherever possible, to identify currently unemployed workers already equipped with the skills needed to meet energy-efficiency program needs, where feasible;
- c. Consider possible pilot programs during 2013-2014 to test new quality standards for energy efficiency projects accompanied by necessary training, increased pay for performance for contractors, and links to job placement for completing training.

The IOUs, led by PG&E will solicit a broad range of feedback to inform the development of a WE&T Expert Request for Proposal (RFP). Feedback will be sought via an initial Request for Information as well as through a public forum. The IOUs will target the RFP to be issued in January 2013 and to choose an expert (or experts) by late February.

Pending finalization of the scope of work, potential activities for the expert(s) may include, but not be limited to:

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- Identifying new trainings, perhaps expanding EUC training appropriate for ancillary market actors; developing training to support adoption of Emerging Technologies, and; developing Codes and Standards compliance training that could positively impact energy savings and trainee placement outcomes.
- Developing a sector strategy model including definitions, success metrics and implementation strategies. Identifying synergies across sector strategies and weaving individual efforts into a larger cohesive strategy.
- Developing success metrics for the training centers.
- Providing assistance with market demand research..
- Surveying IOU professional certification programs.
- Developing concrete ideas for demand-pull strategies such as internships, First Source hiring practices or EE incentives for CALCTP participation.
- Integrating and connecting IDSM, DAS, EUC and ESA Program into an overall WE&T strategy.
- Developing a comprehensive plan for outreach to low income and disadvantaged workers.

With the help of the awarded consultant(s), the IOUs will begin incorporating these potential activities into existing activities as recommendations are made available, while concurrently working on a broader implementation plan to be deployed in 2015.

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

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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

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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*: The Workforce Needs Assessment study identifies preliminary findings, and in some instances, recommendations, for statewide WET program and/or subprogram considerations. The Joint Utilities 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 were presented within one month of dissemination at a public workshop to allow for public comments and further discussion. The findings were made publicly available through posting to the energy efficiency web portal 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.

Update from May 2012 PIP Addendum:

In compliance with Commission Decision 09-09-047, a joint IOU advice letter was approved by Energy Division by letter dated October 28, 2011.

SoCalGas 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. IOUs have restructured educational programs toward structured course series to serve particular sectors. SoCalGas has often 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

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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 AL 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 to the Guidance 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 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 AL, 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.

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The IOUs propose continuation of the approved joint IOU AL plan of action through 2013-2014 in coordination with changes occurring among resource programs directed in this Decision, as well as workforce skills and qualifications demanded in the market place.

- 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 EUC portal as part of 2013-2014:

- Including 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.
- 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.

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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-IOWs 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 make 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.

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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

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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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<p><i>WE&T Taskforce</i> – Conduct resource inventory and needs assessment.</p> <p><i>WE&T Taskforce</i> – Assess and summarize various funding mechanisms for WE&T activities as a needs assessment element.</p> <p><i>WE&T Taskforce</i> – Work with statewide team to develop Web portal for workforce needs.</p> <p><i>WE&T Taskforce</i> – Facilitate the convening of stakeholders for initial and ongoing dialogue with stakeholders.</p> <p><i>Ed Train</i> - Collaborate with WE&T program to inform the process.</p> <p><i>WE&T</i> – Be specific about the scope of work to define what can/will be done and what lies outside the scope of the task force.</p>

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:

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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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • California Community Colleges Chancellor’s Office
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Stakeholders	<ul style="list-style-type: none"> • WE&T Task Force • UC/CSU education system • ACEEE education committee
Sub Program Implementation	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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 2013-2014 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.

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Potential Stakeholders	<p>WE&T Task Force</p> <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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.

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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.

9. Diagram of Program

See above Section 6.2.

