

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

Application of Southern California Edison  
Company (U 338-E) for Approval of Energy  
Efficiency Rolling Portfolio Business Plan.

And Related Matters

A.17-01-013  
(Filed January 17, 2017)

A.17-01-014  
A.17-01-015  
A.17-01-016  
A.17-01-017

**SOUTHERN CALIFORNIA EDISON COMPANY'S (U 338-E) RESPONSES TO  
QUESTIONS IN ATTACHMENT A OF THE SCOPING MEMO AND RULING OF  
ASSIGNED COMMISSIONER AND ADMINISTRATIVE LAW JUDGES**

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Dated: **May 15, 2017**

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**I.**

**INTRODUCTION**

Pursuant to the Rules of Practice and Procedure of the California Public Utilities Commission (Commission or CPUC), and in compliance with the Scoping Memo and Ruling of Assigned Commissioner and Administrative Law Judges (ALJ), issued on April 14, 2017 (Ruling), Southern California Edison (SCE) respectfully submits these responses to the supplemental information requests in Attachment A of the Ruling.

In addition to providing the supplemental information requested in the Ruling, SCE also clarifies that the proposed budget in its Amended EE Business Plan assumed the approval of various portfolio modifications requested in SCE's 2017 EE Budget Advice Letter (3465-E and 3465-E-A). Energy Division recently requested that SCE supplement its 2017 EE Budget

Advice Letter to modify the budget to be equal to its most recently authorized EE portfolio budget, less any prior approved portfolio modifications.<sup>1</sup> Pursuant to Energy Division's guidance, SCE will soon file a supplemental AL to request a 2017 EE budget that is approximately \$50 million higher than SCE's original request. The reason SCE was able to request a budget that was nearly \$50 million lower than its previously authorized budget while still achieving its savings goals is that SCE has been on a path to optimize its EE portfolio spend over the past two years. This optimization included improving the performance of existing programs, reducing non-cost-effective programs, reallocating resources from low to high performing measures/programs, pursuing new sourcing strategies, and directing resources to serve high-value locational resource needs. Because these budget savings and portfolio efficiencies are not being reviewed and considered at this time for SCE's 2017 EE Budget Advice Letter, they should be considered in the Commission's review of SCE's Amended EE Business Plan.

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<sup>1</sup> SCE's most recently authorized budget is \$333.32 million authorized in D.15-01-002. In Advice Letter 3465-E, SCE requested a 2017 budget of \$278.78 million.

## II.

### RESPONSES TO QUESTIONS FOR ALL PROSPECTIVE PROGRAM

#### ADMINISTRATORS

##### A. Business Plans Overall

1. *Present a single table summarizing by sector (for the six specified sectors) their energy efficiency market potential, annual savings targets through 2025, and key metrics. This table should enable / facilitate assessment of how (well) the business plans go after efficiency potential, and of progress toward this potential.*

Table 1 presents the EE market potential and annual savings targets for each year from 2018 to 2025 by sector. The table also includes the key metrics SCE has proposed for each sector.

While preparing its response to Question 1, SCE re-analyzed the commercial sector kWh savings target and discovered that it made an error in populating the Savings Forecasts in its Amended EE Business Plan as well as in Appendix C of the Amended EE Business Plan. SCE inadvertently used the “Goal Attainment” field instead of the “First Year Gross” savings field in the output from the Cost-Effectiveness Tool to determine its savings targets. As a result, SCE’s savings targets in its Amended EE Business Plan for the Residential, Commercial, Industrial, Agricultural, and Public Sectors, and for the overall portfolio, are higher than intended. Table 1 below uses the correct savings target values.

Concurrent with this filing, SCE will be serving to the parties an Errata to Exhibit SCE-01, which is SCE’s Amended Energy Efficiency Rolling Portfolio Business Plan for 2018-2025, to correct this error. To facilitate the parties’ review of the Errata, SCE will include corresponding (select) pages reflecting redline of the changes from Exhibit SCE-01. SCE will also update its website to add redline and corrected version of

Appendix C. These corrections do not affect the proposed strategies, budgets, or metrics in SCE’s Amended Business Plan Application or the relief requested therein.

**Table 1. Market Potential, Savings Targets, and Metrics by Sector<sup>2</sup>**

	2018	2019	2020	2021	2022	2023	2024	2025
<b>Residential Sector</b>								
Potential (GWh)	135	138	137	119	123	126	130	n/a
Savings Target (GWh)	210	242	273	267	275	284	292	301
Potential (MW)	27	26	25	17	16	16	16	n/a
Savings Target(MW)	92	106	119	117	121	124	128	132
Key Metrics	<ul style="list-style-type: none"> <li>• Number of participants in deep energy retrofits</li> <li>• Number of participants using self-service tools and offerings</li> <li>• Number of multifamily participants in programs</li> <li>• Number of properties that participate in benchmarking</li> </ul>							
<b>Commercial Sector</b>								
Potential (GWh)	502	527	556	570	585	602	625	n/a
Savings Target (GWh)	271	279	284	279	287	295	304	313
Potential (MW)	93	101	109	114	120	126	133	n/a
Savings Target(MW)	46	47	48	47	49	50	52	53
Key Metrics	<ul style="list-style-type: none"> <li>• Number of new Large Commercial EE participants</li> <li>• Claimable first-year savings per project for Large Commercial</li> <li>• Number of new Mid-Size Commercial EE participants</li> <li>• Claimable first-year savings per project for Mid-Size Commercial</li> <li>• Number of new Small Commercial EE participants</li> </ul>							

<sup>2</sup> The Market Potential goals in this Table are based on Navigant’s revised 2015 study of EE potential. These goals will be “updated every other year, in sync with the CEC’s IEPR demand forecast.” Because the last study was completed in 2015, the next study will occur in 2017, with a draft study released in May and the final study released, following a comment period, in time for an August final decision. Because the 2017 study is expected to modify SCE’s savings goals, particularly for years beyond 2018, SCE’s focus in this business plan is on achieving the 2018 goals. Navigant Consulting, Energy Efficiency Potential and Goals Study for 2015 and Beyond (Sept. 2015) *available at* <http://www.cpuc.ca.gov/General.aspx?id=2013>.

	<ul style="list-style-type: none"> <li>Number of Small Commercial customers aware of EE</li> </ul>							
<b>Industrial Sector</b>								
Potential (GWh)	69	67	65	63	62	61	60	n/a
Savings Target (GWh)	128	131	134	131	135	139	144	148
Potential (MW)	6	6	6	6	6	6	5	n/a
Savings Target(MW)	8	8	9	8	9	9	9	9
Key Metrics	<ul style="list-style-type: none"> <li>Number of small Industrial customers using SEM</li> <li>Number of mid-size Industrial customers using SEM</li> <li>Number of large Industrial customers using SEM</li> <li>Number of new small Industrial participants</li> <li>Number of new mid-size Industrial participants</li> <li>Number of new large Industrial participants</li> </ul>							
<b>Agricultural Sector</b>								
Potential (GWh)	15	15	15	15	15	15	15	n/a
Savings Target (GWh)	2	2	2	2	2	2	2	2
Potential (MW)	1	0.9	0.9	0.9	1	1	1	n/a
Savings Target(MW)	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5
Key Metrics	<ul style="list-style-type: none"> <li>Number of Agricultural customer participating in a “Whole Farm” approach</li> <li>Number of Agricultural customers aware of EE</li> <li>Number of new small Agricultural participants</li> <li>Number of new mid-size Agricultural participants</li> <li>Number of new large Agricultural participants</li> </ul>							
<b>Public Sector<sup>3</sup></b>								
Potential (GWh)	85	n/a	n/a	n/a	n/a	n/a	n/a	n/a

<sup>3</sup> Because the Public sector has traditionally been considered part of the Commercial sector, a comprehensive study has not been conducted for the California market that specifically addresses the Public sector energy savings or market saturation. As such, market potential by territory has not been developed. New studies may help refine savings potential estimates for the Public sector. In order to begin developing the market potential for the sector, SCE proposes the calculation methodology discussed in Appendix I to estimate the EE savings potential in the Public sector: Using this methodology, SCE has potential energy savings of approximately 85 GWh and potential demand savings of approximately 12 MW for the Public sector in 2018.

Savings Target (GWh)	29	30	30	30	30	31	32	33
Potential (MW)	12	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Savings Target(MW)	4	4	4	4	4	4	4	4
Key Metrics	<ul style="list-style-type: none"> <li>• Number of customers in each segment participating in EE finance programs</li> <li>• Number of customers with established revolving EE fund policies &amp; programs</li> <li>• Number of customer participating in EE programs by segment</li> <li>• Claimable first year savings per customer</li> <li>• Number of projects utilizing whole building and/or NMEC methodologies.</li> </ul>							
<b>Cross-Cutting Sector<sup>4</sup></b>								
Potential (GWh)	421	414	393	337	304	262	247	254
Savings Target (GWh)	421	414	393	337	304	262	247	254
Potential (MW)	106	107	104	97	92	87	84	87
Savings Target(MW)	106	107	104	97	92	87	84	87
Key Metrics	<p><b><u>Codes &amp; Standards</u></b></p> <ul style="list-style-type: none"> <li>• Number of coordination / planning meetings to prepare market for ZNE</li> <li>• Number of coordination / planning meetings to discuss / develop a “plug and play” grid</li> <li>• Deliver a collaboratively prioritized list of recommendations for program design or incentives</li> <li>• Number of advocacy documents that include data and guidance from either national or international code-setting bodies</li> <li>• Number of national and international standards increased stringency due to C&amp;S program efforts</li> <li>• Milestones achieved in the plan to develop tools and materials</li> <li>• Number of Codes &amp; Standards related classes offered</li> <li>• Percentage of submitted advocacy documents that include plan to address implementation barriers</li> <li>• Percentage of codes using framework developed by C&amp;S to track code updates and compliance</li> <li>• Number of LGs that participate in workshops regarding best practices for adoption and implementation of reach codes</li> <li>• Number of LGs that receive customized technical consultation services and/or cost-effectiveness studies from the reach code “toolkit” that support meeting local GHG or energy goals.</li> </ul> <p><b><u>Emerging Technologies</u></b></p> <ul style="list-style-type: none"> <li>• Number of Technology Priority Maps (TPMs) initiated</li> <li>• Number of TPMs updated</li> <li>• Number of projects initiated</li> </ul>							

<sup>4</sup> The potential and savings are net GWH and net MW

	<ul style="list-style-type: none"> <li>• Percentage of TPMS that deliver actionable market information</li> <li>• Number of outreach events</li> </ul> <p><b><u>Workforce Education and Training</u></b></p> <ul style="list-style-type: none"> <li>• Number of initiatives delivered through key stakeholders and core education providers that target high potential end-users</li> <li>• Percentage of offerings that align with market needs</li> <li>• Percentage of offerings targeted to high potential/impact areas of focus</li> <li>• Percentage of offerings that reach disadvantaged workers</li> <li>• Percentage of market penetration in eligible high –potential participant pool</li> <li>• Percentage of WE&amp;T participants who pursue EE rebate or incentive programs.</li> </ul>
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2. *What evaluation studies or other research did you rely upon to inform your proposed intervention strategies and tactics for each sector, and how did those studies/research demonstrate the efficacy of the strategies and tactics in delivering the targeted savings?*

To develop its proposed intervention strategies and tactics, SCE reviewed market data and other relevant information. This included relevant requirements from the CPUC and California legislature regarding EE, market barriers, customer data from various secondary sources, utility billing data and prior program participation, and market potential studies. SCE also reviewed several California Evaluation, Measurement, and Verification (EM&V) studies for lessons learned. To review the EM&V studies, SCE used the following approach:

- Searched for completed studies published after 2000 at CALMAC.org by customer sectors;
- Prioritized studies to determine relevance;
- Synthesized relevant lessons learned for each customer sector into key insights; and
- Rationalized business strategies and actions against the lessons learned and key insights.

Please see Appendix 1, for a list of interventions strategies and tactics mapped to relevant studies or research that helped inform SCE’s proposed strategies and tactics.



**A. Management and Administrative Strategies**

3. *Please justify administrative budgets, and describe primary determinants of budget. What are the drivers of administrative and implementation (non-incentive) cost categories?*

SCE's proposed administrative budgets are based on existing programs' historical costs. SCE tracks costs as administrative costs consistent with the guidance provided in Appendix F of the Energy Efficiency Policy Manual.<sup>5</sup>

The primary drivers of administrative and implementation costs for programs are the number and type of programs offered. SCE currently offers and reports on over 80 programs in its EE portfolio. Each program requires a certain level of staffing based on the program delivery method. For example, an upstream lighting program that targets large manufacturers will have minimal administrative and implementation costs. However, a downstream lighting program that targets many customers that require a high level of interaction between program staff, engineers, vendors and other program administrators will have high administrative and implementation costs. Other more complex or mass market programs will require sales and marketing support.

4. *How are administrative costs and implementation (non-incentive) costs expected to vary over time, either by sector or portfolio-wide?*

As discussed earlier, SCE incorporated significant efficiencies in its portfolio over the last two years. Future efficiencies are expected to be based on experience with new and innovative programs offered by the third parties in the marketplace. Additionally, SCE expects that experience with Statewide Administration can yield efficiencies over time. Because upstream and midstream programs will be using a new Statewide

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<sup>5</sup> Energy Efficiency Policy Manual, Version 5, pp. 87-89.

Administration model that has not yet been developed, SCE does not yet know exactly how administrative costs for these programs will be affected. Also, SCE will be transitioning as much of its portfolio as possible to third parties to achieve at least 60 percent of the portfolio being designed and delivered by third parties by the end of 2020. Without knowing what specific programs and delivery channels third parties will propose and SCE will ultimately select, it is difficult to forecast exactly how administrative and implementation costs will vary over time. SCE is also aware that there are significant cost impacts in the marketplace which could place upward pressure on costs. For example, increasing review costs and declining measures have made it harder for vendors to deliver results. For these reasons, SCE assumed that its existing level of administrative and implementation efficiencies will persist over the forecast period

5. *As PAs transition to a role largely composed of administration, what are the best practices in administration the PAs will adopt (in order to maximize budgetary and administrative efficiency)? Describe any other internal approaches, metrics, or strategies that will be implemented by the PAs to ensure budgetary efficiency.*

As SCE transitions more of its portfolio to third parties, SCE plans to continue using its best practices for optimizing the portfolio as discussed earlier. In addition, SCE is a strong proponent of “pay for performance” contracting with built in reporting to identify activity in the field with continual oversight to verify that measures were delivered and installed per the terms of the contract.

6. *What metrics will PAs use to determine administrative effectiveness and efficiency specifically?*

The primary metric SCE plans to use to determine administrative efficiency is the existing metric of administrative expenditures as a percentage of total portfolio expenditures. This value should remain under the existing ten percent cap, and SCE will

endeavor to maintain administrative expenditures at or below this level.<sup>6</sup> SCE will also track sector-level administrative expenditures as a percentage of total sector expenditures to identify any sectors that may be lagging in administrative efficiency. To monitor administrative effectiveness, SCE will track the administrative dollars per kW and kWh at both the portfolio and sector levels.

7. *How often and what information will the PAs report to the Commission reflecting PA administrative spending and efficiency?*

SCE plans to use the existing reporting mechanisms (monthly, quarterly, annually) as appropriate to report administrative costs.

**B. Proposed Budgets**

8. *Present a single table summarizing energy savings targets, and expenditures by sector (for the six specified sectors). This table should enable / facilitate assessment of relative contributions of the sectors to savings targets, and relative cost-effectiveness.*

Please see Appendix 2 for SCE's table that summarizes SCE's EE portfolio savings forecast and budgets by sector.

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<sup>6</sup> See p. 87 of the Energy Efficiency Policy Manual: "Administrative costs for utility energy efficiency programs (excluding third party and/or local government partnership budgets) are limited to 10% of total energy efficiency budgets."

9. *Using a common budget template developed in consultation with interested stakeholders (hopefully agreed upon at a “meet and confer” session), display how much of each year’s budget each PA anticipates spending “in-house” (e.g., for administration, non-outsourced direct implementation, other non-incentive costs, marketing), by sector and by cross-cutting program.*

The IOUs and non-IOU Program Administrators have agreed to a common budget template and to provide additional budget information requested by The Utility Reform Network (TURN) and the Office of Ratepayer Advocates (ORA), and will submit all budget-related information called for in Attachment A on or before June 12, 2017. Given the scope of the budget and accounting information requested by TURN and ORA, the resources required to compile the requested information, and the need to address regulatory issues, these parties agreed that it was not feasible to submit all of the budget-related questions by May 15, 2017. A motion seeking an extension of time submitted on May 12, 2017 by PG&E, on behalf of the above-listed parties, was granted via Email Ruling of ALJ Valerie Kao on May 15, 2017.

10. *Present a table akin to PG&E’s Figure 1.9 (Portfolio Overview, p 37) or SDG&E’s Figure 1.10 (p. 23) that not only shows anticipated solicitation schedule of “statewide programs” by calendar year and quarter, but also expected solicitation schedule of local third-party solicitations, by sector, and program area (latter to extent known, and/or by intervention strategy if that is more applicable). For both tables, and for each program entry on the calendar, give an approximate size of budget likely to be available for each solicitation (can be a range).*

Upon approval of the business plans by the Commission, or a decision authorizing SCE to commence its third-party solicitation for proposals, SCE intends to conduct a two-step solicitation process beginning a planned release of a Request for Abstract (RFA)

followed by a full Request for Proposal after review of the RFAs.<sup>7</sup> A detailed schedule for solicitations, including any prioritization by sector if appropriate, will be developed after SCE gains a better understanding of market offerings through the RFAs. While any final sector prioritization would be based on the results of the RFAs and portfolio needs, SCE's current assumption is that sectors would be prioritized as shown in Table 2.

**Table 2. SCE Preliminary Solicitation Schedule<sup>8</sup>**

2017			
Q1	Q2	Q3	Q4(Assumes BP Approval)
			<b>Requests for Abstract:</b> Gather a broad spectrum of innovative third-party program ideas in the form of informational abstracts.
2018 (target 50% of portfolio budget)			
Q1	Q2	Q3	Q4
<b>Request for Proposals</b> <ul style="list-style-type: none"> <li>• Commercial Sector</li> <li>• Industrial Sector</li> <li>• <i>Commercial New Construction Program</i></li> <li>• Residential Sector</li> <li>• <i>Lighting Program</i></li> </ul>	<b>Request for Abstracts</b> Gather ideas to fill portfolio gaps and provide an opportunity to introduce new innovative program designs not captured in prior RFPs	<b>Request for Proposals</b> <ul style="list-style-type: none"> <li>• Public Sector</li> <li>• <i>Statewide Government &amp; Institutional Partnerships Program</i></li> <li>• <i>Water Infrastructure &amp; System Efficiency Program</i></li> <li>• <i>Electric Emerging Technologies Program.</i></li> </ul>	<b>Request for Abstracts</b> Gather ideas to fill portfolio gaps and provide an opportunity to introduce new innovative program designs not captured in prior RFPs
2019 (target 60% of portfolio budget)			
Q1	Q2	Q3	Q4
<b>Request for Proposals</b> <ul style="list-style-type: none"> <li>• Agricultural Sector</li> </ul>	<b>Request for Abstracts</b> Gather ideas to fill portfolio gaps and provide an opportunity to introduce new innovative program designs not captured in prior RFPs.	<b>Request for Abstracts</b> Gather ideas to fill portfolio gaps and provide an opportunity to introduce new innovative program designs not captured in prior RFPs	<b>Request for Abstracts</b> Gather ideas to fill portfolio gaps and provide an opportunity to introduce new innovative program designs not captured in prior RFPs
2020 (exceed 60% of portfolio budget)			
Q1	Q2	Q3	Q4
<b>Request for Abstracts</b> Gather ideas to fill portfolio gaps and provide	<b>Request for Abstracts</b> Gather ideas to fill portfolio gaps and provide	<b>Request for Abstracts</b> Gather ideas to fill portfolio gaps and provide	<b>Request for Abstracts</b> Gather ideas to fill portfolio gaps and provide

<sup>7</sup> SCE will reassess the need for the RFA based on the Commission's guidance regarding third-party solicitations and the amount of time until signed contracts are needed.

<sup>8</sup> Statewide programs are identified in *italics*.

an opportunity to introduce new innovative program designs not captured in prior RFPs. <i>Potential contract refresh opportunity depending on vendor performance and program uptake.</i>	an opportunity to introduce new innovative program designs not captured in prior RFPs. <i>Potential contract refresh opportunity depending on vendor performance and program uptake.</i>	an opportunity to introduce new innovative program designs not captured in prior RFPs. <i>Potential contract refresh opportunity depending on vendor performance and program uptake.</i>	an opportunity to introduce new innovative program designs not captured in prior RFPs. <i>Potential contract refresh opportunity depending on vendor performance and program uptake.</i>
Notes 1. The timing or order for the sectors and programs delineated in the table above may change depending upon the information gathered through the request for abstracts (RFA), the date of the CPUC's approval of the business plan, or other factors. 2. Additional request for proposals (RFPs) may be conducted at any time in order to fill gaps in the portfolio, refresh contracts, or as a result of additional information gathered through the request for abstracts. 3. Request for abstracts may be held open continuously and may overlap with RFPs. 4. Please see the responses to questions 14 and 15 for more information on statewide program budgets.			

**C. Proposed Solicitation Structure and Schedule**

11. *How long does each PA anticipate the solicitation, contract negotiation, and mobilization period will take for third-party contracts? Describe the timetable for the entire process.*

SCE anticipates that the entire process for conducting a solicitation, negotiating contracts, and mobilizing programs will take at least 12 months. Table 3 shows the estimated timeframes for various aspects of the process. The timeframe could be extended based on the level of involvement of any new California Energy Efficiency Coordinating Committee (CAEECC) and Peer Review Group/Independent Evaluation (PRG/IE) processes.

**Table 3. SCE Estimated Solicitation, Contracting, and Mobilization Schedule**

<b>Month</b>	<b>Activity</b>
1	RFP package review and final Commission approval, RFP release and bid conference
2	Bidders prepare and submit bids
3	
4	Review and scoring of proposals
5	
6	Bid selection
7	Contract negotiations and awarding of contracts
8	
9	Development of Implementation Plans
10	Training and System Set-Up
11	
12	Program launch

### III.

## RESPONSES TO QUESTIONS APPLICABLE TO ALL INVESTOR OWNED UTILITIES (JOINT RESPONSES)

### A. Statewide Programs Proposal

12. *Please provide supporting information/evidence (including a scoring and/or comparison across/among IOUs) for each of the six criteria used to determine that each IOU should be the statewide lead for each program, as proposed in the IOUs' Statewide Administration Approach proposal.<sup>7</sup> In particular, it appears that progress toward the Strategic Plan objective of Residential Zero Net Energy (ZNE) will be pursued through four different statewide programs, under the leads of four different IOUs (Residential New Construction (SoCalGas), Building Codes Advocacy (PG&E), Residential Upstream HVAC (SDG&E), Lighting (SCE)). Provide a rationale for this approach.*

The IOUs used the list of statewide programs included in D.16-08-019, Ordering Paragraph (OP) 8,<sup>9</sup> and assigned lead program administrators to each of these programs, as ordered in OP 6.<sup>10</sup> In determining statewide lead assignments, the IOUs followed the Commission's expectation in D.16-08-019 that "natural leads with capacity to handle the statewide programs will either volunteer or be nominated by their peers, with a consensus

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<sup>9</sup> Ordering Paragraph ("OP") 8 requires the following programs be administered on a statewide basis: "Residential: Plug Load and Appliance Midstream, Heating Ventilation and Air Conditioning (HVAC) Upstream/Midstream, New Construction; Commercial: HVAC Upstream/Midstream, Savings by Design; Lighting: Primary Lighting, Lighting Innovation, Market Transformation; Financing: New Finance Offerings; Codes and Standards: Building Codes Advocacy, Appliance Standards Advocacy; Emerging Technologies: Technology Development Support, Technology Assessments, Technology Introduction Support; Workforce, Education, and Training: Connections; Government Partnerships: California Community Colleges, University of California/California State University, State of California, Department of Corrections and Rehabilitation."

<sup>10</sup> OP 6 requires the IOU PAs to include "...proposals for statewide programs and/or subprograms that comprise at least 25 percent of their portfolio budgets."



approach brought forward to the Commission for consideration.”<sup>11</sup> The IOUs considered multiple factors in putting forth these “natural leads.” The recommendation to separate Lighting; Heating, Ventilation, and Air Conditioning (HVAC); and the Plug Load & Appliance (PLA) Program is in part an acknowledgement of the vendors behind the manufacturing and distribution of these products. For example, a review of the manufacturers and distributors for HVAC technologies revealed redundant vendors within a technology family. This led IOUs to conclude there may be a “natural bundling” of HVAC (both residential and commercial). IOUs also found that the vendors behind other technologies, such as lighting, operate independently. The recommendations put forth by the IOUs would support a streamlined approach for delivering products to market, taking into consideration the relationships with vendors and expertise in specific technology areas.

A quantitative scoring or analysis to evaluate the statewide leads is challenging due to disparity in statewide program designs. For instance, PAs categorize programs differently (e.g., PG&E’s Residential HVAC program includes upstream, midstream, and downstream elements, while SDG&E has a stand-alone Residential HVAC upstream program), which makes it challenging to compare costs and performance. These differences require additional work to normalize for consistent comparison.

As a result, all the IOUs did not score against the six criteria listed in the statewide administration white paper. However, PG&E and SCE prepared spreadsheets early in the evaluation that attempted to provide their own respective analyses of IOU statewide programs which showed relative savings, expenditures, cost-effectiveness, and other qualitative information using data provided in the IOUs’ 2017 annual budget advice letters (PG&E is submitting the attachments on behalf of the IOUs. Please see PG&E’s Response to the Scoping Memo). These documents were shared with all IOUs as the

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<sup>11</sup> D.16-08-019, p. 54.

team was determining statewide lead assignments. Although this exercise was useful as a point of reference, it was not sufficient for decision making.

The IOUs recognize opportunities exist to modify many of the existing statewide programs in support of ZNE and are open to managing solicitations that allow for consolidation of statewide programs. The IOUs plan on bidding out the current set of statewide programs and anticipate the third-party solicitation process will generate innovation from new program proposals and designs.

13. *Explain how the following concerns are anticipated to be addressed, and/or what models from California or elsewhere were reviewed to anticipate how to address these, or what next steps might be required to arrive at a clear and cost-efficient method for administering the statewide programs:*

At a Commission workshop on March 24, 2015, Charles Goldman from Lawrence Berkeley National Laboratory presented the general functions and roles that are required for EE program administration. (PG&E is submitting the attachments on behalf of the IOUs. Please see PG&E's Response to the Scoping Memo). The summary of these roles aligns with the approach the IOUs adopted in designing their statewide proposals. Building on the information presented by Mr. Goldman, the IOUs summarize the roles and functions of portfolio administration as follows:

- General Administration and Coordination
  - Contracts with primary contractors; coordination; and reporting to the public, state agencies, legislature, etc.
  - Infrastructure for data management, accounting, payments, IT systems, compliance with confidentiality and privacy laws, etc.
  - Governance and dispute resolution for statewide programs
- Goal Setting, Portfolio and Program Development & Planning, and Budgeting
  - Facilitate goal setting and planning with public input

- Establish an overall portfolio with definition of and balancing of budgets, cost-effectiveness, goals, caps and targets, and metrics
  - Define the portfolio framework and maintaining long-term stability
  - Portfolio and Program Administration and Management
    - Manage budget and sub-contracts for individual programs, provide basics of portfolio design, identify program needs, and provide oversight/guidance to implementers
    - Oversee the solicitation efforts for sector level program proposals and overall vendor and contract management
  - Impact, Process, and Market Evaluations
    - Establish the evaluation framework
    - Provide for market assessments, potential studies, impact evaluations, and cost-effectiveness assessments (often done by third-party evaluators)
- a. *Clarify the role of all PAs, and not just IOUs, in the anticipated governance/oversight/communication structure and processes. How will anticipated cost efficiencies and uniform participation terms be achieved?*

Each statewide program will have a Program Council that includes a representative from each of the funding PAs.<sup>12</sup> The lead PA<sup>13</sup> for each statewide program will serve as the chair of the Program Council and will be responsible for coordinating and conducting meetings. The Program Council will meet on a quarterly basis, although meetings will likely be held more frequently at first. The Program Council will oversee the following activities:

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<sup>12</sup> A funding PA is an energy efficiency program administrator that contributes funding to a statewide program.

<sup>13</sup> A lead PA is the single energy efficiency program administrator that will serve “in the role of lead administrator for each of the statewide programs, with consultation with the other administrators of other key aspects of the portfolio” (D.16-08-019, p. 53). The lead PA will also “...be the final arbiter or decision maker with respect to the program” (D. 16-08-019, p. 54).

- The scope of work and solicitation for the program.
- Budget, metrics, and other reporting needs (e.g. records retention, audit, etc.).
- Statewide uniformity in program delivery and participation.
- Program review, including territory specific performance and overall implementer performance.

Furthermore, the lead PA will be responsible for serving as the single point of contact for communications with the third party. The lead PA is responsible for uniform statewide program delivery. Each Program Council can determine the appropriate time for the third party to present updates to the Council or if the lead PA will present on behalf of the third party.

The IOUs hope that the transition to the statewide model may contribute to reducing transaction costs as a result of consolidating operational and administrative aspects of program implementation. However, the IOUs underscore that the connection between statewide administration and cost efficiencies is a hypothesis that has not yet been put to the test. As a result, the IOUs cannot be certain these efficiencies will be achieved, particularly in the early phase of the transition. The IOUs plan to continuously search for opportunities to refine the model to reduce transaction costs for all funding PAs.

- b. Clarify the anticipated participation or input, if any, of external non- (e.g., end user and market actor) representatives or participants in statewide governance assigned to the “Statewide Program Council.”*

External non-PA representatives will not have a role in the statewide Program Council because the CAEECC is the existing stakeholder forum for both statewide and local programs. The IOUs anticipate that CAEECC will continue to be the main forum for input from non-PA participants.

- c. The Statewide Administration Approach proposal describes informal dispute/concern resolution among the PAs themselves, with resort to formal*

*Commission dispute resolution only if the informal route does not succeed. Specifically, if a non-lead PA objects to the design/implementation of a statewide program, or budgetary obligation, what recourse do they have, if any?*

The Program Council will strive for a consensus driven approach. However, if a non-lead PA raises a concern, it will be considered comprehensively for adoption at the programmatic and portfolio levels. If consensus cannot be reached at either of these levels, a convening of the funding PAs' leadership will attempt to resolve any issues before seeking formal Commission assistance with dispute resolution. Note also that the governance process must be flexible in order to allow PAs to adjust as they gain experience with statewide program administration.<sup>14</sup>

14. *What are the statewide aggregate budgets for each statewide program?*

The IOU will base aggregate budgets for each statewide program on historic levels for solicitation purposes as described in the response to Question 15 below. However, some programs may receive less funding overall, as is the case with the Primary Lighting program due to the effects of Codes & Standards. Final budgets will also depend on the results of the solicitations. In addition, there are several new statewide programs proposed in the business plans, and budgets from those programs are still being developed. The IOUs will also adjust budgets as needed so that a minimum of 25 percent of the portfolio budget qualifies under the definition of Statewide.<sup>15</sup> The IOUs anticipate including the estimated statewide aggregate budgets for solicitation purposes for these new programs in their supplemental budget information. This information will

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<sup>14</sup> See "Appendix A: Statewide Administration Approach" to the Statewide Administration Chapter in PG&E's Business Plan; "Exhibit 2: Statewide Administration Approach," in SDG&E's Business Plan; "Exhibit SCE-03: Statewide Administration Approach" in SCE's Business Plan; and "Appendix to the Executive Summary: Statewide Administration Approach" in SCG's Business Plan.

<sup>15</sup> D.16-08-019, OP 6.

be provided after the meet and confer sessions with ORA, TURN, and other interested stakeholders.

The IOUs and the non-IOU Program Administrators have agreed to a common budget template and to provide additional budget information requested by The Utility Reform Network (TURN) and the Office of Ratepayer Advocates (ORA), and will submit all budget-related information called for in Attachment A on or before June 12, 2017. Given the scope of the budget and accounting information requested by TURN and ORA, the resources required to compile the requested information, and the need to address regulatory issues, these parties agreed that it was not feasible to submit all of the budget-related questions by May 15, 2017. A motion seeking an extension of time was filed on May 12, 2017 by the above-listed parties.

15. *How are statewide program budgets determined?*

Consistent with the Commission's direction, statewide program budgets will be determined by the funding PAs based on the savings potential in their respective service territories, Commission-approved goals, historical budgets, and their influence on overall portfolio cost-effectiveness.<sup>16</sup> For existing statewide programs, the funding PAs will also use their historic program budget levels to conduct statewide program solicitations. For new statewide programs, the budget will be determined based on each PA's overall portfolio cost-effectiveness analysis and the Commission-approved goals. These budgets will be adjusted and finalized by each PA, based on the results of the solicitations, to arrive at the annual statewide program budgets. Consistent with the Rolling Portfolio approach, the statewide program budgets may change over the life of the Business Plan. Any budget updates will be presented in the annual budget advice letter.

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<sup>16</sup> D.16-08-019, Conclusion of Law ("COL") 46, p. 103 states, "Statewide programs should be budgeted by each utility, with budgets trued up annually prospectively based on prior year's program participation by service area. The costs by utility area should be factored into each utility's portfolio cost-effectiveness analysis."

As discussed in SCE's Response to Question 14, the IOUs and the non-IOU Program Administrators have agreed to a common budget template and to provide additional budget information requested by The Utility Reform Network (TURN) and the Office of Ratepayer Advocates (ORA), and will submit all budget-related information called for in Attachment A on or before June 12, 2017. Given the scope of the budget and accounting information requested by TURN and ORA, the resources required to compile the requested information, and the need to address regulatory issues, these parties agreed that it was not feasible to submit all of the budget-related questions by May 15, 2017. A motion seeking an extension of time was filed on May 12, 2017 by the above-listed parties.

16. *If budgets are not finalized, what is the process for finalizing them?*

Please see response to Question 15 regarding the process for finalizing statewide program budgets.

17. *Will administrative budgets vary across statewide programs, as a percent of program budget? If so, why?*

Yes, administrative budgets will likely vary across statewide programs as a percentage of program budget due to variations among the statewide programs. Variations include differences in program design, delivery channel, program maturity, targeted market size, and complexity. The PAs will manage administrative costs within the Commission's administrative cost cap.<sup>17</sup>

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<sup>17</sup> D.09-09-047, OP 13 states, "Administrative costs for utility energy efficiency programs (excluding third party and/or local government partnership budgets) are limited to 10% of total energy efficiency budgets."

18. *Clarify how the statewide budgeting / budget reporting will work with respect to the following:*

*a. Will non-lead IOUs provide the lead IOU with funding?*

Yes, the non-lead IOU PAs will provide the lead IOU with a specified authorized annual program budget for their service territory. Consistent with D.16-08-019, the IOU PAs will true up program expenditures among IOU service territories annually based on customer participation.<sup>18</sup> This process will enable the lead IOU and non-lead IOUs to be reimbursed up to an IOU PA's authorized program budget.

*b. How much program budget are the non-lead IOUs required to offer, and how much administrative budget?*

Please see responses to Questions 15 and 17 regarding non-lead IOU funding requirements and processes.

19. *How will statewide programs support complementary efforts across the PAs?*

As part of the guiding principles discussed in the Statewide Administration section of each IOU's Business Plan,<sup>19</sup> the PAs have agreed to several tenets, one of which is "do no harm." This tenet means the lead PA will make decisions that preserve the collective ability of all participating PAs to meet their energy savings goals, maintain a cost-effective portfolio, and minimize impacts to existing local and downstream programs. Another tenet is to "take a stand for our customers," which means the PAs will make decisions that take into consideration the customer experience and strive for

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<sup>18</sup> D.16-08-019, OP 7 states "Costs for each statewide program and/or subprogram shall be budgeted and trued up annually prospectively based on actual customer participation in each utility service territory."

<sup>19</sup> The guiding principles can be found in "Appendix A: Statewide Administration Approach" to the Statewide Administration Chapter in PG&E's Business Plan; "Exhibit 2: Statewide Administration Approach," in SDG&E's Business Plan; "Exhibit SCE-03: Statewide Administration Approach" in SCE's Business Plan; and "Appendix to the Executive Summary: Statewide Administration Approach" in SCG's Business Plan.



simplicity, clarity, and ease for all customers. Operationally, each Program Council will be responsible for coordinating and communicating with local programs so that duplication is minimized or eliminated, market and customer needs are being met, and PAs and implementers have the right information to manage their portfolio and program needs.

20. *How will the PAs reconcile their expectations of savings and costs for shared programs (e.g., Plug Load Appliances)?*

The PAs' savings and budget levels will be finalized at the time contracts are executed for implementation. If actual savings and expenditures differ from expectations, the lead PA and implementer(s) will investigate and communicate the root cause with the funding PAs to determine next steps. Outcomes may include fund shifting, rebidding, modifying program design, or other actions

21. *Describe the management and procedural policy/process/strategy for ensuring third party implementation performance, specifically:*

*a. determining length(s) of initial contracts*

The funding PAs intend to set contract term limitations on all agreements with third parties. In addition to this being a procurement best practice, the IOU PAs believe it will be important to review the Terms and Conditions of these new agreements on a regular basis. As these agreements will be part of the initial framework for new third-party programs,<sup>20</sup> the IOU PAs will regularly evaluate third-party performance against contract requirements and key performance indicators (KPIs) and will consider these factors when reviewing contracts for renewal or extension. Contract terms will depend on program design and requirements.

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<sup>20</sup> D.16-08-019, OP 10 defines third party programs as those that are "proposed, designed, implemented, and delivered by non-utility personnel under contract to a utility program administrator."

*b. Will contract lengths be consistent across all statewide programs? Why or why not?*

No, contract lengths may not be consistent across all statewide programs because they will depend on market conditions, type of program, implementer, and the potential for meeting or exceeding metrics and goals.

*c. Will PAs have discretion to extend current third party contracts at will?*

Yes, PAs will have discretion to extend current third-party contracts at will in accordance with the Commission policy.

*d. Determining whether an expiring contract can be extended and when it must go to bid.*

The PAs will evaluate third-party performance against contract requirements and KPIs. Program evaluation of KPIs, performance, and metrics will inform whether an expiring contract could be extended or whether there is a need for program design changes, which could result in changes to contract lengths and/or termination. Any contract changes will be handled with the intention of providing a seamless transition for customers. Furthermore, the PAs will conduct additional solicitations to address non-performance and/or portfolio gaps, as needed.

*e. Determining how many contracts /third parties would be retained for a statewide effort that calls for diverse skill sets not held by a single entity.*

This decision depends on market conditions, program design, implementer proposals, and other factors. All funding PAs will participate in establishing evaluation criteria and subsequently evaluate solicitations against these criteria to determine the right mix of implementers for any given solicitation to meet metrics and goals.

*f. Determining statewide funding and the funding contributed by each PA.*

Please see the response to Question 15 regarding the funding of statewide programs.

*g. Determining an administrative budget.*

Please see the response to Question 17 regarding the determination of administrative budgets.

*h. Monitoring third party performance and ensuring appropriate accountability to stakeholders.*

*i) Who will determine whether performance indicators have been met?*

The lead PAs, in consultation with the funding PAs, will be responsible for evaluating implementer performance against KPIs.

*ii) How will these be tracked and vetted by the lead PA and the co-funding PAs?*

All funding PAs will participate in developing KPIs for inclusion in contracts. These KPIs will be consistent with the metrics proposed in the implementation plans. The lead PA will be responsible for providing regular updates to funding PAs on implementer performance against their KPIs. Each statewide Program Council will determine the cadence by which KPIs are reported.

*iii) What role will stakeholders have in assessing third party performance?*

Stakeholders will have the opportunity to provide input on overall program performance through the CAEECC process and will have access to publicly available implementation plan metrics and goals.

*i. Ensuring that PAs provide adequate support to third parties and facilitate coordination with other portfolio activities.*

Please see the response to Question 19 regarding coordination with other portfolio activities.

*j. Facilitating communication and coordination across various portfolio activities and third party implementers within and across service territories.*

Please see the response to Question 19 regarding coordination with other portfolio activities.

22. *How will the Statewide Emerging Technology leads interact with the other IOUs in implementation of the business plans and technology priority maps? Explain in detail.*

Consistent with the statewide administration governance process, and assuming the Commission approves the IOUs' statewide program proposals in their business plans, there would be an Electric Emerging Technologies Program Council and a Gas Emerging Technologies Program Council. These two programs councils would meet on a quarterly basis to coordinate efforts regarding the implementation of the business plans and the technology priority maps. In addition, these meetings would be conducted in a manner consistent with the structure described in the response to Question 13.

**B. Proposed Solicitation Structure and Schedule**

23. *What considerations or factors did the IOUs account for in their strategy for bidding out the various programs / sectors? How will the Statewide Emerging Technology leads interact with the other IOUs in implementation of the business plans and technology priority maps? Explain in detail.*

Each IOU presented unique transition plans in their Business Plans. Below is a high level overview of various considerations that may have been used in the development of the IOUs' third-party program solicitation strategies:

- Responding to new Commission policies related to statewide programs, the third-party program definition and third-party program minimum thresholds of 60% and 20%.
- Recognizing Commission identified programs earmarked for statewide implementation.
- Identifying pre-existing third-party programs and PA programs that may be continued, while consistent with the Business Plans.

- Identifying sector level needs and desired program strategies as presented in the Business Plans, including the EE potential and goals, regulatory guidance, legislative direction, market changes, and customer needs.
- Prioritizing solicitations for statewide programs and expiring third-party programs.
- Seeking greater cost-effectiveness in program delivery.
- Leveraging existing utility services (e.g., customer account representatives, billing services for financing, billing data for customer analytics, etc.).
- Seeking innovation that will improve the overall program portfolio performance and cost-effectiveness as well as smaller-scaled pilots to test innovative concepts.
- Responding to the Commission requirement for a smooth transition into the new third-party program approach through a set of phased program solicitations.
- Promoting a healthy and vibrant EE ecosystem in California, for both large and small providers, including a focus on Diverse Business Enterprises (DBE) contracting practices.
- Identifying contract efficiency opportunities, including longer-term contracts and pay-for-performance contracts, with and without the use of normalized metered energy consumption, where practical.

**C. Industrial and Agricultural Sectors**

24. *Given decline in market potential in the industrial sector and drop-off in participation, explain whether and how each IOU intends to increase participation.*

In the industrial chapter of each Business Plan, the IOUs identified barriers to participating in energy efficiency as well as strategies to increase participation. A discussion of IOU-specific strategies are included below:

**SCE**

New opportunities that may become available in the industrial sector could lead to changes in past customer participation levels. It remains unclear to SCE whether participation changes will result in a net increase from past participation or market potential. Initial observations and results from implementation of these new opportunities would help better answer that question. SCE anticipates the following new opportunities:

- Converting its current non-resource Continuous Energy Improvement program to a savings-eligible Strategic Energy Management program, initially to be piloted with industrial customers with large energy usage profiles;
- Introducing existing conditions baselines and behavioral, retrocommissioning, and operational (BRO) savings claims for non-strategic energy management industrial customers is expected to yield additional eligible activities;
- Implementing a pilot exploring behavioral energy savings claims potential through the use of industrial facility energy management systems; and
- Supporting deeper analysis, if needed, into past and future Industry Standard Practice guidance in order to clarify and provide greater differentiation regarding technology scope and customer applicability.

SCE anticipates working with third-party partners to execute these and other strategies to help determine our potential to successfully increase industrial sector participation. SCE actively participants in statewide improvement processes<sup>21</sup> where approved simplification efforts could help improve industrial sector participation as well.

## **PG&E**

PG&E identifies a variety of approaches in its business plan that will be leveraged to increase participation. In particular, PG&E highlights the introduction of Strategic Energy Management as a key element in our vision to reduce unnecessary energy use in the industrial sector. The initial framework and continued development of the Strategic Energy Management platform will potentially enable PG&E and its partners to reach a broader set of customers, pursue behavioral and operational savings, and see an increase in engagement year after year.

PG&E believes industrial customers' participation will take on many forms, from accessing and reviewing real time energy data to make smarter energy management decisions (e.g., data access and awareness intervention strategy) to working closely with an expert to populate a long-term energy management plan (e.g., technical assistance and tools intervention strategy). PG&E designed its intervention strategies to be multifaceted to address the industrial sector's diverse customer base. Enhanced customer targeting and strategic partnerships, options for financial assistance, new program designs, robust technical services, and leveraging the upstream channel for basic equipment needs will all be necessary for meeting PG&E's participation goals and targets.

PG&E will look to third parties with expertise in the industrial sector to propose, design, and deliver programs that support the goals it has outlined for this sector in its Business Plan Industrial sector chapter, page 2.

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<sup>21</sup> D.15-10-028, pp. 95-102 and D.16-08-019, pp. 38-39.

## **SDGE**

For the limited industrial market in San Diego, SDG&E plans to maximize savings through the use of third parties with expertise in the industrial sector and the Strategic Energy Management intervention strategy.

## **SoCalGas**

SoCalGas industrial customer sector represents nearly 25% of the natural gas consumed by all program-eligible customers. The industrial sector has a unique set of barriers facing the industrial customer. SoCalGas will reduce these barriers by a complimentary, integrated set of program intervention strategies that will actively engage the customer to capture both stranded market and economic energy efficiency potential. Through approaches outlined in the Industrial Sector Chapter, SoCalGas is pursuing high adoption of energy efficiency solutions across all industrial segments with particular emphasis on ensuring high adoption among smaller industrial customers that demonstrate high energy efficiency potential relative to their segment and size. Industrial organizational practices and simple customer engagement with reduced customer transactional costs will facilitate the investment in and the pursuit of energy efficiency solutions. Some specific strategies outlined in the Business Plan include:

- Strategic Energy Management
- Small Industrial Outreach
- Technical Assistance
- Pay-for-Performance

SoCalGas will look to third parties with expertise in the industrial sector to propose, design, and deliver programs that support increased participation in the industrial sector. Additionally, SoCalGas is an active participant in statewide custom project improvement processes to simplify the custom process to help improve industrial sector participation and increase savings.



**D. Finance**

25. *Specify whether each IOU considers finance a resource or a non-resource program, and why.*

The IOUs consider EE financing to be resource programs per D.12-05-015 and D.12-11-015. D.12-05-015 states, “We also clarify that we consider this statewide financing portfolio category as a whole to constitute a set of ‘resource’ programs designed to deliver additional savings beyond those that would otherwise be achieved by other programs.”<sup>22</sup> Additionally, the approved utility EE budgets for 2013 and 2014 identified in D.12-11-015 include financing as part of “statewide resource programs” along with residential, commercial, industrial, agricultural, lighting, and codes and standards programs.<sup>23</sup>

26. *If any IOU considers finance as a resource, how does/will it measure the savings?*

On January 24, 2014, Energy Division (ED) issued its disposition for the IOUs’ statewide workpaper titled “On Bill Repayment Energy Efficiency Financing Pilots.” The disposition states energy savings would be determined on an ex post basis in coordination with ongoing EM&V efforts, which will help inform ex ante savings parameters for future program cycles. Based on this direction, the IOUs are awaiting the results of the financing pilots’ evaluations before prematurely measuring, forecasting, and reporting savings. The IOUs are currently reviewing the draft impact evaluation, “Assessing the Cost-Effectiveness of Energy Efficiency Financing Programs,” to assess how to claim incremental savings for finance programs.

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<sup>22</sup> D. 12-05-015, p. 136.

<sup>23</sup> D. 12-11-015, Table 13, p. 103.

**E. Codes and Standards**

27. *How were the codes and standards goals in the business plans determined?*

The goals presented in the Codes and Standards Business Plan chapters are derived from the 2015 Potential and Goals study.

28. *Do the statewide goals listed include federal standards, reach codes or only statewide goals attributable to advocacy?*

The statewide goals listed in the Business Plans include federal appliance standards, California Title 20 appliance standards, and California Title 24 building codes. Reach codes, while considered a resource sub-program, do not have savings embodied in statewide goals or expected IOU accomplishments.

29. *Are the IOUs coordinating on federal standards advocacy? If yes, how?*

Although federal standards advocacy is not a component of the statewide program, the IOUs keep each other informed of their federal standards advocacy efforts. When there is agreement among IOUs, joint comment letters may be filed in federal proceedings in support of the IOUs' position. Independent comment letters are filed when positions differ among IOUs.

IV.

**RESPONSES TO QUESTIONS APPLICABLE TO SOUTHERN CALIFORNIA EDISON**

**(SCE)**

**A. Residential Sector**

SCE filed an amended business plan in order to meet cost-effectiveness thresholds.

Provide information to support the following residential sector changes:

*134. How did SCE determine the need to increase the entire residential sector budget by approximately \$98 million from the initial filing?*

SCE increased the residential sector budget in its Amended EE Business Plan by \$98 million from its original EE Business Plan for its new residential program (or set of programs). The new residential program is a representative proxy for the new EE program(s) that SCE anticipates third parties will propose during SCE's solicitation process. Historically, SCE achieved significant savings through its Primary Lighting Program, designed to convert the large above-code energy savings potential in the lighting sector. However, due to a reduction in claimable savings in lighting measures, SCE needs to leverage new EE programs to achieve its savings goals. The increase includes an increase of \$98 million in the administrative, ME&O, and non-incentive direct implementation costs that were not in the original EE Business Plan for the new residential programs. Please see SCE's response to Question 136 and 137.

*135. Which program(s) see an increase/ decrease in funding, and why?*

Please see Table 2 below for a list of 2018 Residential Sector programs that had an increase or decrease in funding in SCE's Amended EE Business Plan compared to SCE's initial EE Business Plan. SCE either increased or decreased the funding of the programs listed below because as part of SCE's portfolio optimization process, SCE

allocated additional budget to measures with higher TRC and decreased budget from measures with lower TRC. The reallocation of budget resulted in additional claimable EE savings and increased the overall portfolio cost effectiveness. Please refer to Appendix D of SCE’s Amended EE Business Plan to see changes for both measures and programs.

**Table 2. Residential Programs with a Modified Proposed Budget**

Program ID	Program Name	Amended BP Total Costs	Initial BP Total Costs	Change	% Change
SCE-13-SW-001A	Energy Advisor Program	9,980,646	10,480,646	-500,000	-5%
SCE-13-SW-001B	Plug Load and Appliances Program	6,691,721	6,795,071	-103,350	-2%
SCE-13-SW-001C	Multifamily Energy Efficiency Rebate Program	3,012,067	3,324,957	-312,890	-9%
SCE-13-SW-001D	Energy Upgrade California	3,664,353	5,386,034	-1,721,681	-32%
SCE-13-SW-001F	Residential New Construction Program	281,448	281,448	0	0%
SCE-13-SW-00G	Residential Direct Install	4,669,958	4,486,043	183,915	4%
SCE-13-SW-005A	Lighting Market Transformation Program	74,804	74,804	0	0%
SCE-13-SW-005A	Primary Lighting Program	1,000,000	1,000,000	0	0%
SCE-13-TP-001	Comprehensive Manufactured Homes	4,543,939	3,318,863	1,224,076	37%
SCE-18-XXX	SCE New Res Programs 2018	34,467,206	29,467,206	5,000,000	17%
<b>Total Increase in 2018 Residential Programs</b>				<b>\$3,771,070</b>	

136. *New administrative costs in 2018 are double the old costs. By 2025, new projected administrative costs are almost four times the old costs, and overall administrative costs increase by \$43 million, old to new. Explain how and why SCE determined that this increase in residential sector administration costs was warranted based on the initial filing.*

The increase in SCE’s proposed Residential Sector administrative budget in SCE’s Amended EE Business Plan Application compared to its original EE Business Plan resulted from the process SCE used to improve its TRC for its Amended EE Business Plan.<sup>24</sup> During this process, SCE allocated \$42 million in administrative costs for the new residential program for the years 2018-2025.<sup>25</sup> These costs were not included

<sup>24</sup> The process is explained on p. 3 of SCE’s Amended EE Business Plan Application.

<sup>25</sup> The \$42 million includes \$2 million in 2018, \$4 million in 2019, and \$6 million each year 2020-2025.

in the original EE Business Plan. In addition, SCE increased its Residential Sector administrative budget by \$1 million total 2021-2025 to align project administrative expenses based on the projected potential savings increase.

137. *Explain why/how residential sector savings only increase approximately three percent with an approximately 14 percent increase in the residential sector budget (initial filing compared to amended filing)?*

Savings increased 3 percent with a budget increase of 14 percent from SCE's original EE Business Plan to its Amended EE Business Plan because SCE included administrative, ME&O, and non-incentive direct implementation costs that were not in the original EE Business Plan for the new residential programs. Savings were affected by the portfolio optimization process SCE used to improve its TRC for its Amended EE Business Plan.<sup>26</sup> The net effect of including the costs for the new residential programs and executing SCE's portfolio optimization process is a 3 percent increase in savings and 14 percent increase in Residential Sector budget.

**B. Commercial Sector**

138. *In its Amended Application, SCE indicates that it will increase target commercial sector kWh savings by approximately 50 percent with virtually zero increase in budget, compared to the January original application (Application pages 87 (or I-14) and 112 (or I-16)). Explain what changes in strategies will enable this to occur.*

SCE did not modify any Commercial strategies from its original EE Business Plan to increase savings in the Commercial sector with minimal budget increase in its Amended EE Business Plan. SCE increased the commercial sector kWh savings target by

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<sup>26</sup>

The process is explained on p. 3 of SCE's Amended EE Business Plan Application.

reprioritizing SCE's proposed budget to measures that would improve the portfolio TRC. SCE reallocated incentive dollars from low TRC measures to higher TRC measures and reduced the proposed non-incentive budget. This shift resulted in a large net increase in kWh savings with a small net budget increase. This strategy was applied across all sectors to achieve a cost-effective portfolio.

The specific changes that resulted in this effect for the Commercial Sector can be assessed by comparing Gross First Year kWh at the measure level, found in Appendix D, between SCE's original and Amended EE Business Plan. Starting with 2018, the low TRC measures that were reduced had an average \$/kWh of \$0.55/kWh, while the high TRC measures to which more funding was directed had an average cost of \$0.09/kWh. The shift resulted in \$4.1 million in reduced incentives for the measures with an average cost of \$0.55/kWh measures (approximately 7 GWh decrease), an increase in \$7.4 million for the measures with an average cost of \$0.09/kWh (approximately 80 GWh increase), and a reduction of approximately \$2.1 million in non-incentive direct implementation costs across the Commercial programs. This results in the 2018 net Commercial sector budget increase of \$1.2 million but an increase of about 73 GWh, which is an approximately 37 percent increase from the original EE Business Plan to the Amended EE Business Plan.<sup>27</sup> From 2019 – 2025, these differences in savings and budget scale up at similar rates.

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<sup>27</sup> The 50 percent cumulative savings increase for the Commercial Sector referenced in the question was based on incorrect savings targets for which SCE is concurrently serving an Errata to correct. The correction is further explained in SCE's response to Question 1. Using the correct savings values, the increase in Commercial Sector savings from SCE's original EE Business Plan to its Amended EE Business Plan would be approximately 37 percent (both per year and cumulative from 2018-2025).

**C. Third Party/Commercial Sector (Small & Medium Business)**

139. *Provide the “no-regrets” type of preparations for 2018.*

SCE did not propose a “no-regrets” type of preparation for 2018 and does not understand what the term means in the context of its EE Business Plan.

140. *The business plan states that solicitations will be conducted on “as needed basis”; define the “as needed basis” process. Will this process align with the IDEEA365 solicitation process? If so, how?*

SCE’s solicitation process will be conducted on an annual basis and “as needed.” “As needed” is based on portfolio needs to balance the portfolio’s cost-effectiveness, EE goal achievement, and the requirement to transition at least 60 percent of SCE’s EE portfolio budget to third parties by 2020. In addition, SCE will adjust the portfolio design “as needed” based on SCE’s on-going review of vendor performance and program uptake to monitor progress and effectiveness of intervention strategies.

This process will align with the IDEEA365 Program in that SCE will adopt a rolling programs concept for solicitations that will allow third parties to submit program concept proposals as third parties develop programs. However, IDEEA365 solicitation is intended for the introduction of pilots and small start-up delivery models. IDEEA365 pilots that prove successful could transition into the core portfolio as third-party programs.

141. *Provide the solicitation preparations for the 2017 solicitation. If the solicitation process is staggered, which sector will be bid out first?*

SCE will conduct a two-step solicitation process beginning with the planned release of a Request for Abstract. In preparation for the Request for Abstract, SCE will develop business requirements as described in the business plans and identify

stakeholders who may provide critical input to requirements. SCE will proceed with step 2 (Request for Proposal) after the Commission issues a decision either authorizing SCE's EE Business Plan or authorizing SCE to commence its third-party solicitation for proposals. A detailed schedule for solicitations, including any prioritization by sector if appropriate, will be developed after SCE gains a better understanding of market offerings through the Request for Abstracts. While any final sector prioritization would be based on the results of the Request for Abstracts, SCE has included its expected prioritization in Table 2 in response to Question 10.

*142. Does SCE propose to use its portfolio budget for procurement of energy efficiency resources through alternative mechanisms? If so, explain.*

In its Business Plan, SCE recommended “that it should be able to use portfolio budget for procurement of EE through alternative mechanisms that were not proposed and developed as part of the portfolio.”<sup>28</sup> The reason for this is that solicitation for resources may arise outside of the EE portfolio process that could result in the procurement of EE. For example, SCE’s Energy Storage and Distribution Deferral Request for Offers (RFO) initially sought preferred resources, such as EE, to enable the deferment of distribution system upgrades. To the extent solicitations like this can procure resources that meet portfolio requirements, such as EM&V, and provide additional grid benefits, SCE recommends the Commission allow SCE to count the savings from those resources towards its EE goals and the costs and benefits of from those resources in its portfolio cost-effectiveness analysis. SCE also recommends it be allowed to use EE portfolio budget in these instances. The state’s goal is for the IOUs to procure as much cost-effective EE as feasible and necessary<sup>29</sup> and achievement of this

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<sup>28</sup> SCE Amended EE Business Plan, pp. 19-20.

<sup>29</sup> See California Public Utilities Code Section 454.5(b)(9)(c): “The electrical corporation shall first meet its unmet resource needs through all available energy efficiency and demand reduction resources that are cost effective, reliable, and feasible.”



goal should not be hindered by funding mechanism limits or the need to get regulatory approvals for each individual solicitation process.

*143. How will SCE leverage and integrate current procurement with the new solicitation process?*

SCE's solicitation for Innovation uses very similar bidding and contracting processes as our current third party model. However, unlike previous RFPs, SCE's approach for the solicitation for Innovation will not require a statement of work and will only require integral implementation functions allowing potential bidders greater flexibility in formulating innovative program designs.

After the solicitations have been conducted, all new projects must be initiated under the new contracts. However, old contracts will remain open in parallel with the new contracts until the pre-existing pipeline of projects are fully completed. This parallel design will help minimize the disruption to customers and vendors. An extension of the existing contracts may be needed beyond October 2018 in some cases due to the length of time that some projects will take between initiation and completion, which can span multiple years, in order to completely empty the pipeline of projects.

*144. Small commercial customers account for 92 percent of service accounts but only 27 percent of annual usage. This indicates low savings for this sector. Provide the specific strategies for increasing savings for this sector.*

To increase savings in the Commercial sector, SCE plans to target small commercial customers is SCE's midstream Point-of-Purchase Lighting program and its HVAC Upstream program<sup>30</sup> because the majority of this sector's savings potential is in lighting and HVAC. The Point-of-Purchase Lighting program and the HVAC upstream

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<sup>30</sup> The HVAC Upstream Program will be administered statewide in 2018.

program provide discounts to equipment because small commercial customers often have limited interest in engaging in long-term or time-consuming EE projects. However, many lighting measures will be discontinued because Title 24 code and other standards have reduced lighting savings opportunity and HVAC programs are best directed at property owners or managers.

In addition to the strategies described above, as part of SCE's solicitation strategy, SCE will be seeking innovative third-party program designs that will engage small commercial customers and achieve additional cost-effective savings.

*145. Table 29 (page105) lacks details on how SCE will increase awareness (approach) of energy efficiency programs for the SMB sub-sector. Provide specific information about how the SMB sub-sector will be targeted to align with other IOU plans, which specifically discuss the SMB sub-sector and strategies to increase savings and program participation.*

SCE will target the small and medium business (SMB) sub-sector by leveraging distributor sales and marketing efforts from midstream and upstream programs to increase awareness of EE programs.

In addition, as part of SCE's solicitation process, SCE will be requesting innovative and cost-effective third-party program proposals that will engage SMB customers. As part of the solicitation process, SCE will seek to coordinate with other entities, such as SoCalGas and water agencies, to leverage resources and promote longer-term savings.

**D. Public Sector**

146. *What information is included in “community usage data,” part of the Energy Data Request Program, listed in row 2 of Table 50? Is the community grouped geographically by sector/subsector, by similar load shapes and usage patterns, or by some combination?*

SCE defines “community usage data” as energy usage data of a given area or geography. Typical information included in community usage data as part of the Energy Data Request Program (EDRP) includes customer type (residential, commercial, etc.), number of accounts, total kWh and average kWh by month and year. Community usage data can be used, for example, when a local government wants to conduct a GHG inventory as part of the development of a Climate Action Plan. The local government can use the community usage data information to calculate GHG emissions that can be attributed to the electricity use in its region.

SCE does not determine how the community is grouped. The requesting entity determines how the community is grouped. Usually the requesting entity requests information grouped by jurisdictional boundaries or census tracts. SCE also provides reports on aggregated energy usage by ZIP Codes.<sup>31</sup> However, for certain public sector customers, this data may be insufficient to conduct the analysis required. In these cases, customers may use the Energy Data Request Process to request reports with specifications tailored to their particular needs. SCE will then work with the customer and the Commission to provide the requested information in accordance with the process and requirements identified in D-14-05-016.

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<sup>31</sup> This information is available at <https://www.sce.com/wps/portal/home/regulatory/energy%20data%20-%20reports%20and%20compliances/>

147. *Will the second tactic listed to address the “community data access” strategy be fulfilled by SCE or by the Public sector customers?*

SCE will continue to participate in the Energy Data Access Community (EDAC). However, SCE will also encourage individual public sector customers to participate in EDAC so that they can provide perspective of the challenges they encounter when trying to access community usage data. For example, SCE has asked ICLEI-Local Governments for Sustainability to attend the EDAC meetings to provide the public sector customer perspective when developing data access policies.

148. *Could SCE track information about the public sector customers who participate in energy efficiency financing programs, in addition to the metrics in the first row of Table 51, so that it can be determined whether financing options are being utilized by customers who would not likely be capable of self-financing energy efficiency projects?*

SCE can track the number of customers in each segment participating in EE finance programs and number of customers with established revolving EE fund policies and programs. However, SCE cannot determine whether financing options are being utilized by customers who would not likely be capable of self-financing EE projects. This information could be obtained by conducting a measurement and evaluation study.

149. *How will permanent modification to customer practices help overcome technical resource barriers, as implied in row 2 of Table 51? If a measure is technically infeasible for a given customer, how would changes to practices within the customer’s organization overcome the technical barrier?*

SCE defines technical resource barriers as any technical challenges to implement an EE project, including lack of technical knowledge, technical resources, adequate technology, or a qualified work force. Leveraging the strategies identified to educate

customers on benefits and technical details of EE solutions can drive modification of customer practices and allow customers to overcome technical challenges. This will provide customers the knowledge of which resources to utilize, as well as the ability to determine the cost-effectiveness of a given project. For example, recent EM&V studies have shown that SCE's partnership with local governments through Local Government Partnerships and the Statewide Energy Efficiency Collaborative has helped to increase local governments' EE knowledge and drive increased EE savings.<sup>32</sup>

150. *Would it be appropriate to track intermediate levels of metered data utilization that fall short of whole building or Normalized Metered Energy Consumption methodologies, but nevertheless represent greater access to data?*

SCE interprets this question to ask what the appropriate level of sub-metering is and whether there may be a sub-meter process that can satisfy SCE's and the customer's needs.

There are challenges with tracking usage levels for both master meters and sub-meters. While less costly than sub-metering, the challenge with utilizing metered information from a master-metered property is that there are large amounts of energy data, which makes it more difficult to isolate a particular effect from a given intervention. For example, if a property is master-metered and a single building, making up a small percent of the property's usage, participated in an energy efficient lighting retrofit program, it would be challenging to determine the impact that the retrofit has had on the energy usage of the campus. If each individual building was sub-metered, SCE would be able to isolate the effect of the energy efficient lighting retrofit. However, adding a new sub-meter to each building simply to determine EE impacts may be too costly to be

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<sup>32</sup> Research Into Action, Inc., "Model Assessment and Process Evaluation of Southern California Edison's Energy Leader Partnership Model". Published January 18, 2017.

effective in certain circumstances. In SCE's Amended Business Plan filed February 10, 2017, SCE proposed encouraging sub-metering where possible.<sup>33</sup>

One solution may be to provide a hybrid of the two schemes, an intermediate level of metered data that allows SCE to determine the impact of EE interventions. A level of analysis will be required for each situation to determine that a sufficient balance between cost and effectiveness exists before recommending sub-metering in this way. For example, it may make sense for an EE project to sub-meter in this way on 10 buildings of a 100 building campus. However, facilities personnel may want to have each building sub-metered to determine solar output or to track failure/proper maintenance of each building. SCE will explore this as an option in collaboration with third-party implementers in the development of implementation plans.

*151. The public sector program by 2020 presents a TRC of 0.68 and a PAC of 0.83, both significantly lower (roughly half the level of cost-effectiveness) than the residential and commercial sectors. (See February 10, 2017 Amended Application, page 3.) Explain why this sector is so much less cost-effective, and what kinds of intervention strategies or changes in the market itself could see this investment profile improve.*

The public sector's TRC and PAC is lower than the residential and commercial sectors, as shown in SCE's Amended Business Plan Application filed on February 10, 2017, because public sector customers have longer public decision-making processes, often experience resource deficiencies, and have contracting burdens unique to the sector (such as public contract code, prevailing wage, etc.) This results in lower TRC and PAC due to longer lead times and higher project costs than residential or commercial sectors. This was corroborated by a report from the National University System Institute for

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<sup>33</sup> SCE Amended Business Plan, p. 189.

Policy Research, which found that project labor agreements in school construction projects raised construction costs by 13-25 percent.<sup>34</sup> Additionally, the Public Sector offers customers more technical assistance and incentives to drive EE projects in this sector.

Several studies have highlighted the benefit of enhanced incentives and technical assistance for this sector. RIA ELP Model Assessment states that “the tiered model [of incentives] motivates local governments to do municipal retrofits projects and complete Energy Action Plans”<sup>35</sup> and the Navigant Institutional Partnership Program Assessments Study states “the ability to combine financing and rebates likely has a positive leverage effect on each partner’s ability to complete projects.”<sup>36</sup> Lastly RIA LGP Targeted Process Evaluation states that “LGPs value the technical assistance currently available through the LGP program and would benefit from additional technical assistance to support calculation of ongoing energy savings, implementing energy management systems (EMS), and Job Order Contracting (JOC).”<sup>37</sup>

Also, the public sector’s TRC and PAC is lower than the residential and commercial sectors because the public sector has several non-resource programs and policies that the commercial sector does not. For example, SCE includes the Statewide

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<sup>34</sup> Vasques Vince, Glaser, Dale; and Bruvold, Erik W, Measuring the Cost of Project Labor Agreements on School Construction in California pg. 1, *available at* <http://www.nusinstitute.org/assets/resources/pageResources/Measuring-the-Cost-of-Project-Labor-Agreements-on-School-Construction-in-California.pdf>

<sup>35</sup> Research Into Action Inc., Model Assessment and Process Evaluation of Southern California Edison’s Energy Leader Partnership Model, pg. II, (Jan.2017) *available at* [http://www.calmac.org/publications/ELP\\_Final\\_Report\\_011817.pdf](http://www.calmac.org/publications/ELP_Final_Report_011817.pdf)

<sup>36</sup> Navigant Consulting, Program Assessments Study: Statewide Institutional IOU Energy Efficiency Partnership Programs-WO012”, pg. 7-13 (Feb. 2013) *available at* [http://www.energydataweb.com/cpucFiles/pdaDocs/908/Statewide\\_Institutional\\_IOU\\_Energy\\_Efficiency\\_Partnership\\_Assessment%20Final%20Draft.pdf](http://www.energydataweb.com/cpucFiles/pdaDocs/908/Statewide_Institutional_IOU_Energy_Efficiency_Partnership_Assessment%20Final%20Draft.pdf)

<sup>37</sup> Research Into Action, Inc. Targeted Process Evaluation of the Local Government Partnership Program pg. VI. (Nov. 2016) *available at* [http://www.calmac.org/publications/LGP\\_TPE\\_Final\\_Report\\_11.28.16.pdf](http://www.calmac.org/publications/LGP_TPE_Final_Report_11.28.16.pdf)

Energy Efficiency Collaborative Program<sup>38</sup> and Strategic Plan<sup>39</sup> activities in the public sector cost-effectiveness calculations, even though they yield no immediate savings impact. Additionally, there are several requirements placed on Local Government partners, such as the adoption of Energy Action Plans or community outreach events which drive long-term EE savings, but no immediate savings impact to the cost-effectiveness calculations.

**E. Codes and Standards**

152. *Existing Programs: Since it has been proposed that part of the codes and standards effort is statewide and that federal appliance standard advocacy will be administered separately, how are the costs for each apportioned?*

SCE historically budgeted an average of 20 percent of its appliance advocacy program budget to federal appliance advocacy activities, and roughly 80 percent to statewide appliance advocacy. However, it is important to note that the federal appliance budget could and likely will vary from year-to-year depending upon Department of Energy and ENERGY STAR® activity that affects California. Please see the response to Question 15 regarding the funding of statewide programs for additional information.

153. *Expanded Subprograms:*

a) *Provide more detail on how SCE will coordinate with SoCalREN on compliance improvement. How / through what mechanism(s)?*

SCE will coordinate with SoCalREN on improving compliance by holding collaborative meetings that include discussions on codes and standards compliance improvement. SCE has had a preliminary discussion with SoCalREN

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<sup>38</sup> Filed as Energy Leader Partnership Strategic Support Program

<sup>39</sup> Filed as Local Government Strategic Planning Pilot Program



concerning codes and standards compliance improvement activities and many coordination opportunities were identified. Specifically, the discussions identified complementary resources that can be offered to local governments and their constituents to improve code compliance. While SCE has developed a robust portfolio of code compliance tools, training curricula (and trainers), and web content, SoCalREN has separate and effective outreach and delivery channels. Further discussions with SoCalREN will be held to identify and implement other tools and resources to improve code compliance that may include, but are not limited to, joint code compliance training classes for building personnel, joint outreach to the building industry on code compliance resources such as those found on [www.energycodeace.com](http://www.energycodeace.com), and developing areas of focused code compliance (e.g., air conditioning system retrofits) where SCE provides tools and resources and SoCalREN concentrates on enforcement by the building departments.

*b) How will SCE collaborate with SoCalREN on the reach codes subprogram?*

SCE will collaborate with SoCalREN on the reach codes subprogram by holding collaborative meetings to discuss reach codes ordinances. In the same preliminary discussion described above, SCE and SoCalRen also discussed possible collaborations on supporting local jurisdictions in adopting reach code ordinances. Although SCE supports jurisdictions considering reach codes with cost-effectiveness studies (as required by the California Energy Commission (CEC)), tools to track GHG emissions reductions for meeting Climate Action goals, support compliance with the reach codes, and support on navigating the CEC approval process, SCE does not lobby and advocate for local governments to adopt reach codes. However, SoCalREN may consider advocating for the

adoption of reach codes. Further discussion with SoCalREN is needed to address their potential role in this coordinated approach.

c) *How are SCE's non-advocacy efforts coordinated with the other IOUs?*

SCE's Codes and Standards program currently coordinates non-advocacy efforts with the other IOUs by using existing Codes and Standards team meetings. For example, the compliance improvement team meeting is used to plan and further develop Energy Code Ace. Energy Code Ace is a non-advocacy web-based resource for code compliance that was developed, supported, and co-branded by all of the IOUs. The compliance improvement team has regularly scheduled meetings to discuss such issues as new content for code updates, upcoming events, and executes co-funded contracts with vendors to develop content, manage the website, and offer trainings. In addition, the Codes and Standards program team also discuss non-advocacy efforts in the statewide reach code team meetings. The reach code team meetings support local jurisdictions into adopting reach codes by developing cost-effectiveness studies for each of the California climate zones. The reach code team has regularly scheduled coordination meetings to discuss outreach to the 500+ jurisdictions in California, compliance software development, reach code tiers, and other topics. The reach code team also executes co-funded contracts with vendors to develop cost-effectiveness studies, model ordinances, and workshops. Such coordination activity for complementary efforts will likely occur in the future via the Program Council meetings as described in the responses to Question 13 and Question 19.

155. *New Subprograms*

- a) *How will the national and international Standards Advocacy program coordinate with the other IOUs?*

National and international Standards Advocacy program will continue to coordinate with the other IOUs by using existing Codes and Standards team meetings, similar to the approach described for non-advocacy efforts as described in SCE's response to Question 153. Please also see the response to Question 29.

- b) *Or are coordinated efforts not required?*

Not applicable.

**F. Workforce, Education & Training**

156. *If the Career Connections is a statewide program, how does SCE envision eliminating K-12 education activities when the other IOUs do not? Would this not violate the requirements that statewide programs be administered identically across service territories?*

SCE envisions that Career Connections will still be administered identically across the state, however, SCE proposes to only eliminate K-12 activities that are costly and do not support the state's aggressive energy savings goals. The proposed elimination of K-12 activities does not include the elimination of post-secondary training, which remains valuable and necessary to continue as part of supporting the EE portfolio. SCE's proposal focuses the program's resources on efforts to encourage incumbent or existing workers knowledge and skills that are more likely to translate into near-term kWh and kW savings to support EE portfolio goals. SCE proposes to focus resources on Workforce Education and Training (WE&T) activities that target high-potential-end-use customers that support the EE portfolio. Programs evolve and change for various reasons based on

new information and data and should be modified or eliminated when programs or elements of programs have low uptake, low cost-effectiveness, or are outdated based on new technologies.

While D.16-08-019 states that “Local or regional variations in incentive levels, measure eligibility, or program interface are generally not permissible,” the decision clarifies that differences occur “when the program administrator has provided evidence that the default statewide customer interface is not successful in a particular location.”<sup>40</sup> SCE interprets this to mean that if it provides sufficient evidence that K-12 activities are not cost-effective, it can seek Commission approval to have a variation from the statewide approach.

*156. Provide more background on why K-12 education activities should be eliminated. (SCE Business Plan, page 284)*

As discussed above, SCE proposes to eliminate K-12 activities that are costly and do not support the state’s aggressive energy savings goals. As part of SCE’s efforts to meet cost-effectiveness goals under increasingly challenging circumstances while optimizing the use of ratepayer funds for EE programs and achieving the state’s aggressive energy savings and GHG goals, SCE examined programs and components of programs that were not substantively contributing to the portfolio savings and cost-effectiveness goals. SCE’s proposal to eliminate K-12 activities will contribute to maintaining an overall cost-effective EE portfolio. SCE recognizes the value of funding and implementing programs to raise awareness of EE issues and job opportunities among children; however, these types of efforts may be more suitable for other entities and SCE seeks to maintain the IOU WE&T efforts in service of those already in or likely to enter the workforce supporting EE technologies and careers. Additionally, SCE plans to

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<sup>40</sup> D.16-08-019, p. 62.

continue to leverage the Energy Education Centers for outreach activities in the K-12 community.

**G. Strategic Energy Management**

*157. SCE's description of the Strategic Energy Management program is not aligned with the program developed jointly by the IOUs, and appears to refer to a prior Continuous Energy Improvement program. Was this intentional or an error? Explain.*

SCE did not intend to describe the Strategic Energy Management (SEM) program in a way that showed misalignment with the program being developed jointly by the IOUs. SCE included a description of the SEM program that referred to the prior Continuous Energy Improvement (CEI) program to explain what some potential outcomes of SEM pending final development of the joint IOU program. SCE does not intend to have a SEM program that is independent of the program developed jointly by the IOUs, which SCE understands to be a redesign of the currently available CEI offering in order to claim behavioral and/or operational savings. SCE will continue to work with the other IOUs and the Commission to develop a consistent SEM program design.

**V.**

**CONCLUSION**

SCE appreciates the opportunity to provide these comments and responses to the questions posed in Attachment A of the Ruling.

Respectfully submitted,

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**Appendix 1**

**STUDIES AND RESEARCH USED TO DEVELOP INTERVENTION STRATEGIES AND  
TACTICS**

# APPENDIX 1 – STUDIES AND RESEARCH USED TO DEVELOP INTERVENTION STRATEGIES AND TACTICS

## Residential Sector Proposed Intervention Strategies

- Homeowner / Renter Existing Building Intervention Strategies

Strategy	Tactics	Study	Comments
<b>Existing Strategies / Tactics</b>			
<b>Partnering</b>	Train market participants (e.g., HVAC contractors, building inspectors, etc.) about the requirements and benefits of quality HVAC installation to support code compliance.	<ol style="list-style-type: none"> <li>1. EBEE: High-Performance Workforce, Education, and Training (WE&amp;T): 3.3 (3.3.5, 3.3.2) <ul style="list-style-type: none"> <li>• California HVAC Contractor &amp; Technician Behavior Study; EMI Consulting 9/14/2012 SCE0323.01</li> <li>• California HVAC Contractor &amp; Technician Behavior Study; EMI Consulting 5/6/2015 SCE0375.01</li> <li>• California Heating, Ventilation, and Air Conditioning (HVAC) Quality Installation/Quality Maintenance Customer Decision-Making (CDM) Study; EMI Consulting -5/4/2015- CPU0374.01</li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li>1. Educate market actors about Title 24 requirements for HVAC Quality installation.</li> </ol> <p>These three studies consistently show that transforming the HVAC marketplace in California will require ongoing efforts to address multiple gaps across various market actors.</p> <ul style="list-style-type: none"> <li>• Generally, Residential HVAC programs needs to be refocused with continued work on program delivery, branding, training (ACCA 5 and 9 standards and T24 requirements) and marketing efforts in order to make significant strides in increasing customer participation and significant energy savings.</li> <li>• Contractors/Technicians/Customers do not fully understand the “Quality Installation/Quality Maintenance” value proposition and do not fully comprehend the distinction. It is critical to provide effective training to contractors and technicians, in addition to consistent and appropriate implementation of the ACCA/ASHRAE standards and effective branding and messaging for contractors, technicians, and customers.</li> </ul> <p>To this end, SCE is refocusing its efforts and for the short-term incorporating HVAC education and code compliance advocacy through other programs (e.g. HEA, WE&amp;T, EUC HU, C&amp;S, etc.). For the mid-term, the program will move towards pay for performance. For more information please see WE&amp;T.</p>



	<p>Support home buyers through real estate agents and appraiser education to better understand the value of EE.</p>	<ul style="list-style-type: none"> <li>• EBEE - Strategy 3.2 Performance-Driven Value</li> <li>• EBEE 4.1 Real Estate Value: Work collaboratively with real estate industry, underwriters, and financial agents to adopt property asset-related energy characteristics in building valuation and to integrate energy efficiency into all transactions.</li> <li>• 4.1.2 Energy and Water Cost Savings: Develop and compile information on building life-cycle and/or building occupant tenure cost reductions for energy and water efficiency measures. Develop separate cost savings estimates as needed for each unique commercial business category and building type, as well as unique residential dwelling type. Incorporate regional (for example, climate) differences in expected cost savings information, when appropriate</li> </ul>	<ul style="list-style-type: none"> <li>• If customers were able to understand and realize the value provided by energy efficiency they would be more willing to pay for it.</li> <li>• By helping customers understand savings provided by efficiency such as reduced bills and increased comfort, it is possible for homes that are more efficient to be considered more valuable or enable consumers to have more discretionary funding to put forward for more efficient homes.</li> </ul>
	<p>Encourage third parties to develop and explore new high-quality, cost-effective products to support lighting innovation.</p>	<p>California Energy Efficiency Strategic Plan 2-1: Identify best practices in coordination with RD&amp;D and lighting market transformation programs to ensure use of high performance lighting systems</p> <p>Navigant Consulting, California LED Workpaper Update Study, p. 1-4 (Aug. 2015), <i>available at</i> <a href="http://www.calmac.org/startDownload.asp?Name=LED_Study_Report_FINAL_201510029.pdf&amp;Size=2871KB">http://www.calmac.org/startDownload.asp?Name=LED_Study_Report_FINAL_201510029.pdf&amp;Size=2871KB</a>.</p>	<ul style="list-style-type: none"> <li>• As CFL's are phased out of the market and completely out of lighting programs alternative technologies will need to take it's place.</li> <li>• LED's are the primary focus of these efforts and have seen increases in market penetration. However, as more standards are enacted in 2018 it will be necessary to support continued development of lighting technologies with increased efficiency and or quality.</li> <li>• Currently, the market is experiencing 16% price declines year over year for LED technologies as noted by the Navigant study increasing affordability and adoption efforts.</li> </ul>
<p><b>Quality Assurance</b></p>	<p>Educate consumers on the benefits of HVAC Quality Installations as a part of a whole-house approach.</p>	<p>Energy Market Innovations, California HVAC Contractor &amp; Technician Behavior Study (Sept. 2012), <i>available at</i> <a href="http://www.calmac.org/publications/CA_HVAC_Behavior_Study_FinalReport_2012Sept14_FINAL.pdf">http://www.calmac.org/publications/CA_HVAC_Behavior_Study_FinalReport_2012Sept14_FINAL.pdf</a> (Page ES-6)</p> <p>Ellen Steiner &amp; Donna Whitsett, California HVAC Contractor &amp; Technician Behavior Study, Phase II (Apr. 2015) <i>available at</i> <a href="http://www.calmac.org/publications/HVAC_C%26T_Behavior_Phase2_FINAL_REPORT.pdf">http://www.calmac.org/publications/HVAC_C%26T_Behavior_Phase2_FINAL_REPORT.pdf</a>. (Page ES-2)</p>	<ul style="list-style-type: none"> <li>• Energy Market Innovations “When communicating the benefits of proper HVAC maintenance to customers, technicians often only present basic explanations, as opposed to providing concrete reports of benefits and costs or examples with customer-specific data. Contractors reported that when selling maintenance service to customers, technicians most often provide a “basic explanation of benefits” resulting from proper HVAC maintenance, reported by 70% of contractors whose technicians sell directly to customers. Forty-one percent indicated that technicians are explicit with how maintenance addresses each benefit (e.g., energy savings, electric bills, and indoor air quality). Contractors did not frequently report that technicians write up a service</li> </ul>

			<p>report that addresses benefits and costs (indicated by only 18% of respondents) nor did they frequently report that technicians show the customer data gathered with diagnostic tools to demonstrate how much money they can save (indicated by only 10% of respondents). Field observations found that technicians usually emphasized the “perks,” such as discounts and priority service, rather than the services themselves or the maintenance benefits.”</p> <p><i>Ellen Steiner &amp; Donna Whitsett: Recommendation 8. Educate customers about the training/certification requirements for trade allies to participate in the QI and QM programs. This will allow them to differentiate QI/QM services from standard practice. In turn, customers may begin to demand contractors/technicians with these credentials.</i></p>
	Continue to support the development of higher-quality, more efficient products and technologies through ongoing influence with manufactures, retailers, and industry stakeholders.	EBEE Strategy 1.6.5 Plug-Load Management Programs: Develop, encourage, and offer incentives for turnover of existing stocks and use of plug-load management devices and software and novel approaches to reduce standby consumption.	Due to numerous products in the plug load space with a low unit energy savings value aggregating interventions at the retailer help reduce touch points in order to keep cost down.
<b>Customer Incentives</b>	Provide downstream incentives to customers to adopt whole house solutions.	California Energy Efficiency Strategic Plan Strategy 2-1: Deploy full-scale Whole house programs.	Customer Incentives are designed to help customer overcome upfront cost barriers where there is a lack of perceived value reducing barriers to help customers procure energy efficient measures and projects.
	Pursue customer and contractor adoption of EE measures by incentivizing market actors to reduce the cost of stocking high-efficiency products and generating customer demand for	<p>EBEE Strategy 1.6.6 Specification Development: In some cases, new appliance standards cannot be adopted because of federal preemption or application-specific cost-effectiveness. Develop purchasing and replacement guidelines for products where large savings opportunities exist, but new standards cannot be adopted.</p> <p>EBEE Strategy 1.6.7 Purchase Agreements: Use large organization purchasing power to increase the efficiency of</p>	

	targeted and high-impact measures.	equipment and devices (lighting, appliances) used by employees and/or renters. State and local government procurements and low-income programs will focus on high-efficiency products. Promote adoption of such purchase agreements by managers of large multifamily property portfolios.	
Upstream Incentives	Continue to mandate that manufacturers and retailers transfer 100 percent of the SCE customer incentive to end-users in the form of reduced prices.	California Energy Efficiency Strategic Plan 1-3: Create financial incentives and supportive policies to avoid trapped lighting energy savings opportunities and make best practice lighting solutions affordable (page 101) available at: <a href="http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=5303df">http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=5303df</a>	
	Encourage manufacturers and retailers to provide additional price reductions of their own.	California Energy Efficiency Strategic Plan 1-3: Create financial incentives and supportive policies to avoid trapped lighting energy savings opportunities and make best practice lighting solutions affordable (page 101) available at: <a href="http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=5303df">http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=5303df</a>  <b>Study: Building a Policy Framework to Support Energy Efficiency Market Transformation in California by:</b> Ralph Prah, Ken Keating, Consultants to Energy Division <i>available at:</i> <a href="http://www.energydataweb.com/cpucFiles/pdaDocs/1187/MT_Policy_White_Paper_Public_Review_draft_Oct_2014.doc">http://www.energydataweb.com/cpucFiles/pdaDocs/1187/MT_Policy_White_Paper_Public_Review_draft_Oct_2014.doc</a> (An updated version was supplied December 9 <sup>th</sup> 2014.) Also cited within the report [2] Quantec, Evaluation Report No. 5, <i>op. cit.</i> This contains the most extensive description of the program available.	Due to increased code requirements reducing attributable program savings alternative/complementary efforts will need to be pursued to support market efforts.  As an example, in the NEEA case study cited in the CPUC draft Market Transformation , " Due to increased code requirements reducing attributable program savings alternative/complementary efforts will need to be pursued to support market efforts.  " NEEA's market-based initiative involved showing manufacturers and distributors how they could get a larger market share with off-the shelf technologies. The campaign included fact sheets, press releases, brochures, newsletters, trade show exhibits, print media advertisements, special "give-a-ways," sales team training kits, point-of-purchase materials, and builder sales kits. Media and promotional campaigns included trade shows, the Street of Dreams, the Parade of Homes, monthly trade association meetings, industry conferences, golf tournaments, and advertising such as promotional banners at special events (e.g., a Seattle Mariners baseball game) to recognize achievements of leading ENERGY STAR partners. <u>Not only were no consumer or upstream rebates used by the initiative, but six of the manufacturers and distributors put up co-funding for the marketing of over a million dollars.</u> [2]

<p><b>Delivery Channel</b></p>	<p>Targeted delivery and support of high-efficacy lighting to focus on stocking products in more stores and those where free-ridership is lower.</p>	<p>Cited in the Study below: DNV-GL 2014, “California Residential Replacement Lamp Market Status Report: ULP and Market Activities in California through 2013.”</p> <p>Marian Goebes et al., Lighting Savings Overlap Estimates for 2014 IOU Home Energy Report Programs, p. 67 (June 2016), <i>available at</i> <a href="http://www.calmac.org/publications/Final_HER_2014_Upstream_Lighting_Savings_Overlap.pdf">http://www.calmac.org/publications/Final_HER_2014_Upstream_Lighting_Savings_Overlap.pdf</a> .</p>	<p>“...different market channels have very different levels of high efficacy lamp availability. For example, in the 2014/15 shelf survey, 16% of lamps in Discount stores were high efficacy, as calculated as (CFLs + LEDs) / Total lamps, compared to 100% in wholesale clubs. In addition, the fraction of lamps that are high efficacy has dropped in several market channels from 2012 compared to 2014. As shown in Figure 50, high efficacy lamps comprised over half of lamps on shelves in the summer 2012 survey (52% across all market channels), but less than half of lamps on shelves in the 2014/15 survey (46% across all market channels). The decline has been more dramatic for some market channels, including those that had previously received higher levels of IOU rebates. For example, high efficacy lamps comprised 58% of lamps in Discount stores in the summer 2012 shelf survey, but only 16% of lamps in the 2014/15 shelf survey. Similarly, high efficacy lamps comprised 54% of total lamps in grocery stores in the 2012 shelf survey, but only 29% in the 2014/15 shelf survey.)</p>
<p><b>Intelligent Outreach</b></p>	<p>Outreach to drive contractor participation in providing whole house solution to customers.</p>	<p>Existing Building Energy Efficiency Action Plan Strategy 3.1.2 Industry Partners Programs: Develop partner programs with trade organizations and industry agents to address key market barriers and promote industry innovations (by sector and/or end use).</p> <ul style="list-style-type: none"> <li>• Provide broad access to market research program evaluation findings, understand market dynamics, share best practices, and foster industry engagement in determining effective efficiency strategies and approach.</li> </ul> <p>DNV-GL, Focused Impact Evaluation of the 2013-2014 Home Upgrade Program, p. 25 (May 2016), <i>available at</i> <a href="http://calmac.org/publications/CPUC_HUP_Focused_Evaluation-FINAL_05-03-16atr.pdf">http://calmac.org/publications/CPUC_HUP_Focused_Evaluation-FINAL_05-03-16atr.pdf</a>. 0118.01, pp. 20</p>	<p>Continued engagement of contractors will be important to supporting deeper retrofit approaches for home owners. Increases in whole home solutions and non-programmatic offerings will need to be shaped to deliver more cost-effective programs with increased realization of energy savings.</p> <p>Impact Evaluations demonstrate the difficulty with savings realization rate and engaging contractors to improve whole home solutions and their benefit to customers. This approach will be complemented by other efforts such as shifting programs to pay for performance.</p>
<p>Modified Strategies / Tactics</p>			
<p><b>Intelligent Outreach</b></p>	<p>Simplify online customer engagement and access to streamline the customer experience and drive</p>	<p>EBEE Action Plan Strategy 2.2 Consumer-Focused Energy Efficiency Easing Efficiency Program Participant Burden: One-stop shops provided via online marketplaces, where product purchasing and rebate processing are streamlined. (Page 42)</p>	

	participation in self-service options. This addresses customer hassle- and uncertainty-related barriers.		
	Engage customers through behavioral offerings to drive EE adoption and conservation.	<p>EBEE Strategy 2.1 Data For Improved Decisions: Ensure that Californians (consumers, industry, building owners, policy makers, and professionals) have access to appropriate data sources to make informed decisions related to energy efficiency</p> <p>EBEE Strategy 2.1.3 Easy-to-Access Data and Analytics: Provide simple, standardized access to customers and their chosen service providers so they can easily understand their real-time energy use and assess needs. Develop solutions for multifamily buildings, particularly low-income and commercial buildings, including provision of regular and frequent building-level usage reports. Allow consumers to share/donate their data for consideration of possible EE upgrades.</p>	
<b>Financing</b>	Expand and promote financial offerings to overcome up-front cost and performance uncertainties.	<p>EBEE Strategy 5.1 Foster Private Capital Market Establish a robust financing market infrastructure that will attract large private capital.</p> <p>EBEE Strategy 5.2.3 Split Incentives: Assess and encourage new cost recovery mechanisms such as surcharge on tenant meters or “green leases” to surmount “split incentive” dilemma.</p> <p>EBEE Strategy 5.4.2 Targeted Incentives: Reassess the role of front-end incentives once financing becomes widely and easily available at good terms. Transition incentives to selected technologies, target markets, and/or trigger points</p>	
New Strategies / Tactics			
<b>Direct Install</b>	Provide no-cost measures for SF residents to overcome	EBEE Strategy 5.7.1 Balanced Assistance Options: Work with stakeholders to assess optimal balance of assistance options across financing, on-bill repayment tied to meter,	

	up-front cost barriers for EE adoption and support all occupants.	and grants or <u>direct installation to maximize water and energy efficiency levels, using ratepayer, occupant, or other funds.</u>	
<b>Midstream Incentives</b>	Pursue midstream energy savings by incentivizing retailers and manufacturers to reduce the cost of stocking high-efficiency appliance products for consumers.	<p>EBEE Strategy 3.1.1 Sustainable and Effective Program Delivery: Optimize program portfolios to reduce transaction costs and dramatically increase impacts in hard to reach sectors • Streamline program requirements and operational procedures. Expand statewide programs with uniform designs.</p> <p>KEMA, Inc., Impact Evaluation Report: Business and Consumer Electronics Program (WO34), p.6-35 (Apr. 2013), <i>available at</i> <a href="http://calmac.org/publications/WO34_BCE_Impact_Evaluation_Report_-_Phase_1_FINAL_2013-04-15.pdf">http://calmac.org/publications/WO34_BCE_Impact_Evaluation_Report_-_Phase_1_FINAL_2013-04-15.pdf</a> .</p>	
<b>Customer Incentives</b>	Incorporate emerging market technologies to help consumers manage their energy use where cost-effective.	EBEE Strategy 2.1.3 Easy-to-Access Data and Analytics: Provide simple, standardized access to customers and their chosen service providers so they can easily understand their real-time energy use and assess needs. Develop solutions for multifamily buildings, particularly low-income and commercial buildings, including provision of regular and frequent building-level usage reports. Allow consumers to share/donate their data for consideration of possible EE upgrades.	
	Provide downstream incentives to customers for targeted or low-volume products such as emerging, and energy management technologies to enable customer control and information where cost-effective.	California Energy Efficiency Strategic Plan Strategy 1-4: Expand activities to create market pull for energy-efficient technologies.	
	Provide co-pay options for customers	EBEE Strategy 3.1.1 Sustainable and Effective Program Delivery: Optimize program portfolios to reduce transaction	

	to adopt additional improvements to leverage direct install touchpoints and provide more customer choices.	costs and dramatically increase impacts in hard to reach sectors <ul style="list-style-type: none"> <li>• Streamline program requirements and operational procedures. Expand statewide programs with uniform designs. 2016 and beyond</li> <li>• Improve and expand direct install programs for hard to reach populations</li> </ul>	
	Shift whole house solutions towards pay-for-performance and align customer and contractor incentives to drive participation in high-performing energy retrofits.	SB 350 shifting to performance based programs.  EBEE Strategy 3.2.2 Incentives Tied to Performance: Employ performance-based incentives to support savings realization and persistence, in tandem with finance mechanisms (Goal 5) that manage cash flow.	SB350 Section 16 Section 399.4 – (2) Authorize pay for performance programs that link incentives directly to measured energy savings. As part of pay for performance programs authorized by the commission, customers should be reasonably compensated for developing and implementing an energy efficiency plan, with a portion of their incentive reserved pending post project measurement results.
<b>Intelligent Outreach</b>	Augment and deploy targeted customer outreach to customers with high potential for energy savings.	2.2.3 Targeted Programs: Support a range of targeted approaches to energy and water efficiency for property owners and occupants based on data-driven market segmentation and filtering. • Use data to develop and leverage consumer profiles and use those profiles to meet consumers where they are and motivate them to take the next action.  DNV-GL, Focused Impact Evaluation of the 2013-2014 Home Upgrade Program, p. 25 (May 2016), <i>available at</i> <a href="http://calmac.org/publications/CPUC_HUP_Focused_Evaluation-FINAL_05-03-16atr.pdf">http://calmac.org/publications/CPUC_HUP_Focused_Evaluation-FINAL_05-03-16atr.pdf</a> . 0118.01, pp. 20	As noted in the impact evaluation, consumers with particular attributes have high potential to realize cost-effective savings based on their building profile. By targeting these customers, there are opportunities to increase depth and cost-effective energy savings.
	Provide meaningful energy feedback tools and/or recommendations to customers to better manage their energy use, such as social behavioral interventions or positioning EE communications	EBEE Strategy 2.1.3 Easy-to-Access Data and Analytics: Provide simple, standardized access to customers and their chosen service providers so they can easily understand their real-time energy use and assess needs. Develop solutions for multifamily buildings, particularly low-income and commercial buildings, including provision of regular and frequent building-level usage reports. Allow consumers to share/donate their data for consideration of possible EE upgrades.	Historically, feedback tools such as home Energy Reports have seen scalable energy savings for residential customers. As legislation like AB793 become enacted as well as third party vendors, SCE anticipated a variety of approaches to consumer engagement will be utilized in order to pair with traditional savings, manage pay for performance feedback or stand-alone offerings.

	based on customer attributes.		
	Provide a consumer knowledge base online tool to support customer adoption of and information about EE products such as EMTs, etc.	Strategy 1.6 Plug-Load Efficiency: “Energy-Smart Product Marketplaces Some California utilities have created online appliance and consumer electronics marketplaces where their customers can review products, learn about potential energy savings, and apply for rebates (Figure 4).15 Partnering with Enervee, a software-as-a-service energy efficiency information provider, these utilities are providing company-branded marketplaces with multiple potential benefits. (See sidebar.) There is also the potential for policy makers to access the consumer product market data behind these online stores, to better track the diversity of products and the associated efficiency improvements over time.” (Page 25)	Highlights called out in the Existing Building Energy Efficiency action plan: Utility-Branded Marketplaces • Eliminate barriers to energy-smart shopping • Simplify shopping experiences • Establish ongoing customer relationships Key Features • Full market coverage • State-of-the-art comparison shopping • Energy score making efficiency visible • Personalized energy bill savings • Ongoing digital engagement • Integrated incentives
<b>Single Point of Contact</b>	Provide a single point of contact for multi-utility offerings to deliver water, gas, and electric savings	Same logic applies for SF and building owners. Simplify offerings and make them one-stop shops where appropriate.	

- MF Owner / Manager Existing Building Intervention Strategies

Strategy	Tactics	Study	Comments
<b>Existing Strategies / Tactics</b>			
<b>Partnering</b>	Provide education and outreach to trade organizations, local governments, and portfolio operators to increase awareness and drive program participation.		



Strategy	Tactics	Study	Comments
Single POC	Simplify owner engagement to reduce multiple customer touchpoints.	<p>Examples of ACEEE multi-family reports: Anne McKibbin et al., Engaging as Partners in Energy Efficiency: Multifamily Housing and Utilities, (Jan. 2012), <i>available at</i> <a href="http://www.aceee.org/research-report/a122">http://www.aceee.org/research-report/a122</a>. (page 41); Anne McKibbin &amp; CNT Energy, Engaging as Partners: Introducing Utilities to the Energy Efficiency Needs of Multifamily Buildings and Their Owners, (Mar. 2013), <i>available at</i> <a href="http://www.aceee.org/research-report/e137">http://www.aceee.org/research-report/e137</a> ; Kate Johnson, Apartment Hunters: Programs Searching for Energy Savings in Multifamily Buildings, (Dec. 2013), <i>available at</i> <a href="http://www.aceee.org/research-report/e13n">http://www.aceee.org/research-report/e13n</a> .</p>	<p>Multifamily Housing and Utilities, (Jan. 2012) RESOLVED, That utilities and other energy efficiency program administrators that deliver energy efficiency programs to affordable multifamily buildings should consider ensuring that such programs improve awareness of energy costs and the importance of energy efficiency among tenants and owners in rental properties, reasonably meet the needs of those owners and tenants, and offer the opportunity for “one-stop shopping”—that is, offer the owner of multifamily housing a simple, single point of entry to apply for utility-funded energy efficiency services, even if the owner’s property includes a mix of individual (tenant-paid) meters and master meters, and/ or a mix of building size and types (e.g., low-rise, high-rise, duplex, townhouse);...</p> <p>Introducing Utilities to the Energy Efficiency Needs of Multifamily Buildings and Their Owners (Page 19)</p> <p>Apartment Hunters: Programs Searching for Energy Savings in Multifamily Buildings, (Dec. 2013), (Page 8)</p>
Direct Install	Provide no-cost measures for MF properties to overcome up-front cost barriers to EE adoption, to support all occupants and leverage customer touchpoints.	<p>EBEE Strategy 3.1.1 Sustainable and Effective Program Delivery: Optimize program portfolios to reduce transaction costs and dramatically increase impacts in hard to reach sectors</p> <ul style="list-style-type: none"> <li>• Streamline program requirements and operational procedures. Expand statewide programs with uniform designs. 2016 and beyond</li> <li>• Improve and expand direct install programs for hard to reach populations</li> </ul> <p>Kate Johnson, Apartment Hunters: Programs Searching for Energy Savings in Multifamily Buildings, (Dec. 2013), <i>available at</i> <a href="http://www.aceee.org/research-report/e13n">http://www.aceee.org/research-report/e13n</a> .</p>	<p>Apartment Hunters: Programs Searching for Energy Savings in Multifamily Buildings: “Integrate direct installation and rebate programs. Direct installation programs which offer no-cost energy efficiency measures can provide an opportunity to connect with building owners, complete an onsite energy assessment, and encourage owners to take advantage of rebates for more extensive improvements such as HVAC upgrades, weatherization, common area lighting retrofits, and other building shell improvements. The dual approach also allows programs to address both common areas and residential units.” (Page iv)</p>

Strategy	Tactics	Study	Comments
<b>Customer Incentives</b>	Provide incentives to property owners to adopt EE solutions for both dwelling and common area locations.	Kate Johnson, Apartment Hunters: Programs Searching for Energy Savings in Multifamily Buildings, (Dec. 2013), available at <a href="http://www.aceee.org/research-report/e13n">http://www.aceee.org/research-report/e13n</a> .	“Integrate direct installation and rebate programs. Direct installation programs which offer no-cost energy efficiency measures can provide an opportunity to connect with building owners, complete an onsite energy assessment, and encourage owners to take advantage of rebates for more extensive improvements such as HVAC upgrades, weatherization, common area lighting retrofits, and other building shell improvements. The dual approach also allows programs to address both common areas and residential units.” (Page iv)
<b>Modified Strategies / Tactics</b>			
<b>Partner-ing</b>	Expand partnering efforts to increase focus on low-income and rural customers through increased coordination with relevant agencies. Partner with the local MF housing industry.	Kate Johnson, Apartment Hunters: Programs Searching for Energy Savings in Multifamily Buildings, (Dec. 2013), available at <a href="http://www.aceee.org/research-report/e13n">http://www.aceee.org/research-report/e13n</a> .	Partner with the local multifamily housing industry. While the multifamily housing sector is complex, it is relatively well organized, with robust local networks of property managers and owners. Taking advantage of these networks to create partnerships with local associations of multifamily owners, managers, and contractors can help program administrators identify and connect directly with potential program participants. (page v)
<b>Single POC</b>	Leverage SPOC and authorized contractors to offer direct install, prescriptive rebates, whole building, and any other MF solutions that are available through existing programs.	Examples of ACEEE multi-family reports: Anne McKibbin et al., Engaging as Partners in Energy Efficiency: Multifamily Housing and Utilities, (Jan. 2012), available at <a href="http://www.aceee.org/research-report/a122">http://www.aceee.org/research-report/a122</a> . (page 41); Anne McKibbin & CNT Energy, Engaging as Partners: Introducing Utilities to the Energy Efficiency Needs of Multifamily Buildings and Their Owners, (Mar. 2013), available at <a href="http://www.aceee.org/research-report/e137">http://www.aceee.org/research-report/e137</a> ; Kate Johnson, Apartment Hunters: Programs Searching for Energy Savings in Multifamily Buildings, (Dec. 2013), available at <a href="http://www.aceee.org/research-report/e13n">http://www.aceee.org/research-report/e13n</a> .	Multifamily Housing and Utilities, (Jan. 2012) “RESOLVED, That utilities and other energy efficiency program administrators that deliver energy efficiency programs to affordable multifamily buildings should consider ensuring that such programs improve awareness of energy costs and the importance of energy efficiency among tenants and owners in rental properties, reasonably meet the needs of those owners and tenants, and offer the opportunity for “one-stop shopping”—that is, offer the owner of multifamily housing a simple, single point of entry to apply for utility-funded energy efficiency services, even if the owner’s property includes a mix of individual

Strategy	Tactics	Study	Comments
	<p>Simplify owner engagement to reduce multiple customer touchpoints.            Provide additional SPOCs to provide better coverage and support to all MF sub-segments            Use qualified contractors to fulfill the SPOC role when working with small to medium property/portfolio operators.</p>		<p>(tenant-paid) meters and master meters, and/ or a mix of building size and types (e.g., low-rise, high-rise, duplex, townhouse);...” (Page 41)</p> <p>Introducing Utilities to the Energy Efficiency Needs of Multifamily Buildings and Their Owners (Page 19)</p> <p>Apartment Hunters: Programs Searching for Energy Savings in Multifamily Buildings, (Dec. 2013), (Page 8)</p>
<p><b>Direct Install</b></p>	<p>Provide no-cost measures for MF properties to overcome up-front cost barriers to EE adoption, to support all occupants and leverage customer touchpoints.            Integrate direct install program delivery with the ESA Program to better serve both low-income and market-rate multifamily properties and</p>	<p>Kate Johnson, Apartment Hunters: Programs Searching for Energy Savings in Multifamily Buildings, (Dec. 2013), available at <a href="http://www.aceee.org/research-report/e13n">http://www.aceee.org/research-report/e13n</a> .</p> <p>Decision 16-11-022: DECISION ON LARGE INVESTOR-OWNED UTILITIES’ CALIFORNIA ALTERNATE RATES FOR ENERGY (CARE) AND ENERGY SAVINGS ASSISTANCE (ESA) PROGRAM APPLICATIONS</p>	<p>Apartment Hunters: Programs Searching for Energy Savings in Multifamily Buildings: “Integrate direct installation and rebate programs. Direct installation programs which offer no-cost energy efficiency measures can provide an opportunity to connect with building owners, complete an onsite energy assessment, and encourage owners to take advantage of rebates for more extensive improvements such as HVAC upgrades, weatherization, common area lighting retrofits, and other building shell improvements. The dual approach also allows programs to address both common areas and residential units.” (Page iv)</p> <p>D1611022: We note that the IOUs have developed a series of direct install, behavior, rebate, and whole-building retrofit approaches and programs designed to address the energy savings potential in the multifamily market through the Commission’s EE program and other initiatives. These</p>

Strategy	Tactics	Study	Comments
	improve program participation.		historically siloed programs have been difficult to integrate and leverage with ESA. Recognizing this barrier to coordination and program cohesion, the IOUs have supported the SPOC design and proposed incremental program integration improvements. We agree with the IOUs that their multifamily treatment strategy used the —layered. (Page 198)
<b>New Strategies / Tactics</b>			
<b>Bench- marking</b>	Foster ongoing relationships with facility managers and owners about energy use to enable investment prioritization through benchmarking. Use the EPA’s Energy Star® Portfolio Manager to benchmark and track progress toward goals.	<p>EBEE Strategy 2.1 Data For Improved Decisions: Ensure that Californians (consumers industry, building owners, policy makers, and professionals) have access to appropriate data sources to make informed decisions related to energy efficiency.</p> <p>Kate Johnson, Apartment Hunters: Programs Searching for Energy Savings in Multifamily Buildings, (Dec. 2013), <i>available at</i> <a href="http://www.aceee.org/research-report/e13n">http://www.aceee.org/research-report/e13n</a> .</p> <p>Decision 16-11-022: DECISION ON LARGE INVESTOR-OWNED UTILITIES’ CALIFORNIA ALTERNATE RATES FOR ENERGY (CARE) AND ENERGY SAVINGS ASSISTANCE (ESA) PROGRAM APPLICATIONS</p>	<p>, Apartment Hunters: Programs Searching for Energy Savings in Multifamily Buildings, (Dec. 2013) PROGRAM SUCCESSES AND LESSONS LEARNED:”... Benchmarking incentives help owners who may not be ready for comprehensive projects to learn more about their building's current performance, work with a multifamily performance partner, and acquire information about low- and no cost efficiency opportunities.” (page 46)</p> <p>D1611022: We direct the utilities to benchmark multifamily properties (whether treated through the common area approach or simply reported on through the SPOC process) through Environmental Protection Agency Portfolio Manager, beginning with master-metered buildings.</p>
<b>Intelligent Outreach</b>	Use of energy use, data analytics to identify high opportunity properties to engage and educate owners about their energy use to enable	Kate Johnson, Apartment Hunters: Programs Searching for Energy Savings in Multifamily Buildings, (Dec. 2013), <i>available at</i> <a href="http://www.aceee.org/research-report/e13n">http://www.aceee.org/research-report/e13n</a> .	<p>Apartment Hunters: Programs Searching for Energy Savings in Multifamily Buildings, (Dec. 2013), (Page 8)</p> <p>PROGRAM SUCCESSES AND LESSONS LEARNED:”... Benchmarking incentives help owners who may not be ready for comprehensive projects to learn more about their building's current performance, work with</p>

Strategy	Tactics	Study	Comments
	investment prioritization.		a multifamily performance partner, and acquire information about low- and no cost efficiency opportunities.” (page 46)
<b>Financing</b>	Explore On-Bill Financing (OBF)/On-Bill Repayment (OBR) programs in order to overcome up-front cost and performance uncertainties for multifamily properties.	Kate Johnson, Apartment Hunters: Programs Searching for Energy Savings in Multifamily Buildings, (Dec. 2013), available at <a href="http://www.aceee.org/research-report/e13n">http://www.aceee.org/research-report/e13n</a> .	BEST PRACTICES FOR MULTIFAMILY ENERGY EFFICIENCY PROGRAMS: “Incorporate on-bill repayment or low-cost financing. Limiting or eliminating the upfront cost to building owners can enable them to undertake more substantial energy efficiency projects and to overcome traditional barriers related to the competition for scarce funding for capital projects. Low-interest financing and on-bill repayment can help owners spread out over time the cost of energy efficiency projects.” (Page iii)

- Builder / Developer New Construction Intervention Strategy

Strategy	Tactics	Study	Comments
<b>Existing Strategies / Tactics</b>			
<b>Intelligent Outreach</b>	Disseminate best practices of CAHP projects and programs using ZNE as a reference point, and evaluate CAHP database to assess ZNE rating through industry partners.		Please refer to WE&T
<b>Demonstration Projects</b>	Emerging Technologies: <ul style="list-style-type: none"> <li>• Explore single-family and</li> </ul>		Please refer to Emerging Technologies

Strategy	Tactics	Study	Comments
	<p data-bbox="411 167 585 467">multifamily demonstration projects of near-ZNE or ZNE homes to foster industry awareness and dissemination of best practices.</p> <ul data-bbox="365 475 585 686" style="list-style-type: none"> <li data-bbox="365 475 585 686">• Investigate demonstration(s) of community-based approaches for meeting ZNE requirements.</li> </ul>		
<b>Modified Strategies / Tactics</b>			
<b>Partnering</b>	<p data-bbox="365 753 585 870">Codes &amp; Standards (refer to Chapter IX Section A for more details):</p> <ul data-bbox="365 878 585 1338" style="list-style-type: none"> <li data-bbox="365 878 585 1182">• Provide technical expertise and training for energy modeling software (CBECC Res)<sup>1</sup> to achieve code compliance</li> <li data-bbox="365 1190 585 1338">• Support Reach Codes for LGs to pursue above-code savings</li> </ul>		Please refer to Codes & Standards

<sup>1</sup> Software used for modelling new construction energy use and compliance.

Strategy	Tactics	Study	Comments
	<p>(supporting ZNE)</p> <ul style="list-style-type: none"> <li>• Provide building code advocacy for 2019 Title 24 which aims to develop a ZNE code for homes by working with the builders, CEC and stakeholders, and</li> <li>• Engage in WE&amp;T activities (also listed in the Cross-Cutting chapter).</li> </ul>		
<b>New Strategies / Tactics</b>			
<b>Integration</b>	Explore new program components, pilots, and/or demonstrations to further support ZNE efforts.		Please refer to Emerging Technologies

## Commercial Sector Proposed Intervention Strategies

In the development of SCE’s proposed intervention strategies and tactics for the Commercial Sector, SCE did not do a one-to-one strategy to study match. SCE rather developed an aggregate strategy based on many studies.

- The following intervention strategies cuts across the Commercial, Industrial and Agricultural Sector

Interventions	Strategies	Citations	Comments
<p>Data Access, Customer Incentives, Delivery Channel, Financing, Intelligent Outreach, Partnering, Quality Assurance, Rural and Disadvantaged Community Outreach, Technical Assistance, Water-Energy Nexxus, Sustainable Offering, Codes and Standards, Pilots,</p>	<p>To achieve cost-effective energy savings, SCE will aim to reduce costs and increase EE adoption by simplifying and streamlining offerings.</p> <ul style="list-style-type: none"> <li>○ This will include increased use of upstream and midstream offerings and self-service delivery channels.</li> <li>○ For non-residential customers, SCE plans to increase adoption and decrease costs by tailoring EE services based on customer energy usage and demand.</li> </ul>	<ol style="list-style-type: none"> <li>(1) California Long Term EE Strategy Plan, available at <a href="http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=5303">http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=5303</a></li> <li>(2) Decision regarding EE goals for 2016 and beyond and EE rolling portfolio mechanics, D.15-10-028, available at <a href="http://docs.cpuc.ca.gov/publisheddocs/published/g000/m155/k511/155511942.pdf">http://docs.cpuc.ca.gov/publisheddocs/published/g000/m155/k511/155511942.pdf</a></li> <li>(3) Decision to increase Third Party program to 60% of the SCE portfolio by 2020, D.16-08-019 (Section 5, page-67), available at <a href="http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M166/K232/166232537.PDF">http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M166/K232/166232537.PDF</a></li> <li>(4) Assembly Bill 32, available at <a href="http://www.energy.ca.gov/ghg_emissions/">www.energy.ca.gov/ghg_emissions/</a></li> <li>(5) Senate Bill 350, <a href="http://www.cpuc.ca.gov/sb350/">http://www.cpuc.ca.gov/sb350/</a></li> <li>(6) Assembly Bill 802, available at <a href="https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160AB802">https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160AB802</a>,</li> <li>(7) Assembly Bill 758, available at <a href="http://www.energy.ca.gov/ab758/">http://www.energy.ca.gov/ab758/</a></li> <li>(8) Assembly Bill 793, available at <a href="https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201520160AB793">https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201520160AB793</a></li> <li>(9) Executive Order B 18-12, available at <a href="https://www.gov.ca.gov/news.php?id=17508">https://www.gov.ca.gov/news.php?id=17508</a></li> <li>(10) Proposition 39, available at <a href="http://www.energy.ca.gov/efficiency/proposition39/">http://www.energy.ca.gov/efficiency/proposition39/</a></li> <li>(11) Senate Bill 1414, available at <a href="https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201520160SB1414">https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201520160SB1414</a></li> </ol>	<p>The SCE portfolio of overarching strategies and actions are designed to meet CPUC and California regulatory requirements. The goal is to design a set of programs to meet residential, commercial, industrial, agriculture and public sector customer needs, while meeting portfolio cost effectiveness objectives.</p>



Innovation,	To expand the innovative solutions it offers to customers, SCE plans to increase the use of third-party providers and rely more on offerings designed by third-parties (SCE BP, Page 8-9)	Decision to increase Third Party program to 60% of the SCE portfolio by 2020, D.16-08-019 (Section 5, page-67), available at <a href="http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M166/K232/166232537.PDF">http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M166/K232/166232537.PDF</a>	SCE is supporting D.16-08-019 to increase its Third Party program content from 20% to 60% by 2020. A detailed solicitation approach has been provide in the SCE BP (starting page-16)
Market Transformation	By increasing customer adoption of EE services and expanding innovation, SCE will continue to drive towards market transformation in the EE marketplace (SCE BP, BP Page 8-9)	There are numerous industry whitepapers on Market Transformation, SCE is providing this whitepaper link as one of the many available on-line references - <a href="http://uc-ciee.org/downloads/mrkt_effts_wp.pdf">http://uc-ciee.org/downloads/mrkt_effts_wp.pdf</a> .	SCE is supporting the statewide goal to strive for market transformation. This implementation is supported by the call to increase mid-stream and upstream program design and delivery, especially for non-residential customer sectors. As markets matures and transformed through either Codes and Standards or voluntary product specifications, these programs are likely to scale-back such as the statewide Primary Lighting Program.
Partnering and Integration	SCE will also leverage cross-cutting portfolio resources, such as Codes & Standards (C&S), Workforce Education and Training (WE&T), and the Emerging Technology Program (ETP), to further enable market transformation activities, particularly in the residential sector. As SCE, with input from stakeholders, identifies particular sectors or market segments that have transformed, SCE will seek to reduce or eliminate relevant customer-funded programs (SCE BP, Page 8-9)	<ol style="list-style-type: none"> <li>(1) Evergreen Consulting, Study of the California Utility Internal Measure Development Process, available at <a href="http://www.calmac.org/publications/SCE_Final_UIMD_Report.pdf">http://www.calmac.org/publications/SCE_Final_UIMD_Report.pdf</a></li> <li>(2) EM&amp;T project reports are posted on the Emerging Technologies Coordinating Council website, available at <a href="http://www.etcc-ca.com/">http://www.etcc-ca.com/</a></li> <li>(3) CADMUS, 2016 California Statewide Codes and Standards Program Impact Evaluation Report: Phase One Appliances, available at <a href="http://www.calmac.org/publications/CPUC_CS_Phase_One_Report_Final_Clean.pdf">http://www.calmac.org/publications/CPUC_CS_Phase_One_Report_Final_Clean.pdf</a></li> <li>(4) DNV GL, 2016 Codes and Standards Compliance Improvement Program Years 2013-14 Process Evaluation, available at <a href="http://www.calmac.org/publications/ComplianceImprovementImpactEvaluationDraftReport_FINAL-OUT.pdf">http://www.calmac.org/publications/ComplianceImprovementImpactEvaluationDraftReport_FINAL-OUT.pdf</a></li> </ol>	<p>Education and training are important for effecting C&amp;S compliance, SCE will continue to include such activities in future programs to improve compliance including working on</p> <ul style="list-style-type: none"> <li>• More focused trainings by collaborating with other PAs to identify areas of the energy code that are most vulnerable to noncompliance. The process of finding vulnerabilities and addressing them with trainings should be continuous.</li> <li>• Expanding online trainings targeted to the building industry professionals, who are less likely to attend classroom training.</li> <li>• Improving the reach of the trainings through strategic partnerships with building industry stakeholders and further leverage partnerships with local governments.</li> <li>• For C&amp;S, ETP and WE&amp;T, the upcoming statewide program initiative will provide more statewide consistency and focus.</li> </ul>

Partnering and Integration	Participate in statewide program administrative lead transition (SCE BP, starting Page-21)	Assembly Bill 802, <i>available at</i> <a href="https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160AB802">https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160AB802</a>	Portfolio wide partnering and intergraion is a best practice. SCE is striving to implement this in every customer sectors, as indicated in its business plan.
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- The following intervention strategies only pertains to the Commercial Sector

Interventions	Strategies	Citations	Comments
Intelligent Outreach, Single Point of Contact, Mid-Stream/Upstream, Customer Incentives, Sustainable Offering, Direct Install, Strategic Energy Management, Pilots	<p>Modify program delivery approach to target customers by sizes (i.e., Large, Mid-size and Small Accounts) using a multi-tiered service approach (i.e., Basic, Mid-Level and Premium Level services) (SCE BP Page-100)</p> <ul style="list-style-type: none"> <li>Small / Mid-size Accounts: (SCE BP, Page-106 Table-27) <ul style="list-style-type: none"> <li>Continue to focus on the midstream distributor program(s) for HVAC and lighting, while expanding to refrigeration,</li> <li>Expand direct install offering to cover national accounts customer segment,</li> <li>Evolve the midstream distributor program through a coupon pilot to complement direct install expansion.</li> </ul> </li> <li>Large: (SCE BP, Page-106, Table-27) <ul style="list-style-type: none"> <li>Cover remaining end-uses (plus above end-uses) through</li> </ul> </li> </ul>	<ol style="list-style-type: none"> <li>California Long Term EE Strategy Plan, Commercial (starting Page-28), Industrial (starting Page-38), Agriculture (starting Page-46) Chapter, available at <a href="http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=5303">http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=5303</a></li> <li>Identification of commercial market characteristics: <ol style="list-style-type: none"> <li>Office Sector Retail Snapshot, Esource, 2012, attached as Appendix L, SCE BP,</li> <li>Restaurant Sector Snapshot, Esource, 2016, attached as Appendix M, SCE BP.</li> <li>Retail Sector Snapshot, Esource, 2012, attached as Appendix N, SCE BP</li> </ol> </li> <li>CPUC <b>Resolution E-4818</b>, available at <a href="http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M171/K557/171557623.PDF">http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M171/K557/171557623.PDF</a></li> <li>Opinion Dynamics, PY2013-14 Third Party Commercial Program Value and Effectiveness Study Report (Aug. 2016, page 1-10), available at <a href="http://www.calmac.org/publications/CPUC_3P_Report_Vol_I_FINAL_Published_Aug_2_2016.pdf">http://www.calmac.org/publications/CPUC_3P_Report_Vol_I_FINAL_Published_Aug_2_2016.pdf</a></li> <li>Itron, California Nonresidential Program Assessments Study: IOU Core Calculated Program Group Report (Dec. 2012, page I1-I30), available at <a href="http://www.calmac.org/publications/PA_Report_-_Calculated_final_Public_12_24_12.pdf">http://www.calmac.org/publications/PA_Report_-_Calculated_final_Public_12_24_12.pdf</a></li> <li>DNV-GL, Impact Evaluation of 2013-14 HVAC3 Commercial Quality Maintenance Programs</li> </ol>	<p>To develop the Commercial Sector strategies, SCE assembled a large number of studies and reference material identified as citations. In addition, SCE reviewed all relevant M&amp;E studies from prior program cycles. The proposed commercial strategies and activities are consistent with the evaluation studies and recommendations. Below is a summary of highlights:</p> <ul style="list-style-type: none"> <li>The proposed strategies and activities are focusing on delivering different services to different size customers. This is necessary, since large industry players behave differently than small/medium size customers. SCE traditionally have done a better job reaching bigger customers using direct Major Account Executives service approach, to continue, SCE will need to improve program implementation process to improve gross realization and net realization rate.</li> <li>To improve cost effectiveness, the proposed strategies and activities for the midsize and small footprint customers will rely on mid-stream distributor service delivery for lighting, HVAC and other end uses to seek above code energy savings.</li> <li>Since major and minor commercial customers behave differently, SCE needs to consider innovative pilots to test different service requirements, technology options, performance based program design and other considerations.</li> <li>Commercial performance-based HOPP is another option to deliver To-Code and Above-Code energy</li> </ul>

Interventions	Strategies	Citations	Comments
	<p>customized offerings and longer-term Strategic Energy Management offering (SCE BP, Table-27, Page-106)</p> <ul style="list-style-type: none"> <li>○ Focus on providing Strategic Energy Management savings to encompass behavior, retro-commissioning (RCx), and optimization measures that build on existing sector-wide penetration from the past.</li> </ul> <p>SCE also plans to conduct several pilots with partners in the commercial sector to test different delivery models, technology options, performance-based program design, and other elements.</p> <p>SCE expects future pilots to advance key strategic functions such as the segmented approach to delivering services, the capture of previously stranded potential opportunities, and the targeted deployment of EE resources.</p>	<p>(Mar. 2016, page 1-8), available at <a href="http://www.energydataweb.com/cpucFiles/pdaDocs/1454/HVAC3ImpactReport_PUBLIC_COMM_ENT.pdf">http://www.energydataweb.com/cpucFiles/pdaDocs/1454/HVAC3ImpactReport_PUBLIC_COMM_ENT.pdf</a>.</p> <p>(7) Heidi Ochsner et al., Impact Evaluability Assessment of California’s Continuous Energy Improvement Pilot Program (Oct. 2013, p. i-v), available at <a href="http://www.calmac.org/publications/CA_CEI_Pilot_Evaluability_Assessment_REVISIED_FINAL.pdf">http://www.calmac.org/publications/CA_CEI_Pilot_Evaluability_Assessment_REVISIED_FINAL.pdf</a></p> <p>(8) Navigant Consulting, Measure, Application, Segment, Industry (MASI): New Opportunities in the Food Processing Industry (Mar. 2015, p. v-vii), available at <a href="http://www.calmac.org/publications/MASI_Food_Processing_Final_Report.pdf">http://www.calmac.org/publications/MASI_Food_Processing_Final_Report.pdf</a></p> <p>(9) Navigant Consulting, Measure, Application, Segment, Industry (MASI): New Opportunities for Oil and Gas Extraction and Produced Water Management and Recycling (Apr. 2015, p. 1-3), available at <a href="http://www.calmac.org/publications/MASI_Oil_and_Gas_Final_Report.pdf">http://www.calmac.org/publications/MASI_Oil_and_Gas_Final_Report.pdf</a></p> <p>(10) Navigant Consulting, Measure, Application, Segment, Industry (MASI): Wastewater Treatment Facilities, p. 32 (Mar. 2015, page i-iv). available at <a href="http://www.calmac.org/publications/MASI_Wastewater_Treatment_Plants_Final_Report.pdf">http://www.calmac.org/publications/MASI_Wastewater_Treatment_Plants_Final_Report.pdf</a></p> <p>(11) Navigant Consulting, 2015 California Potential and Goals Study (Mar. 2015, presentation page 1-10), available at <a href="http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=5251">http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=5251</a>.</p> <p>(12) The Rapid Response Pilot (SCE BP Page-110)— This proposed pilot aligns with the R.13-11-005 Phase III scope item: “Locational targeting or sourcing of energy efficiency, in coordination with the IDER rulemaking (R.14-10-003). This</p>	<p>savings while meeting customers’ investment and operational needs.</p> <ul style="list-style-type: none"> <li>• As the evaluation studies pointed out, the role of training and education will be important for the midsize and small commercial customers. These smaller customers are typically more resource constrained. The SCE commercial program will work closely with the statewide and SCE WE&amp;T programs to develop training content to meet customer, distributor and industry needs.</li> </ul>

Interventions	Strategies	Citations	Comments
		<p>may also involve the need for urgent action for geographically-targeted energy efficiency, such as in the case of the unexpected closure of the San Onofre Nuclear Generating Station (SONGS) or the Aliso Canyon Natural Gas Storage field” at page. 10 (second bullet) of the Assigned Commissioner and Administrative Law Judge’s Ruling and Amended Scoping Memorandum (Regarding Phase III of R.13-11-005), available at <a href="http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M169/K116/169116102.PDF">http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M169/K116/169116102.PDF</a></p>	
<p>Delivery Channel, Quality Assurance</p>	<p>Leveraging of distributor channels and other existing programs/efforts/channels to drive awareness of EE value (SCE BP, Page-100)</p> <p>Partner with distributors and other key partners to engage with retail customers and influence their efficiency-related purchasing decisions. (SCE BP, Page-106, Table-27)</p> <ul style="list-style-type: none"> <li>○ Offer a variety of downstream and midstream lighting and HVAC programs.</li> <li>○ Expand current downstream office equipment measures with future midstream incentives.</li> </ul>	<p>See above, and</p> <p>There are numerous industry whitepapers on Market Transformation, SCE is providing this whitepaper link as one of the many available on-line references - <a href="http://uc-ciee.org/downloads/mrkt_effts_wp.pdf">http://uc-ciee.org/downloads/mrkt_effts_wp.pdf</a>.</p>	<p>There are multiple benefits to leveraging distributor channels to drive EE engagements:</p> <ol style="list-style-type: none"> <li>(1) Engaging manufacturers to produce the best EE products possible and to keep up with Codes and Standards requirements,</li> <li>(2) Engaging the distributors to sell and making the best EE measures available at the time of replacement for end-users,</li> <li>(3) This is generally the most cost effective channel of distribution when compared to end-user delivery,</li> <li>(4) This is also a strong approach to drive market transformation as the EE market matures,</li> </ol>
<p>Finance</p>	<p>Technology-based offerings such as distributor-focused midstream lighting, motors, and pumps for nonresidential applications, and upstream HVAC address a majority of potential, with integration of Finance</p>	<p>(1) Evergreen, Integrated Demand Side Management: A Study of Preferences and Patterns of IDSM Uptake in California’s Residential and Small Commercial Markets, (October 2015, p. 1-11), available at <a href="http://www.calmac.org/publications/EvergreenEc">http://www.calmac.org/publications/EvergreenEc</a></p>	<p>Financing options (i.e., OBR, OBF, and other options) should be treated as a tool to induce the EE upgrades and investment decisions for commercial customers. But, this is not a silver bullet and one-size does not fit all.</p> <p>Financing options can be flexible to meet the customers’ business needs and financial limitations when compared to</p>

Interventions	Strategies	Citations	Comments
	opportunities (i.e., OBF/OBR). (SCE BP, Page-101)	<p><a href="#">conomics_IDS_M Case Study Report_CPU0121.pdf</a></p> <p>(2) Cadmus Group, California Joint Utilities Financing Research: Existing Programs Review, (April 2014 p. 1-2), available at <a href="http://www.calmac.org/publications/Existing_Programs_Review_FINAL.pdf">http://www.calmac.org/publications/Existing_Programs_Review_FINAL.pdf</a></p> <p>(3) Cadmus Group, California 2010-2012 on- bill financing Process Evaluation and Market Assessment, (March 2012, p. 1-7), available at <a href="http://www.calmac.org/publications/On_Bill_Financing_Process_Evaluation_Report_2010-2012.pdf">http://www.calmac.org/publications/On_Bill_Financing_Process_Evaluation_Report_2010-2012.pdf</a></p>	the requirements for utilities cost-effectiveness policy rules.
Incentive, Sustainable Offerings	Deemed measure development for small and mid-size customers' needs remains critical to expand offerings (SCE BP, Page-101)	Please refer to Commercial M&E Summary (see above), various draft 2015 non-residential impact evaluation studies, and <a href="http://www.deeresources.com">www.deeresources.com</a> .	<p>Due to Codes and Standards and Title20/24 ratcheting, the deemed measures' claimable energy savings are diminishing rapidly. Innovation and creative solutions are needed to keep EE/DSM deemed measures available for program offerings.</p> <p>The Emerging Technology Program is an important element for the program administrators to keep the portfolio of EE measures fresh and relevant. The program implementation process and internal coordination can be improved; however, the current gating process will ensure buy-in and support. For a new measure to be successful, it has many more hurdles than technology-readiness and market-readiness to consider. Cost effectiveness, claimable energy savings, and market potential are all important attributes for either deemed and/or calculated measures.</p>
Partnering, Workforce Education & Training	SCE plans to increase collaboration with professional partners participating in WE&T programs to develop training content for industry needs in order to increase market exposure to key best practices (SCE BP, Page-102)	<p>(1) DNV-GL, Impact Evaluation of 2013-14 Commercial Quality Maintenance Program (April 2016, p. 1-3), available at <a href="http://www.calmac.org/publications/HVAC3ImpactReport_0401.pdf">http://www.calmac.org/publications/HVAC3ImpactReport_0401.pdf</a></p> <p>(2) DNV-GL, Impact Evaluation of 2013-14 Upstream HVAC Programs (April 2016, p. 1-10), available at <a href="http://www.calmac.org/publications/HVAC1ImpactReportFinal_040116.pdf">http://www.calmac.org/publications/HVAC1ImpactReportFinal_040116.pdf</a></p>	<p>The Commercial Programs must improve/expand contractor and technician training and certification, in addition to continuing to drive awareness and adoption of industry standards, including ASHRAE 180 among contractors and technicians.</p> <p>SCE is planning to strengthen commercial customer training needs by coordinating class content, as appropriate. Since WE&amp;T's activities are considered to be non-resourced, it is critical for the commercial and WE&amp;T programs to be sensitive to overall cost effectiveness of the planned activities.</p>

Interventions	Strategies	Citations	Comments
			In addition, SCE will also ensure participating contractors/technicians are given the marketing materials needed to educate customers on the value proposition of the program while tying the program to the advantages of adhering to industry standards.
Partnering,	Coordination and Integration (SCE BP, starting Page-112) <ul style="list-style-type: none"> <li>• Key partners,</li> <li>• Cross PA coordination,</li> <li>• Regional strategy coordination,</li> </ul>	Best practices and program implementation policy.	This is a standing program implementation strategy. This strategy also support CPUC policies.
Integration	Integration with Cross-Cutting Sectors (SCE BP, starting Page-115) <ul style="list-style-type: none"> <li>• Statewide MEO,</li> <li>• Workforce Education and Training,</li> <li>• Emerging Technologies,</li> <li>• Codes and Standards, and</li> <li>• Other Statewide Programs</li> </ul>	Best practice and program implementation policy.	This is a standing program implementation strategy. This strategy also support CPUC policies.

## Industrial Sector Proposed Intervention Strategies

In the development of SCE’s proposed intervention strategies and tactics for the Industrial Sector, SCE did not do a one-to-one strategy to study match. SCE developed an aggregate strategy based on many studies.

*Please refer to the Commercial Sector Proposed Intervention Strategies Section for intervention strategies that cuts across the Commercial, Industrial and Agricultural Sectors.*

Interventions	Strategies	Citations	Comments
<p>Intelligent Outreach, Single Point of Contact, Mid-Stream/Upstream, Incentives, Sustainable Offering, Direct Install, Strategic Energy Management, Pilots</p>	<p>Similar to the Commercial Sector, SCE plans to modify industrial program delivery approach to target customers by sizes (i.e., Large, Mid-size and Small Accounts) using a multi-tiered service approach (i.e., Basic, Mid-Level and Premium Level services) (SCE BP Page-129-130)</p> <ul style="list-style-type: none"> <li>• For Large Industrial customers (and some Mid-Size), SCE will enhance its Direct-to-Customer offerings while introducing project implementation processes to improve gross and net realization rates. The Direct-to-Customer delivery approach will offer three tiers of customized service.</li> <li>• For Small and Mid-Size customers, which are more limited in their EE resources and knowledge, SCE will leverage its midstream Distributor Delivery channels</li> </ul> <p>SCE also plans to conduct several pilots with partners in the industrial sector to test different delivery models, technology options, performance-based program design, and other elements.</p>	<ol style="list-style-type: none"> <li>(1) SCE Manufacturing Segment Optimization Plan, 2012 (SCE BP, Page 126 and Appendix Q)</li> <li>(2) SCE plans to monitor the recommendations of the ISP working group mandated by D.16-08-019 in hopes that future applicability of ISP is reconsidered and/or recommendations are made to research ISP applicability based on customer size or sophistication (SCE BP p.128); CPUC Resolution E-4818 and T1 Working Group Report (per D.16-08-019)  <a href="http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M179/K264/179264220.PDF">http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M179/K264/179264220.PDF</a>  <a href="http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442451953">http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442451953</a></li> <li>(3) Kennedy Jenks Consultants, Energy Use in Wastewater Treatment in the Food and Beverage Industry, (October 2010, p. 67-73), available at  <a href="http://www.calmac.org/publications/PGE_Energy-Use-WW-Treatment-Food-Bev-Industry_10-1510_%28unlocked%29.pdf">http://www.calmac.org/publications/PGE_Energy-Use-WW-Treatment-Food-Bev-Industry_10-1510_%28unlocked%29.pdf</a></li> <li>(4) Itron, 2014 Custom Impact Evaluation Industrial, Agricultural, and Large Commercial (IALC), (April 2016, p. 1-1 to 1-14), available at  <a href="http://www.calmac.org/publications/IALC_2014_Final_Report_April_2016.pdf">http://www.calmac.org/publications/IALC_2014_Final_Report_April_2016.pdf</a></li> <li>(5) Itron, 2013 Custom Impact Evaluation Industrial, Agricultural, and Large Commercial, Final Report, (July 2015, p. 1-1</li> </ol>	<p>To develop the Industrial Sector strategies, SCE assembled a large number of studies and reference material identified as citations. In addition, SCE reviewed all relevant M&amp;E studies from prior program cycles.</p> <p>The SCE Industrial Program team has reviewed all relevant industrial and selected non-residential studies. Below is a summary of highlights:</p> <ol style="list-style-type: none"> <li>(1) The Industrial Programs have been negatively affected by the Industrial Standard Practice (ISP) adjusted baselines. As reported in several of the Navigant MASI studies below, ISPs are not uniformly adopted by industrial customers. The larger and more sophisticated industrial players may have more resources and devote more attention to energy efficiency practices, but this isn’t typical for the small/medium industrial customers. This point of view is clearly supported by Oil and Refinery and Waste Water Treatment Segments. For the California’s Food Process Industry, factors concerning efficiency, productivity and factory output may have more to do energy usage.</li> <li>(2) The Industrial Programs, like all non-residential programs, could improve their gross realization and net realization rates, by focusing on the following: <ol style="list-style-type: none"> <li>a. To improve gross realization, the program must invest more time and care to property document site-specific baseline condition, more</li> </ol> </li> </ol>

Interventions	Strategies	Citations	Comments
	<p>SCE expects future pilots to advance key strategic functions such as the segmented approach to delivering services, the capture of previously stranded potential opportunities, and the targeted deployment of EE resources.</p>	<p>to 1-11), available at <a href="http://www.calmac.org/publications/IALC_2013_Report_Final_071715.pdf">http://www.calmac.org/publications/IALC_2013_Report_Final_071715.pdf</a></p> <p>(6) PECEI O&amp;M Best Practice Series paper, available at <a href="https://www.energystar.gov/ia/business/assessment.pdf">https://www.energystar.gov/ia/business/assessment.pdf</a></p> <p>(7) Navigant Consulting, AB802 Technical Analysis Potential Savings Analysis (March 2016, p.1-12), available at <a href="http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=11189">http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=11189</a>.</p> <p>(8) Navigant Consulting, 2015 California Potential and Goals Study (March 2015, presentation, p. 1-10), available at <a href="http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=5251">http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=5251</a>.</p> <p>(9) Navigant Consulting, Measure, Application, Segment, Industry (MASI): New Opportunities in the Food Processing Industry (March 2015, p. 29), available at <a href="http://www.calmac.org/publications/MASI_Food_Processing_Final_Report.pdf">http://www.calmac.org/publications/MASI_Food_Processing_Final_Report.pdf</a></p> <p>(10) Navigant Consulting, Measure, Application, Segment, Industry (MASI): New Opportunities for Oil and Gas Extraction and Produced Water Management and Recycling (Apr. 2015, p. 1-3), available at <a href="http://www.calmac.org/publications/MASI_Oil_and_Gas_Final_Report.pdf">http://www.calmac.org/publications/MASI_Oil_and_Gas_Final_Report.pdf</a></p> <p>(11) Navigant Consulting, Measure, Application, Segment, Industry (MASI): Wastewater Treatment Facilities, (March 2015, p.32), available at <a href="http://www.calmac.org/publications/MASI_Wastewater_Treatment_Plants_Final_Report.pdf">http://www.calmac.org/publications/MASI_Wastewater_Treatment_Plants_Final_Report.pdf</a></p> <p>(12) Itron, California Nonresidential Program Assessments Study: IOU Core Calculated Program Group Report (December 2012, p.</p>	<p>accurate description of hours of use, and more accurate documentation of operating conditions. The current program may be losing up to 50% of gross energy savings due to the above factors.</p> <p>b. To improve net realization rate, the program must improve targeting to focus on early replacement measures. The current program design and implementation are losing another 40% of energy savings in the NTG adjustment.</p> <p>c. For the industrial programs, the one-size-fits all Industrial Standard Practice (ISP) adjustment for baseline condition is equivalent to having a Codes and Standards for the sector. However, there isn't a common and applicable set of ISPs for the entire industry customer base. These ISPs may need to be specific to industrial processes and may also need to be tailored to customer size and scale.</p> <p>(3) To improve the service level for small and medium size industrial customers, a midstream focused set of program offerings such as Lighting (for industrial warehouse applications), HVAC, and motor/pumps targeting above-code and/or above-ISP applications, is a sensible approach.</p> <p>(4) While Energy Efficiency Benchmarking is important to all California customers, Building Score and EUI may vary significantly based on specific industry segments. The IOUs may need a more targeted and specific Benchmarking process to look at similar industry customers inside and outside the territory, based on industrial</p>



Interventions	Strategies	Citations	Comments
		<p>1-1 to 1-15), available at <a href="http://www.calmac.org/publications/PA_Report_Calculated_final_Public_12_24_12.pdf">http://www.calmac.org/publications/PA_Report_Calculated_final_Public_12_24_12.pdf</a></p> <p>(13) Heidi Ochsner et al., Impact Evaluability Assessment of California’s Continuous Energy Improvement Pilot Program (October 2013, p. i to v), available at <a href="http://www.calmac.org/publications/CA_CEI_Pilot_Evaluability_Assessment_REVISIED_FINAL.pdf">http://www.calmac.org/publications/CA_CEI_Pilot_Evaluability_Assessment_REVISIED_FINAL.pdf</a></p> <p>(14) The Rapid Response Pilot (SCE BP Page-110)—This proposed pilot aligns with the R.13-11-005 Phase III scope item: “Locational targeting or sourcing of energy efficiency, in coordination with the IDER rulemaking (R.14-10-003). This may also involve the need for urgent action for geographically-targeted energy efficiency, such as in the case of the unexpected closure of the San Onofre Nuclear Generating Station (SONGS) or the Aliso Canyon Natural Gas Storage field” at page 10 of the Assigned Commissioner and Administrative Law Judge’s Ruling and Amended Scoping Memorandum (Regarding Phase III of R.13-11-005), available at <a href="http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M169/K116/169116102.PDF">http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M169/K116/169116102.PDF</a></p>	<p>output and specific production volume rather than energy usage and physical size of the facilities.</p> <p>(5) On-Bill-Financing and On-Bill-Repayment as well as other financing options should be considered as a part of EE portfolio tool set.</p> <p>(6) For WE&amp;T efforts, the program administrators will continue to be tasked with a wide-ranging list of issues including customer EE education, installer education and work quality, program project inspection and quality control, and nuances/lack-of-standard in statewide resource program implementation and administration. According to study feedback, EE education for customers, installation contractors and technicians is important for EE adoption success. For specialty training and certification, CALCTP continues to play a significant role to supplement lighting manufacturers system training offers. But, these training efforts should be expanded beyond installation training to cover system design and other important work dimensions such as code compliance, commissioning, functional or acceptance testing, persistence and occupant satisfaction.</p>
Partnering, Workforce Education & Training	<p>SCE will also enhance training and education for informing Small and Mid-Size Industrial customers, which evaluation studies have found to be a barrier to EE measure installation. (SCE BP Page-129-130)</p> <p>These customers require additional training about measure choices compared to Large customers. SCE plans to increase collaboration with professional partners</p>	<p>Refer to the Commercial Section</p> <p>(1) ODC, Indirect Impact Evaluation Of The Statewide Energy Efficiency Education And Training Program, (March 2010, Vol 1: p. 1-4; Vol II p. 10-12), available at <a href="http://www.calmac.org/publications/06-08_Statewide_Education_and_Training_Impact_Eval_Vol_I_FINAL.pdf">http://www.calmac.org/publications/06-08_Statewide_Education_and_Training_Impact_Eval_Vol_I_FINAL.pdf</a></p>	<p>SCE’s Energy Efficiency Center - Irwindale (formerly called CTAC) continues to promote energy efficiency to virtually all of their customer market segments, primarily focusing on commercial and industrial customers, and a number of market actors. The primary focus is on providing classes, seminars and workshops. However, the Center also offers customized trainings, conducts demonstrations, provides consultations, and provides print information, facility tours, and interactive displays and exhibits. Each of these activities is aimed at breaking down customer market</p>

Interventions	Strategies	Citations	Comments
	<p>participating in WE&amp;T programs to develop training content for industry needs and grow market exposure to key best practices. (SCE BP Page-129-130)</p>	<p><a href="http://www.calmac.org/publications/06-08_Statewide_Education_and_Training_Impact_Eval_Vol_II_FINAL.pdf">http://www.calmac.org/publications/06-08_Statewide_Education_and_Training_Impact_Eval_Vol_II_FINAL.pdf</a></p>	<p>barriers concerning up-front first cost, performance uncertainty, and asymmetrical product information in order to influence customers to implement energy efficient measures which result in energy savings and bill reductions.</p> <p>The Industrial Programs must provide expert advice in energy audits. Additionally, facility managers felt that they would benefit from energy management tools/ equipment training that could help them better understand their energy consumption. Through better understanding of their facilities' energy flow, facility managers are better equipped to implement measures targeting energy-intensive equipment or production areas.</p> <p>Training for non-energy staff- a major barrier to measure installation- particularly for smaller facilities that do not have dedicated energy teams. Facility managers expressed an interest in training to help them identify and address energy efficient opportunities. In addition, provide Water Recycling opportunity awareness - water intensive processes are common amongst many sites based on facility managers' feedback. According to the California Food Processing Industry Technology Roadmap, the fruits and vegetable processing industry, cheese manufacturing industry, and wineries are the most water intensive food processing industries in California.</p>
<p>Partnering,</p>	<p>Coordination and Integration—(SCE BP, starting Page-137)</p> <ul style="list-style-type: none"> <li>• Key partners,</li> <li>• Cross PA coordination,</li> <li>• Regional strategy coordination,</li> </ul>	<p>Best practices and program implementation policy.</p>	<p>This is a standing program implementation strategy. This strategy also support CPUC policies.</p>
<p>Integration</p>	<p>Integration with Cross-Cutting Sectors—(SCE BP, starting Page-138)</p> <ul style="list-style-type: none"> <li>• Statewide MEO,</li> <li>• Workforce Education and Training,</li> <li>• Emerging Technologies,</li> <li>• Codes and Standards, and</li> </ul>	<p>Best practice and program implementation policy.</p>	<p>This is a standing program implementation strategy. This strategy also support CPUC policies.</p>

Interventions	Strategies	Citations	Comments
	<ul style="list-style-type: none"><li data-bbox="436 159 764 183">• Other Statewide Programs</li></ul>		

## Agricultural Sector Proposed Intervention Strategies

In the development of SCE’s proposed intervention strategies and tactics for the Agricultural Sector, SCE did not do a one-to-one strategy to study match. SCE developed an aggregate strategy based on many studies.

Please refer to the Commercial Sector Proposed Intervention Strategies Section for intervention strategies that cuts across the Commercial, Industrial and Agricultural Sectors.

Interventions	Overarching Strategies	Citations	Comments
<p>Intelligent Outreach, Single Point of Contact, Mid-Stream/Upstream, Incentives, Sustainable Offering, Direct Install, Strategic Energy Management, Pilots</p>	<p>Similar to the Commercial Sector, SCE plans to modify agriculture program delivery approach to target customers by sizes (i.e., Large, Mid-size and Small Accounts) using a multi-tiered service approach (i.e., Basic, Mid-Level and Premium Level services) (SCE BP Page-149)</p> <ul style="list-style-type: none"> <li>• For Large agriculture customers (and some Mid-Size), SCE will enhance its Direct-to-Customer offerings while introducing project implementation processes to improve gross and net realization rates. The Direct-to-Customer delivery approach will offer three tiers of customized service.</li> <li>• For Small and Mid-Size customers, which are more limited in their EE resources and knowledge, SCE will leverage its midstream Distributor Delivery channels</li> </ul> <p>SCE also plans to conduct several pilots with partners in the agriculture sector to test different delivery models, technology options,</p>	<ol style="list-style-type: none"> <li>(1) Refer to Industrial Section #2, #3 (E-4818 related);</li> <li>(2) Navigant Consulting, AB802 Technical Analysis Potential Savings Analysis (Mar. 2016, p. 1-12), <i>available at</i> <a href="http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=11189">http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=11189</a></li> <li>(3) Navigant Consulting, 2015 California Potential and Goals Study (Mar. 2015, p. 1-10), <i>available at</i> <a href="http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=5251">http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=5251</a></li> <li>(4) Itron, 2014 Custom Impact Evaluation Industrial, Agricultural, and Large Commercial (April 2016, p. 1-12). Available at <a href="http://www.calmac.org/publications/IALC_2014_Final_Report_April_2016.pdf">http://www.calmac.org/publications/IALC_2014_Final_Report_April_2016.pdf</a></li> <li>(5) Itron, 2013 Custom Impact Evaluation Industrial, Agricultural, and Large Commercial, Final Report (July 2015, p. 1-11). Available at <a href="http://www.calmac.org/publications/IALC_2013_Report_Final_071715.pdf">http://www.calmac.org/publications/IALC_2013_Report_Final_071715.pdf</a></li> <li>(6) Navigant Consulting, 2015 Measure, Application, Segment, Industry (MASI): agriculture (March 2015, p. v-ix), Available at <a href="http://www.calmac.org/publications/MASI_Agriculture_Final_Report.pdf">http://www.calmac.org/publications/MASI_Agriculture_Final_Report.pdf</a> p.</li> <li>(7) Navigant Consulting, Measure, Application, Segment, Industry (MASI): New Opportunities in</li> </ol>	<p>The SCE Agricultural Program team has reviewed all relevant Agricultural and selected non-residential studies. Below is a summary of highlights:</p> <ol style="list-style-type: none"> <li>(1) Treating small, medium, and large agricultural customers with greater variation would better meet market needs and balance cost-effectiveness concerns, savings goals, and long-term GHG reduction. SCE plans to transition the agricultural portfolio to size-specific program, as discussed in Agricultural Sector Overarching and Strategies Section.</li> <li>(2) The Industry Programs, like all non-residential programs, could improve their gross realization and net realization rates, by focusing on the following: <ol style="list-style-type: none"> <li>a. To improve gross realization, the program must invest more time and care to properly document site-specific baseline condition, more accurate description of hours of use, and more accurate documentation of operating conditions. The current program may be losing up to 50% of gross energy savings due to the above factors.</li> <li>b. To improve net realization rate, the program must improve on its</li> </ol> </li> </ol>

	<p>performance-based program design, and other elements.</p> <p>SCE expects future pilots to advance key strategic functions such as the segmented approach to delivering services, the capture of previously stranded potential opportunities, and the targeted deployment of EE resources.</p>	<p>the Food Processing Industry (Mar. 2015; p. 29). Available at <a href="http://www.calmac.org/publications/MASI_Food_Processing_Final_Report.pdf">http://www.calmac.org/publications/MASI_Food_Processing_Final_Report.pdf</a> ,</p> <p>(8) Navigant Consulting, Opportunities in the Industrial, food processing, and Agricultural Sectors, and Early Motor Retirement in Refineries (February 2015, p. vi) Available at (<a href="http://www.calmac.org/publications/MASI_Motors_Opportunities_Final_Report.pdf">http://www.calmac.org/publications/MASI_Motors_Opportunities_Final_Report.pdf</a>)</p> <p>(9) Evergreen Consulting, Study of the California Utility Internal Measure Development Process (August 2015, p. 1) Available at <a href="http://www.calmac.org/publications/SCE_Final_UIMD_Report.pdf">http://www.calmac.org/publications/SCE_Final_UIMD_Report.pdf</a></p> <p>(10) Itron, California Nonresidential Program Assessments Study: IOU Core Calculated Program Group Report (Dec. 2012, p. 1-1), Available at <a href="http://www.calmac.org/publications/PA_Report_-_Calculated_final_Public_12_24_12.pdf">http://www.calmac.org/publications/PA_Report_-_Calculated_final_Public_12_24_12.pdf</a></p> <p>(11) Opinion Dynamics, PY2013-14 Third Party Commercial Program Value and Effectiveness Study Report, (Aug. 2016, p. 1). Available at <a href="http://www.calmac.org/publications/CPUC_3P_Report_Vol_I_FINAL_Published_Aug_2_2016.pdf">http://www.calmac.org/publications/CPUC_3P_Report_Vol_I_FINAL_Published_Aug_2_2016.pdf</a></p>	<p>targeting and customer measure recommendation to focus on attributable actions due to program intervention.</p> <p>c. The industry programs have been negatively affected by the Industry Standard Practice (ISP) adjusted baselines. For the Agricultural programs, the one-size-fits all Agricultural Standard Practice (ISP) adjustment for baseline condition is equivalent to having a Codes and Standards for the sector. However, there isn't a common and applicable set of ISPs for the entire industry customer base. These ISPs may need to specific to Agricultural processes and may also need to be tailored to customer size and scale.</p> <p>(3) To improve the service level for small and medium size Agricultural customers, a midstream focused set of program offerings such as Lighting (for Agricultural warehouse applications), HVAC, and motor/pumps targeting above-code and/or above-ISP applications, is a sensible approach.</p> <p>(4) While Energy Efficiency Benchmarking is important to all California customers, the Building Score and EUI may vary significantly based on specific industry segments. The IOUs may need a more targeted and specific Benchmarking process to look at similar industry customers inside and outside the territory, based on Agricultural output and specific production volume rather than energy usage and physical size of the facilities.</p> <p>(5) On-Bill-Financing and On-Bill-Repayment as well as other financing options should</p>
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			<p>be considered as a part of EE portfolio tool set.</p> <p>(6) For WE&amp;T efforts, the program administrators will continue to be tasked with a wide ranging list of issues including customer EE education, installer education and work quality, program project inspection and quality control, and nuances/lack-of-standard in statewide resource program implementation and administration. According to study feedback, EE education for customers, installation contractors and technicians is important for EE adoption success. For specialty training and certification, CALCTP continues to play a significant role to supplement lighting manufacturers system training offers. But, these training efforts should be expanded beyond installation training to cover system design and other important work dimensions such as code compliance, commissioning, functional or acceptance testing, persistence and occupant satisfaction.</p>
<p>Partnering, Workforce Education &amp; Training</p>	<p>SCE will enhance training and education for informing Small and Mid-Size agriculture customers, which evaluation studies have found to be a barrier to EE measure installation. (SCE BP Page-150)</p> <p>These customers require additional training about measure choices compared to Large customers. SCE plans to increase collaboration with professional partners participating in WE&amp;T programs to develop training content for industry needs and grow market exposure to key best practices. (SCE BP Page-150)</p>	<p>(1) Indirect Impact Evaluation Of The Statewide Energy Efficiency Education And Training Program (March 2010, Vol.1: p. 1, 18-21; Vol II: p. 10). Available at <a href="http://www.calmac.org/publications/06-08_Statewide_Education_and_Training_Impact_Eval_Vol_I_FINAL.pdf">http://www.calmac.org/publications/06-08_Statewide_Education_and_Training_Impact_Eval_Vol_I_FINAL.pdf</a> <a href="http://www.calmac.org/publications/06-08_Statewide_Education_and_Training_Impact_Eval_Vol_II_FINAL.pdf">http://www.calmac.org/publications/06-08_Statewide_Education_and_Training_Impact_Eval_Vol_II_FINAL.pdf</a></p>	<p>Energy Efficiency Center (EEC) – Tulare (formerly called AgTAC) continues to emphasize providing courses for SCE customer market actors and end-users. The Center offers all of the standard activities that are expected of an Energy Center. The Center’s cornerstone activity is offering classes, seminars and workshops that focus on energy management and energy efficiency solutions.</p>

Partnering,	Coordination and Integration—(SCE BP, starting Page-156) <ul style="list-style-type: none"> <li>• Key partners,</li> <li>• Cross PA coordination,</li> <li>• Regional strategy coordination,</li> </ul>	Best practices and program implementation policy.	This is a standing program implementation strategy. This strategy also support CPUC policies.
Integration	Integration with Cross-Cutting Sectors—(SCE BP, starting Page-158) <ul style="list-style-type: none"> <li>• Statewide MEO,</li> <li>• Workforce Education and Training,</li> <li>• Emerging Technologies,</li> <li>• Codes and Standards, and</li> <li>• Other Statewide Programs</li> </ul>	Best practice and program implementation policy.  Refer to Section I: Commercial for Emerging Technologies information.	This is a standing program implementation strategy. This strategy also support CPUC policies.

## Public Sector Proposed Intervention Strategies

The Public Sector has not been a defined sector and as such has not had sector-wide studies. SCE relied on the following studies from Local Government Partnerships, Institutional Partnerships, and certain commercial studies to develop the strategies and tactics proposed. In addition to the EM&V studies identified below, the sector strategies were vetted with key public sector customers, account managers and program managers. The strategies were vetted for appropriateness through the CAEECC process, Local Government All Partners meetings, and other ad hoc stakeholder meetings.

- Public Sector Financing and Procurement Intervention Strategies

Strategy	Tactics	Study	Comments
<b>Midstream Incentives</b>	<ul style="list-style-type: none"> <li>Provide "point of sale" incentives through midstream vendors.</li> </ul>	<ul style="list-style-type: none"> <li>Evergreen Economics LGP Program Assessment Report: "Implement a tracking system such that projects that are originated through an LGP but implemented through core or third-party programs can be attributed to the originating LGP."<sup>2</sup></li> <li>California's Existing Building Energy Efficiency Energy Action Plan: "3.1.1 Sustainable and Effective Program Delivery: Enhance program portfolios to reduce transaction costs and dramatically increase effects in hard-to-reach sectors."<sup>3</sup></li> </ul>	
<b>Upstream Incentives</b>	<ul style="list-style-type: none"> <li>Provide financial incentives to upstream manufacturers or distributors to buy down equipment costs and/or enable equipment to be available when needed</li> </ul>	<ul style="list-style-type: none"> <li>California's Existing Building Energy Efficiency Energy Action Plan: "3.1.1 Sustainable and Effective Program Delivery: Enhance program portfolios to reduce transaction costs and dramatically increase effects in hard-to-reach sectors."<sup>4</sup></li> </ul>	

<sup>2</sup> Evergreen Economics, "Program Assessment Study: Local Government Partnership Programs – Final Report", July 2013, Pg. 182. Available at: [http://www.calmac.org/publications/LGP\\_Program\\_Assessment\\_Report\\_-\\_final.pdf](http://www.calmac.org/publications/LGP_Program_Assessment_Report_-_final.pdf)

<sup>3</sup> California Energy Commission, "2016 Existing Buildings Energy Efficiency Action Plan Update December 2016", Pg. 46. Available at: [http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801\\_20161214T155117\\_Existing\\_Building\\_Energy\\_Efficiency\\_Plan\\_Update\\_Deceber\\_2016\\_Thi.pdf](http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficiency_Plan_Update_Deceber_2016_Thi.pdf)

<sup>4</sup> California Energy Commission, "2016 Existing Buildings Energy Efficiency Action Plan Update December 2016", Pg. 46. Available at: [http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801\\_20161214T155117\\_Existing\\_Building\\_Energy\\_Efficiency\\_Plan\\_Update\\_Deceber\\_2016\\_Thi.pdf](http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficiency_Plan_Update_Deceber_2016_Thi.pdf)



Strategy	Tactics	Study	Comments
<b>Third-Party Implemented</b>	<ul style="list-style-type: none"> <li>Solicitation for innovative third-party offerings</li> </ul>	<ul style="list-style-type: none"> <li>Evergreen Economics LGP Program Assessment Report: “Implement a tracking system such that projects that are originated through an LGP but implemented through core or third-party programs can be attributed to the originating LGP.”<sup>5</sup></li> <li>California’s Existing Building Energy Efficiency Energy Action Plan: “3.1 Streamlined and Profitable Industry: Promote a sustainable and robust efficiency marketplace by providing stable and effective support to contractors and other solution providers.”<sup>6</sup></li> <li>California’s Existing Building Energy Efficiency Energy Action Plan: “3.2.2 Incentives Tied to Performance: Employ performance-based incentives to support savings realization and LG persistence, in tandem with finance mechanisms (Goal 5) that manage cash flow.”<sup>7</sup></li> </ul>	
<b>Financing</b>	<ul style="list-style-type: none"> <li>Explore the potential of extended OBF payback periods, increasing OBF caps or disbursing OBF for public sector customers before construction begins</li> <li>Establish best practices and assist in developing revolving EE funds to help provide a sustainable source of funds for EE projects or Energy Positions</li> </ul>	<ul style="list-style-type: none"> <li>RIA LGP Targeted Process Evaluation, “OBF helps LGs overcome the financial barriers to completing municipal retrofits, the IOUs are actively discussing OBF with LGs, yet challenges remain for some partnerships.”<sup>8</sup></li> <li>California’s Existing Building Energy Efficiency Energy Action Plan: “Strategy 5.4 Integrated and</li> </ul>	

<sup>5</sup> Evergreen Economics, “Program Assessment Study: Local Government Partnership Programs – Final Report”, July 2013, Pg. 182. Available at: [http://www.calmac.org/publications/LGP\\_Program\\_Assessment\\_Report\\_-\\_final.pdf](http://www.calmac.org/publications/LGP_Program_Assessment_Report_-_final.pdf)

<sup>6</sup> California Energy Commission, “2016 Existing Buildings Energy Efficiency Action Plan Update December 2016”, Pg. 46. Available at: [http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801\\_20161214T155117\\_Existing\\_Building\\_Energy\\_Efficiency\\_Plan\\_Update\\_Deceber\\_2016\\_Thi.pdf](http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficiency_Plan_Update_Deceber_2016_Thi.pdf)

<sup>7</sup> California Energy Commission, “2016 Existing Buildings Energy Efficiency Action Plan Update December 2016”, Pg. 49. Available at: [http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801\\_20161214T155117\\_Existing\\_Building\\_Energy\\_Efficiency\\_Plan\\_Update\\_Deceber\\_2016\\_Thi.pdf](http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficiency_Plan_Update_Deceber_2016_Thi.pdf)

<sup>8</sup> Research Into Action, “Targeted Process Evaluation of the Local Government Partnership Program”, Nov 2016, Pg. VI. Available at: [http://www.calmac.org/publications/LGP\\_TPE\\_Final\\_Report\\_11.28.16.pdf](http://www.calmac.org/publications/LGP_TPE_Final_Report_11.28.16.pdf)

Strategy	Tactics	Study	Comments
	<ul style="list-style-type: none"> <li>Leverage REN financing program offerings including Job Order Contracting</li> </ul>	<p>Streamlined Delivery of Efficiency Solutions, Finance, and Utility Incentives.”<sup>9</sup></p> <ul style="list-style-type: none"> <li>California’s Existing Building Energy Efficiency Energy Action Plan: “5.7.1 Balanced Assistance Options: Work with stakeholders to assess optimal balance of assistance options across financing, on-bill repayment tied to meter, and grants or direct installation to maximize water and energy efficiency levels, using ratepayer, occupant, or other funds.”<sup>10</sup></li> <li>California’s Existing Building Energy Efficiency Energy Action Plan: “Strategy 5.5 Government Building Finance Mechanisms Ease funding mechanisms to support special needs of government energy efficiency improvements.”<sup>11</sup></li> <li>California’s Existing Building Energy Efficiency Energy Action Plan: “5.5.1 Revolving Funds: Expand existing revolving funds for local, schools, and state government building energy improvements. Determine government borrower needs, capital source, balance sheet treatment, and merits of on-bill repayment via utility bills”<sup>12</sup></li> </ul>	

<sup>9</sup> California Energy Commission, “2016 Existing Buildings Energy Efficiency Action Plan Update December 2016”, Pg. 65. Available at: [http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801\\_20161214T155117\\_Existing\\_Building\\_Energy\\_Efficiency\\_Plan\\_Update\\_Deceber\\_2016\\_Thi.pdf](http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficiency_Plan_Update_Deceber_2016_Thi.pdf)

<sup>10</sup> California Energy Commission, “2016 Existing Buildings Energy Efficiency Action Plan Update December 2016”, Pg. 66. Available at: [http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801\\_20161214T155117\\_Existing\\_Building\\_Energy\\_Efficiency\\_Plan\\_Update\\_Deceber\\_2016\\_Thi.pdf](http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficiency_Plan_Update_Deceber_2016_Thi.pdf)

<sup>11</sup> California Energy Commission, “2016 Existing Buildings Energy Efficiency Action Plan Update December 2016”, Pg. 65. Available at: [http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801\\_20161214T155117\\_Existing\\_Building\\_Energy\\_Efficiency\\_Plan\\_Update\\_Deceber\\_2016\\_Thi.pdf](http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficiency_Plan_Update_Deceber_2016_Thi.pdf)

<sup>12</sup> California Energy Commission, “2016 Existing Buildings Energy Efficiency Action Plan Update December 2016”, Pg. 65. Available at: [http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801\\_20161214T155117\\_Existing\\_Building\\_Energy\\_Efficiency\\_Plan\\_Update\\_Deceber\\_2016\\_Thi.pdf](http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficiency_Plan_Update_Deceber_2016_Thi.pdf)

Strategy	Tactics	Study	Comments
<p><b>Partnering</b></p>	<ul style="list-style-type: none"> <li>• Regionalization for LGPs for greater collaboration / best practice sharing and cost-efficiency</li> <li>• Streamline delivery of LGPs through modified Energy Leader Partnership model and Strategic Plan process</li> <li>• Statewide implementation of Institutional Partnerships</li> <li>• Partnering with key industry stakeholders to develop / deliver novel EE approaches</li> <li>• Develop quick start guide for new Partners</li> </ul>	<ul style="list-style-type: none"> <li>• RIA LGP Targeted Process Evaluation, “LGPs benefit from cross-partnership collaboration such as the SEEC Forum, the CPUC-led Stakeholder Advisory Group, and other regional collaborative networks and forums.”<sup>13</sup></li> <li>• RIA ELP Model Assessment, “The ELP model is a viable strategy for increasing local government capacity for municipal retrofits actions and Energy Action Plan development.”<sup>14</sup></li> <li>• RIA LGP Targeted Process Evaluation, “The IOUs should develop Quick Start guides for their program implementers and LGs.”<sup>15</sup></li> <li>• California’s Existing Building Energy Efficiency Energy Action Plan: “1.1.1 State Buildings: Achieve dramatically improved performance levels for all state buildings, as mandated by EO B-18-12.”<sup>16</sup></li> <li>• California’s Existing Building Energy Efficiency Energy Action Plan: “1.7.2 Local Government Partnerships: Coordinate utility LG partnerships with the action plan goals and strategies to minimize duplication; share data to simplify LG jurisdictional activities to maximize energy-saving opportunities.”<sup>17</sup></li> </ul>	<ul style="list-style-type: none"> <li>• SCE has modified the ELP model to drive further financial independence such as through encouraging an Energy Efficiency Revolving Fund.</li> </ul>

<sup>13</sup> Research Into Action, “Targeted Process Evaluation of the Local Government Partnership Program”, Nov 2016, Pg. VI. Available at: [http://www.calmac.org/publications/LGP\\_TPE\\_Final\\_Report\\_11.28.16.pdf](http://www.calmac.org/publications/LGP_TPE_Final_Report_11.28.16.pdf) [http://www.calmac.org/publications/LGP\\_TPE\\_Final\\_Report\\_11.28.16.pdf](http://www.calmac.org/publications/LGP_TPE_Final_Report_11.28.16.pdf)

<sup>14</sup> Research Into Action, “Model Assessment and Process Evaluation of Southern California Edison’s Energy Leader Partnership Model”, Jan 2017, Pg. II. Available at: [http://www.calmac.org/publications/ELP\\_Final\\_Report\\_011817.pdf](http://www.calmac.org/publications/ELP_Final_Report_011817.pdf)

<sup>15</sup> Research Into Action, “Targeted Process Evaluation of the Local Government Partnership Program”, Nov 2016, Pg. V. Available at: [http://www.calmac.org/publications/LGP\\_TPE\\_Final\\_Report\\_11.28.16.pdf](http://www.calmac.org/publications/LGP_TPE_Final_Report_11.28.16.pdf)

<sup>16</sup> California Energy Commission, “2016 Existing Buildings Energy Efficiency Action Plan Update December 2016”, Pg. 12. Available at: [http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801\\_20161214T155117\\_Existing\\_Building\\_Energy\\_Efficiency\\_Plan\\_Update\\_Deceber\\_2016\\_Thi.pdf](http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficiency_Plan_Update_Deceber_2016_Thi.pdf)

<sup>17</sup> California Energy Commission, “2016 Existing Buildings Energy Efficiency Action Plan Update December 2016”, Pg. 30. Available at: [http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801\\_20161214T155117\\_Existing\\_Building\\_Energy\\_Efficiency\\_Plan\\_Update\\_Deceber\\_2016\\_Thi.pdf](http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficiency_Plan_Update_Deceber_2016_Thi.pdf)

Strategy	Tactics	Study	Comments
		<ul style="list-style-type: none"> <li>California’s Existing Building Energy Efficiency Energy Action Plan: “4.2.3 Decision-Maker-Focused Marketing and Outreach: Develop an influencer strategy that focuses on communicating the value proposition for decision-makers and leaders in California for the key strategies in this action plan”<sup>18</sup></li> </ul>	
<b>Direct Install / Turnkey</b>	<ul style="list-style-type: none"> <li>Provide opportunities through Direct Install / Turnkey Programs</li> </ul>	<ul style="list-style-type: none"> <li>Evergreen Economics LGP Program Assessment Report: “Implement a tracking system such that projects that are originated through an LGP but implemented through core or third-party programs can be attributed to the originating LGP.”<sup>19</sup></li> <li>PA Consulting Group LGP and IP 2006-2008 Process Evaluation, “direct install programs have frequently been a successful mechanism for serving smaller commercial customers.”<sup>20</sup></li> <li>California’s Existing Building Energy Efficiency Energy Action Plan: “5.7.1 Balanced Assistance Options: Work with stakeholders to assess optimal balance of assistance options across financing, on-bill repayment tied to meter, and grants or direct installation to maximize water and energy</li> </ul>	

<sup>18</sup> California Energy Commission, “2016 Existing Buildings Energy Efficiency Action Plan Update December 2016”, Pg. 60. Available at: [http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801\\_20161214T155117\\_Existing\\_Building\\_Energy\\_Efficiency\\_Plan\\_Update\\_Deceber\\_2016\\_Thi.pdf](http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficiency_Plan_Update_Deceber_2016_Thi.pdf)

<sup>19</sup> Evergreen Economics, “Program Assessment Study: Local Government Partnership Programs – Final Report”, July 2013, Pg. 182. Available at: [http://www.calmac.org/publications/LGP\\_Program\\_Assessment\\_Report\\_-\\_final.pdf](http://www.calmac.org/publications/LGP_Program_Assessment_Report_-_final.pdf) [http://www.calmac.org/publications/LGP\\_Program\\_Assessment\\_Report\\_-\\_final.pdf](http://www.calmac.org/publications/LGP_Program_Assessment_Report_-_final.pdf)

<sup>20</sup> PA Consulting Group, “Southern California Edison Summary Report: Process Evaluation of the 2006–2008 Local Government and Institutional Partnership Programs— Final Report”, Feb 2009, Pg. 3-16. Available at: [http://www.calmac.org/publications/06-08\\_SCE\\_Local\\_Govt\\_Inst\\_Partnerships\\_Process\\_Evaluation\\_Report.pdf](http://www.calmac.org/publications/06-08_SCE_Local_Govt_Inst_Partnerships_Process_Evaluation_Report.pdf) [http://www.calmac.org/publications/06-08\\_SCE\\_Local\\_Govt\\_Inst\\_Partnerships\\_Process\\_Evaluation\\_Report.pdf](http://www.calmac.org/publications/06-08_SCE_Local_Govt_Inst_Partnerships_Process_Evaluation_Report.pdf)

Strategy	Tactics	Study	Comments
		efficiency levels, using ratepayer, occupant, or other funds.” <sup>21</sup>	
<b>Customer Incentives</b>	<ul style="list-style-type: none"> <li>• Provide customer incentives for Public sector customers</li> </ul>	<ul style="list-style-type: none"> <li>• RIA ELP Model Assessment, “The tiered model motivates local governments to do municipal retrofits projects and complete Energy Action Plans.”<sup>22</sup></li> <li>• Navigant Institutional Partnership Program Assessments Study, “The ability to combine financing and rebates likely has a positive leverage effect on each partner’s ability to complete projects.”<sup>23</sup></li> </ul>	<ul style="list-style-type: none"> <li>• The tier model provides tiered enhanced incentives to drive public sector customers to complete deeper energy efficiency projects, Strategic Plan activities (such as energy action plans, reach codes) and community outreach activities.</li> </ul>

- Public Sector Technical Resource Intervention Strategies

Strategy	Tactics	Study	Comments
<b>Technical Assistance</b>	<ul style="list-style-type: none"> <li>• Utilize in-house SCE field engineering for greater cost-efficiency</li> <li>• Leverage REN technical assistance program offerings</li> <li>• Provide vendor support for complex projects</li> </ul>	<ul style="list-style-type: none"> <li>• RIA LGP Targeted Process Evaluation, “LGPs value the technical assistance currently available through the LGP program and would benefit from additional technical assistance to support calculation of ongoing energy savings, implementing energy management systems (EMS), and Job Order Contracting (JOC).”<sup>24</sup></li> <li>• Evergreen Economics LGP Program Assessment Report: “Ensure that LGP cities and counties have</li> </ul>	

<sup>21</sup> California Energy Commission, “2016 Existing Buildings Energy Efficiency Action Plan Update December 2016”, Pg. 66. Available at:

[http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801\\_20161214T155117\\_Existing\\_Building\\_Energy\\_Efficiency\\_Plan\\_Update\\_Deceber\\_2016\\_Thi.pdf](http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficiency_Plan_Update_Deceber_2016_Thi.pdf)

<sup>22</sup> Research Into Action, “Model Assessment and Process Evaluation of Southern California Edison’s Energy Leader Partnership Model”, Jan 2017, Pg. II.

Available at: [http://www.calmac.org/publications/ELP\\_Final\\_Report\\_011817.pdf](http://www.calmac.org/publications/ELP_Final_Report_011817.pdf)

<sup>23</sup> Navigant, “Program Assessments Study: Statewide Institutional IOU Energy Efficiency Partnership Programs—WO012”, Jan 2017, Pg. 7-11. Available at:

[http://www.energydataweb.com/cpucFiles/pdaDocs/908/Statewide\\_Institutional\\_IOU\\_Energy\\_Efficiency\\_Partnership\\_Assessment%20Final%20Draft.pdf](http://www.energydataweb.com/cpucFiles/pdaDocs/908/Statewide_Institutional_IOU_Energy_Efficiency_Partnership_Assessment%20Final%20Draft.pdf)  
[http://www.energydataweb.com/cpucFiles/pdaDocs/908/Statewide\\_Institutional\\_IOU\\_Energy\\_Efficiency\\_Partnership\\_Assessment%20Final%20Draft.pdf](http://www.energydataweb.com/cpucFiles/pdaDocs/908/Statewide_Institutional_IOU_Energy_Efficiency_Partnership_Assessment%20Final%20Draft.pdf)

<sup>24</sup> Research Into Action, “Targeted Process Evaluation of the Local Government Partnership Program”, Nov 2016, Pg. VI. Available at:

[http://www.calmac.org/publications/LGP\\_TPE\\_Final\\_Report\\_11.28.16.pdf](http://www.calmac.org/publications/LGP_TPE_Final_Report_11.28.16.pdf)

Strategy	Tactics	Study	Comments
		<p>access to specialized “municipal experts” with expertise in financial markets and strategies.”<sup>25</sup></p> <ul style="list-style-type: none"> <li>Evergreen Economics LGP Program Assessment Report: “Ensure that LGP cities have access to specialized commercial projects expertise if internal staff capacity is lacking or at risk”<sup>26</sup></li> </ul>	
<b>Partnering</b>	<ul style="list-style-type: none"> <li>Same as in table above</li> </ul>	<ul style="list-style-type: none"> <li>Same as in table above</li> </ul>	
<b>Direct Install / Turnkey</b>	<ul style="list-style-type: none"> <li>Same as in table above</li> </ul>	<ul style="list-style-type: none"> <li>Same as in table above</li> </ul>	
<b>Third-Party Implemented</b>	<ul style="list-style-type: none"> <li>Same as in table above</li> </ul>	<ul style="list-style-type: none"> <li>Same as in table above</li> </ul>	
<b>Strategic Energy Management (SEM)</b>	<ul style="list-style-type: none"> <li>Leverage customer data to benchmark facilities and provide a roadmap for EE retrofit opportunities</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>	<ul style="list-style-type: none"> <li>Please see Commercial Sector for studies related to SEM.</li> </ul>
<b>Integrated Customer Experience</b>	<ul style="list-style-type: none"> <li>Simplify the application and data access processes to allow customers with less programmatic knowledge to be able to participate in EE programs</li> </ul>	<ul style="list-style-type: none"> <li>RIA ELP Model Assessment, “The rebate application paperwork taxes local government internal resources.”<sup>27</sup></li> <li>California’s Existing Building Energy Efficiency Energy Action Plan: “2.2 Consumer-Focused</li> </ul>	

<sup>25</sup> Evergreen Economics, “Program Assessment Study: Local Government Partnership Programs – Final Report”, July 2013, Pg. 193. Available at: [http://www.calmac.org/publications/LGP\\_Program\\_Assessment\\_Report\\_-\\_final.pdf](http://www.calmac.org/publications/LGP_Program_Assessment_Report_-_final.pdf)

<sup>26</sup> Evergreen Economics, “Program Assessment Study: Local Government Partnership Programs – Final Report”, July 2013, Pg. 194. Available at: [http://www.calmac.org/publications/LGP\\_Program\\_Assessment\\_Report\\_-\\_final.pdf](http://www.calmac.org/publications/LGP_Program_Assessment_Report_-_final.pdf)

<sup>27</sup> Research Into Action, “Model Assessment and Process Evaluation of Southern California Edison’s Energy Leader Partnership Model”, Jan 2017, Pg. III. Available at: [http://www.calmac.org/publications/ELP\\_Final\\_Report\\_011817.pdf](http://www.calmac.org/publications/ELP_Final_Report_011817.pdf)

Strategy	Tactics	Study	Comments
		Energy Efficiency: Identify and support activities and programs that address the needs of occupants and owners using operational and performance data.” <sup>28</sup>	
<b>Strategic Plan Support</b>	<ul style="list-style-type: none"> <li>Modified Strategic Plan process that uses tiers of strategic plan support and a streamlined application and contracting process</li> </ul>	<ul style="list-style-type: none"> <li>Opinion Dynamics LGP Value and Effectiveness, “The Strategic Plan Projects are valuable because they enable LGs to move toward CEESP goals.”<sup>29</sup></li> <li>Opinion Dynamics LGP Value and Effectiveness, “The CPUC and IOUs should...more clearly define the types of activities that are appropriate for Strategic Plan Project funding.”<sup>30</sup></li> <li>Evergreen Economics LGP Program Assessment Report: “Continue encouraging local governments to take advantage of IOU resources for CAP development.”<sup>31</sup></li> <li>California’s Existing Building Energy Efficiency Energy Action Plan: “1.7.3 Leverage Other Efforts: Leverage local climate action, general plan/land use, water conservation and other relevant planning mechanisms as a means to improve energy efficiency and reduce GHG.”<sup>32</sup></li> </ul>	<ul style="list-style-type: none"> <li>SCE worked with the CPUC to update the Strategic Plan process to use tiers of strategic plan support and a streamlined application and contracting process.</li> </ul>

<sup>28</sup> California Energy Commission, “2016 Existing Buildings Energy Efficiency Action Plan Update December 2016”, Pg. 43. Available at: [http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801\\_20161214T155117\\_Existing\\_Building\\_Energy\\_Efficiency\\_Plan\\_Update\\_Deceber\\_2016\\_Thi.pdf](http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficiency_Plan_Update_Deceber_2016_Thi.pdf)

<sup>29</sup> Opinion Dynamics, “PY 2013-2014 LGPs Value and Effectiveness Study and Report”, Jan 2016, Pg. 2. Available at: [http://www.calmac.org/publications/2013-2014\\_Local\\_Government\\_Partnerships\\_Study\\_Report\\_Final\\_2016\\_1\\_29.pdf](http://www.calmac.org/publications/2013-2014_Local_Government_Partnerships_Study_Report_Final_2016_1_29.pdf)  
[http://www.calmac.org/publications/2013-2014\\_Local\\_Government\\_Partnerships\\_Study\\_Report\\_Final\\_2016\\_1\\_29.pdf](http://www.calmac.org/publications/2013-2014_Local_Government_Partnerships_Study_Report_Final_2016_1_29.pdf)

<sup>30</sup> Opinion Dynamics, “PY 2013-2014 LGPs Value and Effectiveness Study and Report”, Jan 2016, Pg. 3. Available at: [http://www.calmac.org/publications/2013-2014\\_Local\\_Government\\_Partnerships\\_Study\\_Report\\_Final\\_2016\\_1\\_29.pdf](http://www.calmac.org/publications/2013-2014_Local_Government_Partnerships_Study_Report_Final_2016_1_29.pdf)

<sup>31</sup> Evergreen Economics, “Program Assessment Study: Local Government Partnership Programs – Final Report”, July 2013, Pg. 187. Available at: [http://www.calmac.org/publications/LGP\\_Program\\_Assessment\\_Report\\_-\\_final.pdf](http://www.calmac.org/publications/LGP_Program_Assessment_Report_-_final.pdf)

<sup>32</sup> California Energy Commission, “2016 Existing Buildings Energy Efficiency Action Plan Update December 2016”, Pg. 30. Available at: [http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801\\_20161214T155117\\_Existing\\_Building\\_Energy\\_Efficiency\\_Plan\\_Update\\_Deceber\\_2016\\_Thi.pdf](http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficiency_Plan_Update_Deceber_2016_Thi.pdf)

Strategy	Tactics	Study	Comments
		<ul style="list-style-type: none"> <li>California’s Existing Building Energy Efficiency Energy Action Plan: “2.2.5 Strategic Energy Planning: Develop multiyear, sector-specific energy plans to implement energy and water efficiency improvements for property owners.”<sup>33</sup></li> </ul>	
<b>Intelligent Outreach</b>	<ul style="list-style-type: none"> <li>Leverage customer data to target core program coordination and outreach to the community</li> </ul>	<ul style="list-style-type: none"> <li>Evergreen Economics LGP Program Assessment Report: “Include LGP mayors and other elected officials in customer outreach.”<sup>34</sup></li> <li>California’s Existing Building Energy Efficiency Energy Action Plan: “2.2.3 Targeted Programs: Support a range of targeted approaches to energy and water efficiency for property owners and occupants based on data-driven market segmentation and filtering.”<sup>35</sup></li> <li>California’s Existing Building Energy Efficiency Energy Action Plan: “4.2 Targeted Data- and Research-Driven ME&amp;O: Educate, motivate, and activate consumers to take action on energy efficiency as part of their demand- side energy management with a comprehensive and complementary suite of targeted ME&amp;O.”<sup>36</sup></li> </ul>	

<sup>33</sup> California Energy Commission, “2016 Existing Buildings Energy Efficiency Action Plan Update December 2016”, Pg. 30. Available at: [http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801\\_20161214T155117\\_Existing\\_Building\\_Energy\\_Efficiency\\_Plan\\_Update\\_Deceber\\_2016\\_Thi.pdf](http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficiency_Plan_Update_Deceber_2016_Thi.pdf)

<sup>34</sup> Evergreen Economics, “Program Assessment Study: Local Government Partnership Programs – Final Report”, July 2013, Pg. 199. Available at: [http://www.calmac.org/publications/LGP\\_Program\\_Assessment\\_Report\\_-\\_final.pdf](http://www.calmac.org/publications/LGP_Program_Assessment_Report_-_final.pdf)

<sup>35</sup> California Energy Commission, “2016 Existing Buildings Energy Efficiency Action Plan Update December 2016”, Pg. 40. Available at: [http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801\\_20161214T155117\\_Existing\\_Building\\_Energy\\_Efficiency\\_Plan\\_Update\\_Deceber\\_2016\\_Thi.pdf](http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficiency_Plan_Update_Deceber_2016_Thi.pdf)

<sup>36</sup> California Energy Commission, “2016 Existing Buildings Energy Efficiency Action Plan Update December 2016”, Pg. 60. Available at: [http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801\\_20161214T155117\\_Existing\\_Building\\_Energy\\_Efficiency\\_Plan\\_Update\\_Deceber\\_2016\\_Thi.pdf](http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficiency_Plan_Update_Deceber_2016_Thi.pdf)



Strategy	Tactics	Study	Comments
<p><b>Rural &amp; Disadvantaged Community Outreach</b></p>	<ul style="list-style-type: none"> <li>• Leverage customer data to target core program coordination and outreach to rural and disadvantaged communities</li> <li>• Relax certain program parameters that hinder rural and disadvantaged community participation</li> </ul>	<ul style="list-style-type: none"> <li>• RIA LGP Targeted Process Evaluation, “The IOUs that serve geographically-isolated partnerships should increase their efforts to better serve these communities.”<sup>37</sup></li> <li>• California’s Existing Building Energy Efficiency Energy Action Plan: “2.2.3 Targeted Programs: Support a range of targeted approaches to energy and water efficiency for property owners and occupants based on data-driven market segmentation and filtering.”<sup>38</sup></li> </ul>	
<p><b>Small Business Outreach</b></p>	<ul style="list-style-type: none"> <li>• Leverage LGPs to market core programs (such as Direct Install) to small businesses in their community</li> </ul>	<ul style="list-style-type: none"> <li>• California’s Existing Building Energy Efficiency Energy Action Plan: “2.2.3 Targeted Programs: Support a range of targeted approaches to energy and water efficiency for property owners and occupants based on data-driven market segmentation and filtering.”<sup>39</sup></li> </ul>	
<p><b>Water-Energy Nexus</b></p>	<ul style="list-style-type: none"> <li>• Provide new technologies or processes to help water customers conserve energy</li> <li>• Longer-term: provide incentives for water savings</li> </ul>	<ul style="list-style-type: none"> <li>• California’s Existing Building Energy Efficiency Energy Action Plan: “2.2.1 Enhanced Program Design... Incorporate all end-use energy sources, including water, plug loads, pools, irrigation, and exterior uses into programs.”<sup>40</sup></li> <li>• California’s Existing Building Energy Efficiency Energy Action Plan: “2.2.3 Targeted Programs: Support a range of targeted approaches to energy and water efficiency for property owners and</li> </ul>	

<sup>37</sup> Research Into Action, “Targeted Process Evaluation of the Local Government Partnership Program”, Nov 2016, Pg. VI. Available at: [http://www.calmac.org/publications/LGP\\_TPE\\_Final\\_Report\\_11.28.16.pdf](http://www.calmac.org/publications/LGP_TPE_Final_Report_11.28.16.pdf)

<sup>38</sup> California Energy Commission, “2016 Existing Buildings Energy Efficiency Action Plan Update December 2016”, Pg. 40. Available at: [http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801\\_20161214T155117\\_Existing\\_Building\\_Energy\\_Efficiency\\_Plan\\_Update\\_Deceber\\_2016\\_Thi.pdf](http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficiency_Plan_Update_Deceber_2016_Thi.pdf)

<sup>39</sup> California Energy Commission, “2016 Existing Buildings Energy Efficiency Action Plan Update December 2016”, Pg. 40. Available at: [http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801\\_20161214T155117\\_Existing\\_Building\\_Energy\\_Efficiency\\_Plan\\_Update\\_Deceber\\_2016\\_Thi.pdf](http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficiency_Plan_Update_Deceber_2016_Thi.pdf)

<sup>40</sup> California Energy Commission, “2016 Existing Buildings Energy Efficiency Action Plan Update December 2016”, Pg. 43. Available at: [http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801\\_20161214T155117\\_Existing\\_Building\\_Energy\\_Efficiency\\_Plan\\_Update\\_Deceber\\_2016\\_Thi.pdf](http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficiency_Plan_Update_Deceber_2016_Thi.pdf)

Strategy	Tactics	Study	Comments
		occupants based on data-driven market segmentation and filtering.” <sup>41</sup>	

- Public Sector Lack of Access to Data Intervention Strategies

Strategy	Tactics	Study	Comments
<b>Customer Data Access</b>	<ul style="list-style-type: none"> <li>Green Button "Download My Data" function for access to usage from individual accounts.</li> <li>Green Button "Connect My Data" function for customer to authorize SCE to send their energy usage and billing data to registered third parties</li> <li>Used NMEC for baseline and incentive calculations. For more information see section VIII.D.5.a Public Sector Performance-Based Retrofit High Opportunity Program below.</li> </ul>	<ul style="list-style-type: none"> <li>RIA LGP Targeted Process Evaluation, “Partnership needs may not have been fully met through the established energy data access procedures, as suggested by the considerable variability in the degree partnerships are able to access LG energy usage data. Limited data access impedes partnership level planning and action. The IOUs, in turn, need to craft and implement data access policies that meet regulatory requirements.”<sup>42</sup></li> <li>Evergreen Economics LGP Program Assessment Report: “Identify data issues early and work in a collaborative forum to resolve data access issues quickly.”<sup>43</sup></li> <li>California’s Existing Building Energy Efficiency Energy Action Plan: “2.1 Data for Improved Decisions: Ensure that Californians (consumers, industry, building owners, policy makers, and professionals) have access to appropriate data</li> </ul>	

<sup>41</sup> California Energy Commission, “2016 Existing Buildings Energy Efficiency Action Plan Update December 2016”, Pg. 43. Available at: [http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801\\_20161214T155117\\_Existing\\_Building\\_Energy\\_Efficiency\\_Plan\\_Update\\_Deceber\\_2016\\_Thi.pdf](http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficiency_Plan_Update_Deceber_2016_Thi.pdf)

<sup>42</sup> Research Into Action, “Targeted Process Evaluation of the Local Government Partnership Program”, Nov 2016, Pg. VI. Available at: [http://www.calmac.org/publications/LGP\\_TPE\\_Final\\_Report\\_11.28.16.pdf](http://www.calmac.org/publications/LGP_TPE_Final_Report_11.28.16.pdf)

<sup>43</sup> Evergreen Economics, “Program Assessment Study: Local Government Partnership Programs – Final Report”, July 2013, Pg. 201. Available at: [http://www.calmac.org/publications/LGP\\_Program\\_Assessment\\_Report\\_-\\_final.pdf](http://www.calmac.org/publications/LGP_Program_Assessment_Report_-_final.pdf)

Strategy	Tactics	Study	Comments
		<p>sources to make informed decisions related to energy efficiency.”<sup>44</sup></p> <ul style="list-style-type: none"> <li>California’s Existing Building Energy Efficiency Energy Action Plan: “2.1.9 Energy Consumption Baselines: Establish energy-use baselines at appropriate granular, geographic, building type, and building vintage levels to track action plan and other policy impacts”<sup>45</sup></li> </ul>	
<p><b>Community Data Access</b></p>	<ul style="list-style-type: none"> <li>Energy Data Request Program (EDRP) to allow Public sector customers to access community usage data.</li> <li>Participate on Energy Data Access Committee to provide Public sector perspective</li> </ul>	<ul style="list-style-type: none"> <li>RIA LGP Targeted Process Evaluation, “Partnership needs may not have been fully met through the established energy data access procedures, as suggested by the considerable variability in the degree partnerships are able to access LG energy usage data. Limited data access impedes partnership level planning and action. The IOUs, in turn, need to craft and implement data access policies that meet regulatory requirements.”<sup>46</sup></li> <li>California’s Existing Building Energy Efficiency Energy Action Plan: “2.1.1 Data Exchange Protocols: Adopt and align common data exchange protocols to ensure streamlined collection, effective management, and security.”<sup>47</sup></li> </ul>	

<sup>44</sup> California Energy Commission, “2016 Existing Buildings Energy Efficiency Action Plan Update December 2016”, Pg. 40. Available at: [http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801\\_20161214T155117\\_Existing\\_Building\\_Energy\\_Efficiency\\_Plan\\_Update\\_Deceber\\_2016\\_Thi.pdf](http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficiency_Plan_Update_Deceber_2016_Thi.pdf)  
[http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801\\_20161214T155117\\_Existing\\_Building\\_Energy\\_Efficiency\\_Plan\\_Update\\_Deceber\\_2016\\_Thi.pdf](http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficiency_Plan_Update_Deceber_2016_Thi.pdf)

<sup>45</sup> California Energy Commission, “2016 Existing Buildings Energy Efficiency Action Plan Update December 2016”, Pg. 40. Available at: [http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801\\_20161214T155117\\_Existing\\_Building\\_Energy\\_Efficiency\\_Plan\\_Update\\_Deceber\\_2016\\_Thi.pdf](http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficiency_Plan_Update_Deceber_2016_Thi.pdf)

<sup>46</sup> Research Into Action, “Targeted Process Evaluation of the Local Government Partnership Program”, Nov 2016, Pg. VI. Available at: [http://www.calmac.org/publications/LGP\\_TPE\\_Final\\_Report\\_11.28.16.pdf](http://www.calmac.org/publications/LGP_TPE_Final_Report_11.28.16.pdf)

<sup>47</sup> California Energy Commission, “2016 Existing Buildings Energy Efficiency Action Plan Update December 2016”, Pg. 40. Available at: [http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801\\_20161214T155117\\_Existing\\_Building\\_Energy\\_Efficiency\\_Plan\\_Update\\_Deceber\\_2016\\_Thi.pdf](http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficiency_Plan_Update_Deceber_2016_Thi.pdf)

Strategy	Tactics	Study	Comments
		<ul style="list-style-type: none"> <li>California’s Existing Building Energy Efficiency Energy Action Plan: “2.1.4 Data for Local Government Use: Develop a standardized process for LG access to building-level, energy-related data as needed for local policy development and implementation without having to complete a comprehensive security audit required by utilities..”<sup>48</sup></li> </ul>	
<p><b>Building Energy Benchmarking Data Access</b></p>	<ul style="list-style-type: none"> <li>Leverage customer data and data analytics tools to benchmark facilities and provide a roadmap for EE retrofit opportunities</li> <li>Allow sub-metering costs to be included in project costs</li> <li>Identify EMS solutions to help identify potential and manage energy use</li> </ul>	<ul style="list-style-type: none"> <li>Navigant Institutional Partnership Program Assessments Study, “Revisiting the previous benchmarking effort undertaken by HMG may prove to be an effective tool used in determining the EE potential among state agencies.”<sup>49</sup></li> <li>Evergreen Economics LGP Program Assessment Report: “Continue to offer training and education to LGPs on the importance and usefulness of benchmarking.”<sup>50</sup></li> <li>California’s Existing Building Energy Efficiency Energy Action Plan: “2.1.3 Easy-to-Access Data and Analytics: Provide simple, standardized access to customers and their chosen service providers so they can easily understand their real-time energy use and assess needs. Develop solutions for multifamily buildings, particularly low-income and commercial buildings, including provision of regular and frequent building-level usage reports. Allow</li> </ul>	

<sup>48</sup> California Energy Commission, “2016 Existing Buildings Energy Efficiency Action Plan Update December 2016”, Pg. 40. Available at: [http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801\\_20161214T155117\\_Existing\\_Building\\_Energy\\_Efficiency\\_Plan\\_Update\\_Deceber\\_2016\\_Thi.pdf](http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficiency_Plan_Update_Deceber_2016_Thi.pdf)

<sup>49</sup> Navigant, “Program Assessments Study: Statewide Institutional IOU Energy Efficiency Partnership Programs—WO012”, Jan 2017, Pg. 7-18. Available at: [http://www.energydataweb.com/cpucFiles/pdaDocs/908/Statewide\\_Institutional\\_IOU\\_Energy\\_Efficiency\\_Partnership\\_Assessment%20Final%20Draft.pdf](http://www.energydataweb.com/cpucFiles/pdaDocs/908/Statewide_Institutional_IOU_Energy_Efficiency_Partnership_Assessment%20Final%20Draft.pdf)

<sup>50</sup> Evergreen Economics, “Program Assessment Study: Local Government Partnership Programs – Final Report”, July 2013, Pg. 198. Available at: [http://www.calmac.org/publications/LGP\\_Program\\_Assessment\\_Report\\_-\\_final.pdf](http://www.calmac.org/publications/LGP_Program_Assessment_Report_-_final.pdf)

Strategy	Tactics	Study	Comments
		consumers to share/donate their data for consideration of possible EE upgrade” <sup>51</sup>	
<b>Integrated Customer Experience</b>	<ul style="list-style-type: none"> <li>• Same as in Table above</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>	

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<sup>51</sup> California Energy Commission, “2016 Existing Buildings Energy Efficiency Action Plan Update December 2016”, Pg. 40. Available at: [http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801\\_20161214T155117\\_Existing\\_Building\\_Energy\\_Efficiency\\_Plan\\_Update\\_Deceber\\_2016\\_Thi.pdf](http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficiency_Plan_Update_Deceber_2016_Thi.pdf)

**Cross-Cutting Sector Proposed Intervention Strategies – Codes and Standards**

- Planning and Coordination Subprogram Strategies and Tactics

Strategy for Planning and Coordination	Tactics	Study	Comments
<ul style="list-style-type: none"> <li>• <b>PC-1. Convene a forum where IOU EE portfolio programs can coordinate actions to prepare the market for future code and ZNE adoption.</b></li> <li>• <b>PC-2. Convene a forum where EE PAs, market actors, and C&amp;S stakeholders can discuss standards for a “plug and play” grid.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Lead the establishment and facilitation of a communications forum with regulatory agencies and critical stakeholders to appropriately structure and phase in DERs as they relate to advancing codes and standards.</li> </ul>	<ul style="list-style-type: none"> <li>• D.15-05-015 OP91</li> <li>• "Recommendation: Establish a Memorandum of Understanding around ZNE Goals Though the CPUC and CEC have the policy tools available to pursue the ZNE goals, there is a need for an ongoing <b>forum</b> to evaluate the complex set of issues and recommendations presented in this report and those that will no doubt arise in the years to come. " p. 19 ZNE Market Study, CALMAC ID PGE0327.01</li> </ul>	
<ul style="list-style-type: none"> <li>• <b>PC-2. Convene a forum where EE PAs, market actors, and C&amp;S stakeholders can discuss standards for a “plug and play” grid.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Lead the establishment and facilitation of a communications forum with internal utility T&amp;D system organizations, including grid operations, distribution and transmission planning, load forecasting, and line extension policies.</li> </ul>	<ul style="list-style-type: none"> <li>• "Recommendation: Research Needs for ZNE Grid Impacts The <b>grid</b> interconnection costs for high penetration distributed PV systems on ZNE buildings are still largely unknown. " p. 28 ZNE Market Study, CALMAC ID PGE0327.01</li> </ul>	
<ul style="list-style-type: none"> <li>• <b>PC-2. Convene a forum where EE PAs, market actors, and C&amp;S stakeholders can discuss standards for a “plug and play” grid.</b></li> <li>• <b>PC-3. Lead strategic planning activities with PAs to identify synergistic priorities between EE programs and the building and appliance code advocacy programs.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Lead the continuation of existing strategic planning activities and enhance coordination across the EE portfolio and other IDER groups, by developing new tools to communicate existing standards and future work.</li> </ul>	<ul style="list-style-type: none"> <li>• "Recommendation: Target ZNE through Programmatic Activity Starting with the 2013-2014 portfolios of programs, we encourage the IOUs and CPUC to identify specific pathways to encourage ZNE performance through programs. " p. 23 ZNE Market Study, CALMAC ID PGE0327.01</li> </ul>	

Strategy for Planning and Coordination	Tactics	Study	Comments
<ul style="list-style-type: none"> <li>• <b>PC-3. Lead strategic planning activities with PAs to identify synergistic priorities between EE programs and the building and appliance code advocacy programs.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Support development of technology trajectories that incorporate market transformation tools available to specific EE portfolio programs to facilitate future adoption by state or federal building and/or appliance codes.</li> </ul>	<ul style="list-style-type: none"> <li>• "Recommendation: Align Emerging Technologies Programs to ZNE Goals Though it is challenging to predict when technologies may develop and what new technologies may arrive in the market place, it is possible to outline the needs of a ZNE building by any definition using the results of the Technical Feasibility study and this study to identify a roadmap for the emerging technologies programs. As an example, there are several codes and standards proposed measures that need further laboratory and field testing such as evaporative cooling systems. In other cases, there are technology needs that are not met – such as smaller air conditioning systems with higher efficiency levels. Beyond technologies themselves, much more information needs to be collected on the occupant interaction with systems and controls. These needs should form the basis of emerging technologies research roadmap." P. 27 ZNE Market Study, CALMAC ID PGE0327.01</li> </ul>	
<ul style="list-style-type: none"> <li>• <b>PC-1. Convene a forum where IOU EE portfolio programs can coordinate actions to prepare the market for future code and ZNE adoption.</b></li> <li>• <b>PC-2. Convene a forum where EE PAs, market actors, and C&amp;S stakeholders can discuss standards for a “plug and play” grid</b></li> </ul>	<ul style="list-style-type: none"> <li>• Support the residential new construction market with technical support, training, and other assistance to achieve ZNE by 2020</li> </ul>	<ul style="list-style-type: none"> <li>• "Recommendation: Make Quality Construction the Foundational Element of Title 24 In order to meet the ZNE goals, <b>construction</b> quality must be of the highest standard and both building envelope and systems must be installed as designed/intended." P. 24 ZNE Market Study, CALMAC ID PGE0327.01</li> <li>• "Recommendation: Align the New Construction Program Portfolio to ZNE Equivalency Goals New <b>construction</b> programs are currently active in promoting the general ZNE concept. However, these efforts are in the pilot stages and need to be substantially enhanced in 2013- 2014 onwards to reach a broader section of the market." P. 25 ZNE Market Study, CALMAC ID PGE0327.01</li> </ul>	

- National and International Standards Subprogram Strategies and Tactics

Strategy for Nat'l and Internat'l Standards	Tactics	Study	Comments
<ul style="list-style-type: none"> <li>NISA-1. Lead the highest quality advocacy that resources allow to maximize impact from national and international codes and standards setting bodies that affect California customers and goals (for example, DOE, ASHRAE, ICC, EPA, USGBC, CHPS, IEC, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>Influence code development proceedings (for example, DOE, ASHRAE, ICC, etc.) that increase stringency, and expand scope of coverage.</li> </ul>	<ul style="list-style-type: none"> <li>The most recent guidance document is the California Long Term Energy Eff Strat Plan (CLTEESP)</li> <li>"Regulatory agencies and the utilities could also work in collaboration with <b>national</b> appliance and plug load rating initiatives such as EnergyStar to ensure that these ratings target the 'best in class' systems based on their energy efficiency performance." P. 26 ZNE Market Study, CALMAC ID PGE0327.01</li> </ul>	
<ul style="list-style-type: none"> <li>NISA-2. Support significant increases in the scope and stringency of national regulations and standards that support California's policy goals.</li> <li></li> </ul>	<ul style="list-style-type: none"> <li>Lead collaboration with national industry associations, labs, and EE/ DR advocates (NRDC, ACEEE, PNNL, DOE, EPA, Society of Automotive Engineers, ASAP, CEA, NEMA, etc.) to influence national building codes and appliance standards.</li> </ul>	<ul style="list-style-type: none"> <li>CLTEESP</li> <li>"Regulatory agencies and the utilities could also work in <b>collaboration</b> with national appliance and plug load rating initiatives such as EnergyStar to ensure that these ratings target the 'best in class' systems based on their energy efficiency performance." P. 26 ZNE Market Study, CALMAC ID PGE0327.01</li> </ul>	
<ul style="list-style-type: none"> <li>NISA-1. Lead the highest quality advocacy that resources allow to maximize impact from national and international codes and standards setting bodies that affect California customers and goals (for example, DOE, ASHRAE, ICC, EPA, USGBC, CHPS, IEC, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>Increase support for model codes (for example, ASHRAE 90.1 and IECC) reach codes (for example, ASHRAE 189.1, CALGreen) and rating systems (LEED, ResNet) to simplify and harmonize with national codes and ratings</li> </ul>	<ul style="list-style-type: none"> <li>CLTEESP</li> <li>"Regulatory agencies and the utilities could also work in <b>collaboration</b> with national appliance and plug load rating initiatives such as EnergyStar to ensure that these ratings target the 'best in class' systems based on their energy efficiency performance." P. 26 ZNE Market Study, CALMAC ID PGE0327.01</li> </ul>	
<ul style="list-style-type: none"> <li>NISA-1. Lead the highest quality advocacy that resources allow to maximize impact from national and international codes and standards setting</li> </ul>	<ul style="list-style-type: none"> <li>Support the Energy Commission interactions with federal agencies, where feasible and appropriate.</li> </ul>	<ul style="list-style-type: none"> <li>CLTEESP</li> <li>"Regulatory agencies and the utilities could also work in <b>collaboration</b> with national appliance and plug load rating initiatives such as EnergyStar to ensure that these ratings target the</li> </ul>	



Strategy for Nat'l and Internat'l Standards	Tactics	Study	Comments
<p>bodies that affect California customers and goals (for example, DOE, ASHRAE, ICC, EPA, USGBC, CHPS, IEC, etc.)</p> <ul style="list-style-type: none"> <li>• NISA-2. Support significant increases in the scope and stringency of national regulations and standards that support California's policy goals.</li> </ul>		<p>'best in class' systems based on their energy efficiency performance." P. 26 ZNE Market Study, CALMAC ID PGE0327.01</p>	
<ul style="list-style-type: none"> <li>• NISA-1. Lead the highest quality advocacy that resources allow to maximize impact from national and international codes and standards setting bodies that affect California customers and goals (for example, DOE, ASHRAE, ICC, EPA, USGBC, CHPS, IEC, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Actively participate and influence the development and updating of test methods and ratings with industry groups (NEMA, AHRI, etc.), technical committees (ASHRAE, IES, IEEE, etc.) voluntary programs (DLC, CEE, EPA/ENERGY STAR, etc.), and regulatory agencies (DOE, ICC, etc.).</li> </ul>	<ul style="list-style-type: none"> <li>• CLTEESP</li> <li>• "Regulatory agencies and the utilities could also work in <b>collaboration</b> with national appliance and plug load rating initiatives such as EnergyStar to ensure that these ratings target the 'best in class' systems based on their energy efficiency performance." P. 26 ZNE Market</li> </ul>	
<ul style="list-style-type: none"> <li>• NISA-1. Lead the highest quality advocacy that resources allow to maximize impact from national and international codes and standards setting bodies that affect California customers and goals (for example, DOE, ASHRAE, ICC, EPA, USGBC, CHPS, IEC, etc.)</li> <li>• NISA-2. Support significant increases in the scope and stringency of national regulations and</li> </ul>	<ul style="list-style-type: none"> <li>• Lead collaboration with federal agencies through improved data collection.</li> <li>• Increase support for national and international standard setting processes through improved data, technical support, and advocacy.</li> </ul>	<ul style="list-style-type: none"> <li>• 2010-2012 Impact Study</li> <li>• Regulatory agencies and the utilities could also work in <b>collaboration</b> with national appliance and plug load rating initiatives such as EnergyStar to ensure that these ratings target the 'best in class' systems based on their energy efficiency performance." P. 26 ZNE Market Study, CALMAC ID PGE0327.01</li> <li>• 2010-2012 Impact Study</li> <li>• Regulatory agencies and the utilities could also work in <b>collaboration</b> with national appliance and plug load rating initiatives such as EnergyStar to ensure that these ratings target the 'best in class' systems based on their energy</li> </ul>	

Strategy for Nat'l and Internat'l Standards	Tactics	Study	Comments
standards that support California's policy goals.		efficiency performance." P. 26 ZNE Market Study, CALMAC ID PGE0327.01	
	<ul style="list-style-type: none"> <li>Strengthen the advocacy coalition with other advocacy groups and stakeholders outside California.</li> </ul>	<ul style="list-style-type: none"> <li>2010-2012 Impact Study</li> <li>Regulatory agencies and the utilities could also work in <b>collaboration</b> with national appliance and plug load rating initiatives such as EnergyStar to ensure that these ratings target the 'best in class' systems based on their energy efficiency performance." P. 26 ZNE Market Study, CALMAC ID PGE0327.01</li> </ul>	

- Compliance Improvement Subprogram Strategies and Tactics

Strategy for Compliance Improvement	Tactics	Study	Comments
<ul style="list-style-type: none"> <li><b>CI-1. Lead and develop a plan to improve and disseminate resources supporting compliance with building and appliance efficiency standards to help realize the full potential of adopted standards.</b></li> <li><b>CI-2. Design and offer classes to support various market actors in the compliance supply chain to understand their unique roles and responsibilities in compliance, and equip each with the specific knowledge, skill, and tools they need to quickly, easily and effectively perform</b></li> </ul>	<ul style="list-style-type: none"> <li>Identify needs of the various market actors in the compliance supply chain and work with each actor group to identify, guide development of and test potential compliance improvement solutions</li> </ul>	<ul style="list-style-type: none"> <li>Codes and Standards Compliance Improvement Program Years 2013-2014 Process Evaluation Final Report CALMAC Study ID: CPU0129 Pages 66-71</li> </ul>	<ul style="list-style-type: none"> <li>"Recommendation: Support and Learn from Early Adopters</li> <li>If the ZNE goals are to be achieved, early successes should be rewarded through recognition and marketing support to spread the message of the benefits these <b>early adopters</b> have realized. The efforts of these early adopters and their successes and failures need careful follow-up to understand the technological and policy approaches required to move the rest of the market. " p. 23 ZNE Market Study, CALMAC ID PGE0327.01</li> <li>"Further research is needed on the variability of energy use and the 'how' and 'why' <b>occupants</b> use energy in buildings. Research is needed on how much energy use patterns and behaviors can be influenced by policy approaches (programs, codes, marketing, etc.). Research is needed on how to incorporate occupant expectations and</li> </ul>

Strategy for Compliance Improvement	Tactics	Study	Comments
<p>their compliance job tasks.</p> <ul style="list-style-type: none"> <li>• CI-4. Lead monitoring and reporting using a consistent framework on compliance with building and appliance efficiency standards.</li> </ul>			<p>behavior into programmatic approaches." P. 27 ZNE Market Study, CALMAC ID PGE0327.01</p>
<ul style="list-style-type: none"> <li>• CI-1. Lead and develop a plan to improve and disseminate resources supporting compliance with building and appliance efficiency standards to help realize the full potential of adopted standards.</li> <li>• CI-2. Design and offer classes to support various market actors in the compliance supply chain to understand their unique roles and responsibilities in compliance, and equip each with the specific knowledge, skill, and tools they need to quickly, easily and effectively perform their compliance job tasks.</li> <li>• CI-3. Support the development of successful standards by helping CASE authors address code implementation during the code development (advocacy) process.</li> <li>• CI-4. Lead monitoring and reporting using a consistent framework on compliance with building</li> </ul>	<ul style="list-style-type: none"> <li>• Develop tools to support the reduction of burdensome processes that present barriers to compliance</li> </ul>	<ul style="list-style-type: none"> <li>• Codes and Standards Compliance Improvement Program Years 2013-2014 Process Evaluation Final Report CALMAC Study ID: CPU0129 Pages 66-71</li> <li>• California Statewide Codes and Standards Compliance Enhancement Subprogram 2010-2012 PILOT PROCESS EVALUATION CALMAC Study ID: CPU0070.01 Page 23</li> </ul>	<ul style="list-style-type: none"> <li>• "Another important barrier to overcome is the nature of the construction industry with its multiple trades and their relative lack of coordination and training. ZNE construction will require attention to quality of construction, coordination of the trades (electrical, plumbing, roofers, HVAC, framers and insulation installers for instance for residential) and learning new skills (due to use of new and innovative technologies)." P. 60 ZNE Market Study, CALMAC ID PGE0327.01</li> </ul>

Strategy for Compliance Improvement	Tactics	Study	Comments
<p><b>and appliance efficiency standards</b></p>			
<ul style="list-style-type: none"> <li>• <b>CI-1. Lead and develop a plan to improve and disseminate resources supporting compliance with building and appliance efficiency standards to help realize the full potential of adopted standards.</b></li> <li>• <b>CI-2. Design and offer classes to support various market actors in the compliance supply chain to understand their unique roles and responsibilities in compliance, and equip each with the specific knowledge, skill, and tools they need to quickly, easily and effectively perform their compliance job tasks.</b></li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Develop training that teaches market actors how to perform their unique compliance job tasks and deliver training using the appropriate modalities per market actor</li> </ul>	<ul style="list-style-type: none"> <li>• Codes and Standards Compliance Improvement Program Years 2013-2014 Process Evaluation Final Report CALMAC Study ID: CPU0129 Pages 66-71</li> <li>• California Statewide Codes and Standards Compliance Enhancement Subprogram 2010-2012 PILOT PROCESS EVALUATION CALMAC Study ID: CPU0070.01 Page 23</li> </ul>	<ul style="list-style-type: none"> <li>• "Outreach and Training: There is a need for sustained efforts to provide information about the benefits of ZNE, convey the basics of ZNE effectively and train those who will be involved with designing, constructing and maintaining ZNE buildings." P. 60 ZNE Market Study, CALMAC ID PGE0327.01</li> <li>• "Another important barrier to overcome is the nature of the construction industry with its multiple trades and their relative lack of coordination and training. ZNE construction will require attention to quality of construction, coordination of the trades (electrical, plumbing, roofers, HVAC, framers and insulation installers for instance for residential) and learning new skills (due to use of new and innovative technologies)." P. 60 ZNE Market Study, CALMAC ID PGE0327.01</li> </ul>
	<ul style="list-style-type: none"> <li>• Create resources (job aides) that help market actors understand how and when to comply with California's building and appliance EE standards</li> </ul>	<ul style="list-style-type: none"> <li>• Codes and Standards Compliance Improvement Program Years 2013-2014 Process Evaluation Final Report CALMAC Study ID: CPU0129 Pages 66-71</li> </ul>	<ul style="list-style-type: none"> <li>• "Outreach and Training: There is a need for sustained efforts to provide information about the benefits of ZNE, convey the basics of ZNE effectively and train those who will be involved with designing, constructing and maintaining ZNE buildings." P. 60 ZNE Market Study, CALMAC ID PGE0327.01</li> <li>• "Another important barrier to overcome is the nature of the construction industry with its multiple trades and their relative lack of coordination and training. ZNE construction will require attention to quality of construction, coordination of the trades (electrical, plumbing, roofers, HVAC, framers and insulation installers for instance for residential) and learning new skills (due to use of new and innovative</li> </ul>

Strategy for Compliance Improvement	Tactics	Study	Comments
			technologies)." P. 60 ZNE Market Study, CALMAC ID PGE0327.01
<ul style="list-style-type: none"> <li>• <b>CI-2. Design and offer classes to support various market actors in the compliance supply chain to understand their unique roles and responsibilities in compliance, and equip each with the specific knowledge, skill, and tools they need to quickly, easily and effectively perform their compliance job tasks</b></li> </ul>	<ul style="list-style-type: none"> <li>• Support certification of energy analysts and help create demand for the use of Certified Energy Analysts on specific projects</li> </ul>	<ul style="list-style-type: none"> <li>• Codes and Standards Compliance Improvement Program Years 2013-2014 Process Evaluation Final Report CALMAC Study ID: CPU0129 Pages 66-71</li> </ul>	<ul style="list-style-type: none"> <li>• "Training – similar to the awareness campaign, training of the work force will ensure that measures required for ZNE are installed in an optimal time and process resulting in overall project cost reductions." P. 149 ZNE Market Study, CALMAC ID PGE0327.01</li> </ul>
<ul style="list-style-type: none"> <li>• <b>CI-1. Lead and develop a plan to improve and disseminate resources supporting compliance with building and appliance efficiency standards to help realize the full potential of adopted standards.</b></li> <li>• <b>CI-4. Lead monitoring and reporting using a consistent framework on compliance with building and appliance efficiency standards</b></li> </ul>	<ul style="list-style-type: none"> <li>• Conduct outreach to increase awareness of the value of compliance with California’s energy standards and the availability of tools, training and resources to support improved compliance</li> </ul>	<ul style="list-style-type: none"> <li>• Codes and Standards Compliance Improvement Program Years 2013-2014 Process Evaluation Final Report CALMAC Study ID: CPU0129 Pages 66-71</li> </ul>	<ul style="list-style-type: none"> <li>• "Outreach and Training: There is a need for sustained efforts to provide information about the benefits of ZNE, convey the basics of ZNE effectively and train those who will be involved with designing, constructing and maintaining ZNE buildings." P. 60 ZNE Market Study, CALMAC ID PGE0327.01</li> </ul>
<ul style="list-style-type: none"> <li>• <b>CI-3. Support the development of successful standards by helping CASE authors address code implementation during the code development (advocacy) process.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Incorporate user-centered design methodologies during the code development process in collaboration with advocacy stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>• Codes and Standards Compliance Improvement Program Years 2013-2014 Process Evaluation Final Report Pages 66-71</li> </ul>	<ul style="list-style-type: none"> <li>• "Research is needed on how much energy use patterns and behaviors can be influenced by policy approaches (programs, codes, marketing, etc.). Research is needed on how to incorporate occupant expectations and behavior into programmatic approaches." P. 27 ZNE Market Study, CALMAC ID PGE0327.01</li> </ul>

Strategy for Compliance Improvement	Tactics	Study	Comments
<ul style="list-style-type: none"> <li>•</li> </ul>			
<ul style="list-style-type: none"> <li>• <b>CI-2. Design and offer classes to support various market actors in the compliance supply chain to understand their unique roles and responsibilities in compliance, and equip each with the specific knowledge, skill, and tools they need to quickly, easily and effectively perform their compliance job tasks.</b></li> <li>• <b>CI-3. Support the development of successful standards by helping CASE authors address code implementation during the code development (advocacy) process.</b></li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Collaborate with key agencies during the rulemaking process to develop outreach plans to support new building and appliance standards</li> </ul>	<ul style="list-style-type: none"> <li>• Codes and Standards Compliance Improvement Program Years 2013-2014 Process Evaluation Final Report CALMAC Study ID: CPU0129 Pages 66-71</li> </ul>	<ul style="list-style-type: none"> <li>• "Including opinions and suggestions from key decision-makers and market actors on the project research and recommendations ensures that results from this project are meaningful, address market actor concerns and provide the best opportunity for success in achieving the ZNE goals." P. 36 ZNE Market Study, CALMAC ID PGE0327.01</li> </ul>
<ul style="list-style-type: none"> <li>• <b>CI-4. Lead monitoring and reporting using a consistent framework on compliance with building and appliance efficiency standards</b></li> </ul>	<ul style="list-style-type: none"> <li>• In collaboration with other stakeholders, support the development of compliance measurement and tracking methods to inform future code updates and compliance improvement activity planning</li> </ul>	<ul style="list-style-type: none"> <li>• Codes and Standards Compliance Improvement Program Years 2013-2014 Process Evaluation Final Report CALMAC Study ID: CPU0129 Pages 66-71</li> </ul>	<ul style="list-style-type: none"> <li>• "Recommendation: Develop Equivalency Metrics for ZNE Goals</li> <li>• This study recommends that the concept of ZNE Equivalency is critical to making the ZNE goals feasible and address valid concerns about requiring renewables onsite for each and every building. A number of equivalency metrics have been proposed by others and we have outlined them above. We recommend that the CPUC and CEC collaborate on developing the parameters of the equivalency metrics – be they renewable credits, locational efficiency or vehicular miles traveled." P.152 ZNE Market Study, CALMAC ID PGE0327.01</li> </ul>

- Reach Codes Subprogram Strategies and Tactics

Strategy for Reach Codes	Tactics	Study	Comments
<ul style="list-style-type: none"> <li><b>RC- 1. Support local adoption of reach codes that target higher levels of EE and greenhouse reduction goals.</b></li> </ul>	<ul style="list-style-type: none"> <li>Lead development of tools in collaboration with local jurisdictions that can track, quantify and report reach code energy savings and GHG reduction.</li> </ul>	<ul style="list-style-type: none"> <li>Reach Code Subprogram 2010-2012 Process and Pilot Impact Evaluations CALMAC Study ID: CPU0070.02 Page 8</li> </ul>	<ul style="list-style-type: none"> <li>LTEESP, section 7 goal 1 page 69.</li> <li>Title 24, part 2 voluntary standard. Climate action plan. Look to public sector REACH codes</li> <li>"Recommendation: Develop Equivalency Metrics for ZNE Goals This study recommends that the concept of ZNE Equivalency is critical to making the ZNE goals feasible and address valid concerns about requiring renewables onsite for each and every building. A number of equivalency metrics have been proposed by others and we have outlined them above. We recommend that the CPUC and CEC collaborate on developing the parameters of the equivalency metrics – be they renewable credits, locational efficiency or vehicular miles traveled." P.152 ZNE Market Study, CALMAC ID PGE0327.01</li> </ul>
<ul style="list-style-type: none"> <li><b>RC- 1. Support local adoption of reach codes that target higher levels of EE and greenhouse reduction goals.</b></li> </ul>	<ul style="list-style-type: none"> <li>Lead coordination with CEC and HCD staff to leverage Title 24 Part 11 CALGreen Voluntary Tiers as a primary source for reach code measures by preparing cost effectiveness studies that support the CALGreen Voluntary Tier rulemaking process.</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>	<ul style="list-style-type: none"> <li>"By promoting the ZNE goal, state policymakers clearly see benefits to encouraging local, renewable self-generation, beyond the benefits achieved from utility-scale renewable generation." P. 71 ZNE Market Study, CALMAC ID PGE0327.01</li> <li>"A recent national meeting of multiple states and cities targeted education and state/local government buildings as the most appropriate markets for ZNE." P. 156 ZNE Market Study, CALMAC ID PGE0327.01</li> </ul>
<ul style="list-style-type: none"> <li><b>RC - 2. Lead collaboration efforts with CEC, Local Government Partnership Program, and other stakeholders to expand beyond traditional EE performance-based reach</b></li> </ul>	<ul style="list-style-type: none"> <li>Support local initiatives to improve efficiency in existing buildings such as Home Energy Score (HES) upon resale or on a voluntary basis, Green Multiple Listing Service (Green MLS), and/or retrofit EE for multifamily.</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>	<ul style="list-style-type: none"> <li>"By promoting the ZNE goal, state policymakers clearly see benefits to encouraging local, renewable self-generation, beyond the benefits achieved from utility-scale renewable generation." P. 71 ZNE Market Study, CALMAC ID PGE0327.01</li> </ul>

Strategy for Reach Codes	Tactics	Study	Comments
<p>codes to include existing buildings, renewables, EV infrastructure, energy storage, DR, and water saving measures.</p>			<ul style="list-style-type: none"> <li>"A recent national meeting of multiple states and cities targeted education and state/local government buildings as the most appropriate markets for ZNE." P. 156 ZNE Market Study, CALMAC ID PGE0327.01</li> </ul>
<ul style="list-style-type: none"> <li><b>RC - 3. Support collaboration efforts with CEC, Local Government Partnership Program, and other stakeholders to increase awareness of the value of Reach Codes.</b></li> </ul>	<ul style="list-style-type: none"> <li>Support collaboration efforts with CEC, regional energy networks, local government partnerships, regional public affairs, and other stakeholders to educate local elected officials and staff regarding the value of Reach Codes, the requirements for adoption of local Reach Codes and best practices, tools and resources available to help local implementation.</li> </ul>	<ul style="list-style-type: none"> <li>Reach Code Subprogram 2010-2012 Process and Pilot Impact Evaluations CALMAC Study ID: CPU0070.02 Page 8</li> </ul>	<ul style="list-style-type: none"> <li>"Outreach and Training: There is a need for sustained efforts to provide information about the benefits of ZNE, convey the basics of ZNE effectively and train those who will be involved with designing, constructing and maintaining ZNE buildings." P. 60 ZNE Market Study, CALMAC ID PGE0327.01</li> <li>"A recent national meeting of multiple states and cities targeted education and state/local government buildings as the most appropriate markets for ZNE." P. 156 ZNE Market Study, CALMAC ID PGE0327.01</li> </ul>
<ul style="list-style-type: none"> <li><b>RC - 3. Support collaboration efforts with CEC, Local Government Partnership Program, and other stakeholders to increase awareness of the value of Reach Codes.</b></li> </ul>	<ul style="list-style-type: none"> <li>Lead the integration of EE, renewables, EV infrastructure, energy storage, DR, and water saving measures as a comprehensive reach code "toolkit" of measures. Support standards for DR-enabled appliances Collaborate with the Energy Commission to develop compliance software rulesets to optimize operation of PV, storage, and other IDER components. Identify strategies for mitigating potentially adverse impacts on the local distribution grid (especially aged infrastructure areas) including tariffs, net energy metering, and interconnection regulation.</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>	<ul style="list-style-type: none"> <li>"To achieve ZNE goals will require careful coordination of the EE, DR and DG programmatic activities including incentive levels, application processes, savings claims, marketing and outreach as well as project financing. An integrated approach through the IDSM process will play a crucial role in providing the right resources to early adopters and the early majority to achieve building designs and EUI performance levels that meet the ZNE definitions put forth in this report, all of which include EUI metric targets. Further we encourage the IOUs and CPUC to orient the IDSM offerings to a common goal of encouraging ZNE Equivalent buildings." P. 23 ZNE Market Study, CALMAC ID PGE0327.01</li> <li>"A recent national meeting of multiple states and cities targeted education and state/local government buildings as the most appropriate markets for ZNE." P. 156 ZNE Market Study, CALMAC ID PGE0327.01</li> </ul>



Strategy for Reach Codes	Tactics	Study	Comments
<ul style="list-style-type: none"> <li>• <b>RC - 4. Lead strategic planning activities within the EE portfolio to identify “code readiness” priorities for the building and appliance code advocacy programs.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Lead strategic planning activities with EE programs such as Savings By Design to develop program incentives and targeted program offerings promoting reach code measures to rapidly increase market adoption, and prepare these measure to transition into the Title 24 building energy code.</li> </ul>	<ul style="list-style-type: none"> <li>• Reach Code Subprogram 2010-2012 Process and Pilot Impact Evaluations CALMAC Study ID: CPU0070.02 Page 9</li> </ul>	<ul style="list-style-type: none"> <li>• "Recommendation: Target ZNE through Programmatic Activity</li> <li>• Starting with the 2013-2014 portfolios of programs, we encourage the IOUs and CPUC to identify specific pathways to encourage ZNE performance through programs. " p. 154 ZNE Market Study, CALMAC ID PGE0327.01</li> </ul>

**Cross-Cutting Sector Proposed Intervention Strategies – Emerging Technology (ETP)**

Note: ETP's strategies and tactics are time-tested and widely used by peer organizations. These strategies and tactics represent the cumulative knowledge of innovation practices in which the United States is considered the world leader. However, due to their widespread use and commonly-acknowledged value, it is difficult to cite studies in which they were first recognized as being an effective strategy or tactic. In lieu of individual citations, we refer the reader to an excellent report by the now-defunct United States Office of Technology Assessment that discusses the fundamental value of these tactics. Over the years, California evaluations have assessed ETP's implementation of some, but not all, of these legacy tactics, with the overall finding that ETP has met the program goals and objectives<sup>52</sup>.

Strategy	Tactics	Study	Comments
<ul style="list-style-type: none"> <li>• <b>ET1: Develop and execute Technology Priority Maps (TPMs).</b></li> </ul>	<ul style="list-style-type: none"> <li>• Conduct laboratory testing to evaluate performance uncertainties and/or other attributes potential effectiveness</li> </ul>	<ul style="list-style-type: none"> <li>• U.S. Congress, Office of Technology Assessment, <i>Innovation and Commercialization of Emerging Technology</i>, OTA-BP-ITC-165 (Washington, DC: U.S. Government Printing Office, September 1995).</li> </ul> <p>-----</p> <p>PY2010-2012 California Statewide Emerging Technologies Program Evaluation Phase 1 Report. CALMAC Study ID: CPU0066.01</p>	<ul style="list-style-type: none"> <li>• "Technology Demonstration and Performance Verification Testing, evaluation, and demonstration outside of the regulatory context provide an alternative means of building consumer confidence in new products, processes, and services." P.65 OTA</li> <li>• -----</li> <li>• ED evaluated the ETP Technology Assessments as effective: "Specifically, through their Technology Assessments (130 initiated as of Q1 2012), the IOUs are verifying energy savings claims, which is one of the primary areas identified." p. 28 Phase 1</li> <li>• "Both the Evaluation Team and EE program managers who read the completed Technology Assessment reports found the findings of the technology assessment reports clearly laid out. The reports followed logical formats with clear conclusions. " p. 41 CPU0066.01</li> </ul>
<ul style="list-style-type: none"> <li>• <b>ET1: Develop and execute Technology Priority Maps (TPMs).</b></li> <li>• <b>ET2: Solicit and meet PA requests for additional</b></li> </ul>	<ul style="list-style-type: none"> <li>• Conduct paper studies to synthesize existing research and findings from multiple sources</li> </ul>	<ul style="list-style-type: none"> <li>• U.S. Congress, Office of Technology Assessment, <i>Innovation and Commercialization of Emerging Technology</i>, OTA-BP-ITC-165 (Washington, DC:</li> </ul>	<ul style="list-style-type: none"> <li>• "Technology Demonstration and Performance Verification Testing, evaluation, and demonstration outside of the regulatory context provide an alternative means of building consumer confidence in new products, processes, and services." p. 65 OTA</li> </ul>

52 "ETP staff met statewide objectives across all program elements." P. 19, PY2010-2012 California Statewide Emerging Technologies Program, Phase II Program Effects Report Vol 1.

Strategy	Tactics	Study	Comments
<p><b>market or customer studies on emerging technology measures.</b></p>		<ul style="list-style-type: none"> <li>U.S. Government Printing Office, September 1995).</li> </ul>	
<ul style="list-style-type: none"> <li><b>ET1: Develop and execute Technology Priority Maps (TPMs).</b></li> <li><b>ET2: Solicit and meet PA requests for additional market or customer studies on emerging technology measures.</b></li> <li><b>ET3: Work with technology developers with products less than one year from commercialization.</b></li> <li><b>ET4: Work with technology developers with products less than five years from commercialization.</b></li> </ul>	<ul style="list-style-type: none"> <li>Conduct scaled field placements of a number of measures at customer sites as a key step to gain market traction and gain market feedback</li> </ul>	<ul style="list-style-type: none"> <li>U.S. Congress, Office of Technology Assessment, <i>Innovation and Commercialization of Emerging Technology</i>, OTA-BP-ITC-165 (Washington, DC: U.S. Government Printing Office, September 1995).</li> <li>-----</li> <li>PY2010-2012 California Statewide Emerging Technologies Program, Phase II Program Effects Report Vol 1. CALMAC Study ID: CPU0066.03</li> </ul>	<ul style="list-style-type: none"> <li>"Developers commonly build prototypes, bench-scale models, and pilot plant facilities before adopting new technologies or offering them in the marketplace. Firms also test-market new offerings before committing to full-scale production, or seek certification from private standards organizations." p. 65 OTA</li> <li>-----</li> <li>"Surveyed Scaled Field Placement participants reported adopting technologies and advocating for these technologies to colleagues and peers. For example, eight of the nine interviewed participants influence technology purchases at a single site, while six of the eight influence technology purchases at multiple sites. Five of these eight had purchased the technology for their sites since participating in the ETP project." P.5 CPU0066.03</li> </ul>
<ul style="list-style-type: none"> <li><b>ET1: Develop and execute Technology Priority Maps (TPMs).</b></li> <li><b>ET2: Solicit and meet PA requests for additional market or customer studies on emerging technology measures.</b></li> </ul>	<ul style="list-style-type: none"> <li>Conduct solicitations for third party projects to introduce emerging technologies to the market</li> </ul>	<ul style="list-style-type: none"> <li>U.S. Congress, Office of Technology Assessment, <i>Innovation and Commercialization of Emerging Technology</i>, OTA-BP-ITC-165 (Washington, DC: U.S. Government Printing Office, September 1995).</li> <li>-----</li> <li>Statewide Emerging Technologies Program (ETP) Third Party Introduction Tactic Process Evaluation Final Report CALMAC ID: SDG0294.01</li> </ul>	<ul style="list-style-type: none"> <li>"In developing new products and processes, firms must create linkages to sources of new knowledge and providers of key components for their products. These linkages serve several purposes for the innovating firm, allowing it to... gain access to complementary assets in ... marketing, and distribution." P.83 OTA</li> <li>-----</li> <li>"In addition to meeting their stated objectives, the solicitations we reviewed also succeeded in bringing new vendors to the IOUs and educating both new and familiar vendors about the goals of the Emerging Technologies Program." P. 3 SDG0294.01</li> </ul>

Strategy	Tactics	Study	Comments
<ul style="list-style-type: none"> <li>• <b>ET1: Develop and execute Technology Priority Maps (TPMs).</b></li> <li>• <b>ET2: Solicit and meet PA requests for additional market or customer studies on emerging technology measures.</b></li> <li>• <b>ET3: Work with technology developers with products less than one year from commercialization.</b></li> <li>• <b>ET4: Work with technology developers with products less than five years from commercialization.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Conduct demonstrations to seed market interest through proof-of-concept installations</li> </ul>	<ul style="list-style-type: none"> <li>• U.S. Congress, Office of Technology Assessment, <i>Innovation and Commercialization of Emerging Technology</i>, OTA-BP-ITC-165 (Washington, DC: U.S. Government Printing Office, September 1995).</li> <li>• -----</li> <li>• PY2010-2012 California Statewide Emerging Technologies Program Evaluation Phase 1 Report. CALMAC Study ID: CPU0066.01</li> </ul>	<ul style="list-style-type: none"> <li>• "Developers commonly build prototypes, bench-scale models, and pilot plant facilities before adopting new technologies or offering them in the marketplace. Firms also test-market new offerings before committing to full-scale production, or seek certification from private standards organizations." P.65 OTA</li> <li>• -----</li> <li>• "Moreover, through Demonstration Showcases (23 initiated as of Q1 2012), the IOUs are demonstrating and increasing the visibility of these technologies...As such, based on our review of the design, accomplishments, and assessment of the needs of the market, the ETP is demonstrating clear value to both the IOU energy efficiency portfolio and the broader CEESP goals. " P.28 CPU0066.01</li> </ul>
<ul style="list-style-type: none"> <li>• <b>ET1: Develop and execute Technology Priority Maps (TPMs).</b></li> <li>• <b>ET2: Solicit and meet PA requests for additional market or customer studies on emerging technology measures.</b></li> <li>• <b>ET3: Work with technology developers with products less than one year from commercialization.</b></li> <li>• <b>ET4: Work with technology developers with products less than five years from commercialization.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Conduct demonstrations to allow hand-on interactions with solutions to gather customer data and feedback</li> </ul>	<ul style="list-style-type: none"> <li>• U.S. Congress, Office of Technology Assessment, <i>Innovation and Commercialization of Emerging Technology</i>, OTA-BP-ITC-165 (Washington, DC: U.S. Government Printing Office, September 1995).</li> <li>• -----</li> <li>• PY2010-2012 California Statewide Emerging Technologies Program Evaluation Phase 1 Report. CALMAC Study ID: CPU0066.01</li> </ul>	<ul style="list-style-type: none"> <li>• "Firms also test-market new offerings before committing to full-scale production..." p.65 OTA</li> <li>• -----</li> <li>• "Moreover, through Demonstration Showcases (23 initiated as of Q1 2012), the IOUs are demonstrating and increasing the visibility of these technologies...As such, based on our review of the design, accomplishments, and assessment of the needs of the market, the ETP is demonstrating clear value to both the IOU energy efficiency portfolio and the broader CEESP goals. " P.28 CPU0066.0</li> </ul>

Strategy	Tactics	Study	Comments
<ul style="list-style-type: none"> <li>• <b>ET1: Develop and execute Technology Priority Maps (TPMs).</b></li> <li>• <b>ET2: Solicit and meet PA requests for additional market or customer studies on emerging technology measures.</b></li> <li>• <b>ET3: Work with technology developers with products less than one year from commercialization.</b></li> <li>• <b>ET4: Work with technology developers with products less than five years from commercialization.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Conduct market, customer, and behavioral studies targeted towards specific applications or sectors</li> </ul>	<ul style="list-style-type: none"> <li>• U.S. Congress, Office of Technology Assessment, <i>Innovation and Commercialization of Emerging Technology</i>, OTA-BP-ITC-165 (Washington, DC: U.S. Government Printing Office, September 1995).</li> <li>• -----</li> <li>• PY2010-2012 California Statewide Emerging Technologies Program, Phase II Program Effects Report Vol 1. CALMAC Study ID: CPU0066.03</li> </ul>	<ul style="list-style-type: none"> <li>• "Customers or end users can also be the source of innovation, providing feedback to manufacturers on product Improvement ...Potential customers may not understand the uses and advantages of a new technology. Or an innovation's usefulness to a customer is dependent on the presence of other users (e.g., a fax machine is only useful if others have fax machines); other technologies (e.g., computer hardware needs software); or other changed circumstances (e.g., a cleaner production process may be more attractive if pollution standards have tightened). Cost can also deter consumers. Technologies that are interesting or products that are technically superior to existing alternatives do not necessarily become market successes. Technical successes can easily be market failures." P.85 OTA</li> <li>• -----</li> <li>• "For six of the eight reports, respondents said that the reports provided them with a better understanding of the level of customer acceptance and target market for the energy efficient technologies" p. 26 CPU0066.03</li> </ul>
<ul style="list-style-type: none"> <li>• <b>ET1: Develop and execute Technology Priority Maps (TPMs).</b></li> <li>• <b>ET2: Solicit and meet PA requests for additional market or customer studies on emerging technology measures.</b></li> <li>• <b>ET3: Work with technology developers with products less than one year from commercialization.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Facilitating field evaluations at customer sites</li> </ul>	<ul style="list-style-type: none"> <li>• U.S. Congress, Office of Technology Assessment, <i>Innovation and Commercialization of Emerging Technology</i>, OTA-BP-ITC-165 (Washington, DC: U.S. Government Printing Office, September 1995).</li> </ul>	<ul style="list-style-type: none"> <li>• "Developers commonly build prototypes, bench-scale models, and pilot plant facilities before adopting new technologies or offering them in the marketplace." P.65 OTA</li> </ul>

Strategy	Tactics	Study	Comments
<ul style="list-style-type: none"> <li>• <b>ET4: Work with technology developers with products less than five years from commercialization.</b></li> </ul>			
<ul style="list-style-type: none"> <li>•</li> <li>• <b>ET3: Work with technology developers with products less than one year from commercialization.</b></li> <li>• <b>ET4: Work with technology developers with products less than five years from commercialization.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Make lab testing facilities such as SCE's Technology Test Center (TTC) available to companies without appropriate testing capabilities</li> </ul>	<ul style="list-style-type: none"> <li>• U.S. Congress, Office of Technology Assessment, <i>Innovation and Commercialization of Emerging Technology</i>, OTA-BP-ITC-165 (Washington, DC: U.S. Government Printing Office, September 1995).</li> <li>• -----</li> <li>• PY2010-2012 California Statewide Emerging Technologies Program Evaluation Phase 1 Report. CALMAC Study ID: CPU0066.01</li> </ul>	<ul style="list-style-type: none"> <li>• "In developing new products and processes, firms must create linkages ... These linkages serve several purposes for the innovating firm, allowing it to... gain access to new research results and technological capabilities for innovation efforts..." P.83 OTA</li> <li>• -----</li> <li>• "In addition, the TTC is unique in its funding source (its mandate for energy efficiency products is clear and does not change based on policy or preference changes) and activities (performs lab testing of technologies that are near-market ready). As such, SCE's ZNE Technology Test Center is unique in California's energy efficiency market. These findings about Technology Assessments and ZNE efforts through SCE's TTC begin to demonstrate that the IOUs are positioned well in terms of some of their current activities." P. 49 CPU0066.01</li> </ul>
<ul style="list-style-type: none"> <li>•</li> <li>• <b>ET3: Work with technology developers with products less than one year from commercialization.</b></li> <li>• <b>ET4: Work with technology developers with products less than five years from commercialization.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Develop standard testing protocols and facilitate widespread use of these protocols</li> </ul>	<ul style="list-style-type: none"> <li>• U.S. Congress, Office of Technology Assessment, <i>Innovation and Commercialization of Emerging Technology</i>, OTA-BP-ITC-165 (Washington, DC: U.S. Government Printing Office, September 1995).</li> <li>• -----</li> <li>• PY2010-2012 California Statewide Emerging Technologies Program, Phase II Program Effects Report Vol 1.</li> <li>• CALMAC Study ID: CPU0066.03</li> </ul>	<ul style="list-style-type: none"> <li>• "Technical standards are particularly important in the development of new technologies because they help channel resources toward a limited number of designs. Standards also provide a basis for products to interact compatibly." P.68 OTA</li> <li>• -----</li> <li>• "The ETP is also testing products and practices to determine the feasibility of these technologies in advance of codes and standards, and identifying and providing performance specifications, through the Technology Development Support efforts...As such, based on</li> </ul>

Strategy	Tactics	Study	Comments
			our review of the design, accomplishments, and assessment of the needs of the market, the ETP is demonstrating clear value to both the IOU energy efficiency portfolio and the broader CEESP goals." - p. 28 CPU0066.0
<ul style="list-style-type: none"> <li>• <b>ET1: Develop and execute Technology Priority Maps (TPMs).</b></li> <li>• <b>ET3: Work with technology developers with products less than one year from commercialization.</b></li> <li>• <b>ET4: Work with technology developers with products less than five years from commercialization.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Develop tools to facilitate assessment of emerging solutions, such as holistic solutions</li> </ul>	<ul style="list-style-type: none"> <li>• U.S. Congress, Office of Technology Assessment, <i>Innovation and Commercialization of Emerging Technology</i>, OTA-BP-ITC-165 (Washington, DC:U.S. Government Printing Office, September 1995).</li> </ul>	<ul style="list-style-type: none"> <li>• "Technical standards are particularly important in the development of new technologies because they help channel resources toward a limited number of designs. Standards also provide a basis for products to interact compatibly." P.68 OTA</li> </ul>
<ul style="list-style-type: none"> <li>• <b>ET3: Work with technology developers with products less than one year from commercialization.</b></li> <li>• <b>ET4: Work with technology developers with products less than five years from commercialization.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Fund college and university competitions on high-risk, high-reward technologies</li> </ul>	<ul style="list-style-type: none"> <li>• U.S. Congress, Office of Technology Assessment, <i>Innovation and Commercialization of Emerging Technology</i>, OTA-BP-ITC-165 (Washington, DC:U.S. Government Printing Office, September 1995).</li> </ul>	<ul style="list-style-type: none"> <li>• "academic research serves as the source of revolutionary new technologies that provide the impetus for entirely new types of products in these fields" p.73</li> </ul>
<ul style="list-style-type: none"> <li>• <b>ET3: Work with technology developers with products less than one year from commercialization.</b></li> <li>• <b>ET4: Work with technology developers with products</b></li> </ul>	<ul style="list-style-type: none"> <li>• Cultivate and maintain relationships with industry partners</li> </ul>	<ul style="list-style-type: none"> <li>• U.S. Congress, Office of Technology Assessment, <i>Innovation and Commercialization of Emerging Technology</i>, OTA-BP-ITC-165 (Washington, DC: U.S. Government Printing Office, September 1995).</li> </ul>	<ul style="list-style-type: none"> <li>• "In developing new products and processes, firms must create linkages to sources of new knowledge and providers of key components for their products. These linkages serve several purposes for the innovating firm, allowing it to: 1) spread the costs and risks associated with innovation among a greater number of organizations; 2) gain access to new research</li> </ul>

Strategy	Tactics	Study	Comments
<p><b>less than five years from commercialization.</b></p>			<p>results and technological capabilities for innovation efforts..." P.83 OTA</p>
<ul style="list-style-type: none"> <li>•</li> <li>• <b>ET3: Work with technology developers with products less than one year from commercialization.</b></li> <li>• <b>ET4: Work with technology developers with products less than five years from commercialization.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Conduct outreach events to facilitate ability of entrepreneurs widen network of business contacts</li> </ul>	<ul style="list-style-type: none"> <li>• U.S. Congress, Office of Technology Assessment, <i>Innovation and Commercialization of Emerging Technology</i>, OTA-BP-ITC-165 (Washington, DC: U.S. Government Printing Office, September 1995).</li> <li>• -----</li> <li>• PY2010-2012 California Statewide Emerging Technologies Program, Phase II Program Effects Report Vol 1. CALMAC Study ID: CPU0066.03</li> </ul>	<ul style="list-style-type: none"> <li>• "Small startup companies in the United States often look to the venture capital markets and wealthy angels for their capital needs...Angel investors typically learn about investment opportunities through accidents of geography and personal acquaintances. More formal mechanisms for matching angels to needy companies, or for pooling the resources of several angels for a single investment, do not exist on a large scale." p.76-78 OTA</li> <li>• -----</li> <li>• "TRIO [ETP's outreach to entrepreneurs] events met expected outcomes for supporting entrepreneurs and investors in increasing energy efficient technology supply; 20 entrepreneurs (or one-third of surveyed event attendees) submitted technologies to IOU or ETP programs." P. 5 CPU0066.03</li> </ul>
<ul style="list-style-type: none"> <li>•</li> <li>• <b>ET3: Work with technology developers with products less than one year from commercialization.</b></li> <li>• <b>ET4: Work with technology developers with products less than five years from commercialization.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Help technology developers learn utility business practices and procurement requirements</li> </ul>	<ul style="list-style-type: none"> <li>• U.S. Congress, Office of Technology Assessment, <i>Innovation and Commercialization of Emerging Technology</i>, OTA-BP-ITC-165 (Washington, DC: U.S. Government Printing Office, September 1995).</li> <li>• -----</li> <li>• PY2010-2012 California Statewide Emerging Technologies Program, Phase II Program Effects Report Vol 1. CALMAC Study ID: CPU0066.03</li> </ul>	<ul style="list-style-type: none"> <li>• "a business incubator helps entrepreneurs by providing...assistance in developing business strategy and in coping with practical concerns such as government regulations." P.79 OTA</li> <li>• -----</li> <li>• "TRIO events met expected outcomes for supporting entrepreneurs and investors in increasing energy efficient technology supply; 20 entrepreneurs (or one-third of surveyed event attendees) submitted technologies to IOU or ETP programs." P. 5 CPU0066.03</li> </ul>





**Cross-Cutting Sector Proposed Intervention Strategies – Workforce Education and Training (WE&T)**

Intervention Strategies	Primary Tactics	Study/Research/Best Practice	Observations/Comments
Align WE&T offerings to support the EE market based on EE potential data, policy mandates, industry needs, and emerging trends	Establish a comprehensive engagement and feedback process to inform delivery of the right services to the right audience through the right channels, where stakeholders will be actively engaged and part of a process of continuous improvement and feedback	Donald Vial Center on Employment in the Green Economy, Workforce Issues and Energy Efficiency Programs: A Plan for California's Utilities (May 2014), <i>available at</i> <a href="http://laborcenter.berkeley.edu/pdf/2014/WET-Plan-Executive-Summary14.pdf">http://laborcenter.berkeley.edu/pdf/2014/WET-Plan-Executive-Summary14.pdf</a>	Ensuring alignment of WE&T offerings is difficult in a complex and dynamic energy efficiency environment. The 2014 Don Vial Center Guidance Plan for WE&T recommended that the IOUs engage a peer review group to help establish a priority setting process for the development of the WE&T portfolio of offerings.  Joint IOU program teams will collaborate with a comprehensive set of key industry stakeholders through this process, to initiate new program design and implementation efforts, evaluate program participant data collection, methodology, and metrics development to achieve alignment with near, mid, and long-term outcomes identified in previous EM&V studies, evaluations, and reports that support market/industry alignment to help support CALTEESP, Policy, Industry, and IOU EE Portfolio goals.  The ODC process evaluation provided valuable information on how to improve course delivery and better meet the needs of participants. Increasing hands on training, using more internet based tools, and providing more IDSM and integrated offerings, for example have and will continue to guide the strategies and tactics for maximizing the value of the courses. The suggestions cover program tactics for different programs supported by WE&T. (e.g., HVAC, Codes & Standards, ZNE, etc.)  The refreshed PTLM provides framework and guidance on ways to maximize the benefits of the WE&T program.
	Leverage energy savings potential studies and job market data to prioritize WE&T offerings in partnership and collaboration with other IOU and non-IOU WE&T Program Administrators	Best practice for WE&T program design and implementation.	
	Implement joint IOU WE&T initiatives locally to support State's goals, where WE&T programs are aligned to State needs and goals, and provide a consistency for the four IOUs	Best practice for WE&T program design and implementation.	
	Where appropriate, assimilate recommendations from prior EM&V studies, evaluations, and reports, to help ensure alignment and to support joint-IOU efforts	Donald Vial Center on Employment in the Green Economy, California Workforce Education and Training Needs Assessment for Energy Efficiency, Distributed Generation, and Demand Response, p. 191 (2011) <i>available at</i> <a href="http://laborcenter.berkeley.edu/pdf/2011/WET_Part_1.pdf">http://laborcenter.berkeley.edu/pdf/2011/WET_Part_1.pdf</a>  Opinion Dynamics, 2010-2012 WE&T Process Evaluation Vol I: Centergies (Dec 2012), <i>available at</i> <a href="http://www.calmac.org/publications/2010-2012_WE%26T_Centergies_Process_Eval_Report_volume_1.pdf">http://www.calmac.org/publications/2010-2012_WE%26T_Centergies_Process_Eval_Report_volume_1.pdf</a>  Opinion Dynamics, 2013-2014 Statewide WE&T Program: Program Theory and Logic Model Update; Centergies Data Needs; and Critical	

Intervention Strategies	Primary Tactics	Study/Research/Best Practice	Observations/Comments
		WE&T Data Needs (June 2014), available at <a href="http://calmac.org/publications/2013-2014_WET_PTLM_and_Critical_Data_Gap_Assessment.pdf">http://calmac.org/publications/2013-2014_WET_PTLM_and_Critical_Data_Gap_Assessment.pdf</a>	
Collaborate with relevant education and training providers to expand or enhance the EE content of their overall training program	Collaborate with external educational providers to deliver core EE education (e.g., community colleges, unions, vocational schools, etc.)	<p>Donald Vial Center on Employment in the Green Economy, Workforce Issues and Energy Efficiency Programs: A Plan for California's Utilities (May 2014) available at <a href="http://laborcenter.berkeley.edu/pdf/2014/WET-Plan-Executive-Summary14.pdf">http://laborcenter.berkeley.edu/pdf/2014/WET-Plan-Executive-Summary14.pdf</a></p> <p>Best practice for WE&amp;T program design and implementation.</p>	<p>Cross-cutting WE&amp;T is one sector in a complex matrix of key stakeholders, collaborators, and other service providers that cannot solely address all EE market transformation efforts. The 2014 Don Vial Center Guidance Plan for WE&amp;T states that "IOU WE&amp;T investments comprise only a narrow slice of California's rich training and education infrastructure for the key design and trades occupations that impact energy use. This broader infrastructure includes the community colleges, the state-certified apprenticeship system, colleges and universities, and other institutions."</p>
	Collaborate with targeted organizations to expand access and reach to WE&T programs		
	Leverage established core WE&T offerings for direct infusion or articulation into the training portfolios of other education providers		
	Leverage IOU resources to develop new or deliver current/relevant WE&T offerings to teaching professionals within current education providers as well as trade training programs		
	Develop and share specific curriculum for high-potential opportunities with other education providers		
	Provide seed funding for curriculum development and sharing initiatives		
	Support specific industry-recognized certifications as well as workforce development agencies & organizations by providing EE teaching materials and career awareness resources	<p>ASWB Engineering &amp; Opinion Dynamics, Final Report: Lighting Controls Training Assessment (Feb. 2016), available at <a href="http://www.energydataweb.com/cpucFiles/pdaDocs/1458/Lighting%20Controls%20Training%20Assessment%20Report_2016-02-29_Final.pdf">http://www.energydataweb.com/cpucFiles/pdaDocs/1458/Lighting%20Controls%20Training%20Assessment%20Report_2016-02-29_Final.pdf</a></p>	<p>While industry-recognized certifications don't necessarily equal higher quality installation and maintenance or increased energy savings, research shows that benefits of certification include ensuring a level of standardization in skills and knowledge.</p>

Intervention Strategies	Primary Tactics	Study/Research/Best Practice	Observations/Comments
Support Statewide WE&T Programs and initiatives	Continue to support the delivery of the joint-IOU-offered curriculum and other energy center specific EE educational resources	Best practice for WE&T program design and implementation.	Collaborating and coordinating statewide WE&T offerings can improve and expand access and reach, help build awareness in high-potential sectors and target markets, while enhancing customer experience and ease of participation.
	Support the development and delivery of other existing and/or new statewide WE&T programs (e.g. Career Connections, Career and Workforce Readiness Programs).	Best practice for WE&T program design and implementation.	
Develop and deliver WE&T offerings to support / shape the EE market and achieve the State's aggressive EE goals, based on EE potential data, policy mandates, industry needs, emerging trends, and IOU EE Portfolio goals.	Develop and deliver technician and installer training that will support meter-based energy savings projects related to AB 802 implementation	Best practice for WE&T program design and implementation.	SCE's EE Portfolio identified some key opportunities where WE&T can help to achieve energy savings goals and overcome barriers to participation. These new and expanding market areas are intended to enhance SCE's portfolio of offerings.
	Develop and deliver EE program opportunity and new technology training targeted towards the distributor community as the EE Portfolio shifts downstream offerings more to midstream	Best practice for WE&T program design and implementation.	
	Continue to deliver industry-valued commercial advanced lighting controls installation and commissioning curriculum and pathways to certification	ASWB Engineering & Opinion Dynamics, Final Report: Lighting Controls Training Assessment (Feb. 2016), available at <a href="http://www.energydataweb.com/cpucFiles/pdaDocs/1458/Lighting%20Controls%20Training%20Assessment%20Report_2016-02-29_Final.pdf">http://www.energydataweb.com/cpucFiles/pdaDocs/1458/Lighting%20Controls%20Training%20Assessment%20Report_2016-02-29_Final.pdf</a>	There is great potential for energy savings through more efficient lighting and lighting control systems in California nonresidential buildings. Developing installers' skills specific to advanced lighting controls can help realize those potential savings.
	Support the development of curricula and other related educational resources to help improve commercial lighting system design		Research has determined that advanced lighting controls systems design, along with comprehensive manufacturer's training integration is needed, and of the most frequently cited barriers to quality installation is a function of poor lighting control system design.

Intervention Strategies	Primary Tactics	Study/Research/Best Practice	Observations/Comments
Develop and deliver WE&T offerings to support / shape the EE market and achieve the State's aggressive EE goals, based on EE potential data, policy mandates, industry needs, emerging trends, and IOU EE Portfolio goals.	Work with current commercial advanced lighting controls training providers to enhance the existing curriculum by integrating major manufacturer training		Research has determined that current commercial advanced lighting controls installation training is generally well-designed and executed; however, there are areas with potential for improvement in the existing training. Integration of major manufacturers training can help enhance the effectiveness of such offerings.
	Work with current training providers to enhance technical and soft skills offerings that target the following subjects: <ul style="list-style-type: none"> <li>• Understanding the lifecycle of installed Commercial measures</li> <li>• Knowledge of, and how to sell additional EE opportunities to end-use customers</li> <li>• Understanding end-use customer needs</li> <li>• Right-sizing of equipment and systems</li> <li>• Ability to bid, manage, and supervise projects</li> <li>• Knowledge of systems integration and overall functions/components</li> </ul>	EMI Consulting, California HVAC Quality Installation/Quality Maintenance Customer Decision-Making Study (Apr. 2015), available at <a href="http://emiconsulting.com/assets/CDM-Report-2015-04-15-FINAL.pdf">http://emiconsulting.com/assets/CDM-Report-2015-04-15-FINAL.pdf</a>  See Assembly Bill 758 (2009)  California Existing Buildings Energy Efficiency Action Plan, California Energy Commission (Dec. 2016) available at <a href="http://www.energy.ca.gov/ab758/documents/">http://www.energy.ca.gov/ab758/documents/</a>	Research shows that common knowledge and skills gaps exist in the commercial and residential EE workforce, including understanding the value proposition for EE, how different systems work together, and how to clearly communicate these concepts to customers. Additional commonly cited gaps include understanding customer needs and being able to bid, manage, and supervise work. AB 758 goals state the need to focus on training contractors and other market actors to sell EE. Additionally, research shows that EE sales skills can increase efficiency project quality, and that over 80 percent of those implementing efficiency projects are also responsible for selling new opportunities
	Continue to deliver industry-valued standards-based commercial HVAC quality installation and maintenance curriculum and pathways to certification	EMI Consulting, California HVAC Contractor and Technician Behavior Study Phase II (Apr. 2015), available at <a href="http://www.performancealliance.org/Portals/4/Documents/HVAC%20Research/Contractor%20TechnicianBehaviorStudy-Phase2-EMIConsulting-2015-04.pdf">http://www.performancealliance.org/Portals/4/Documents/HVAC%20Research/Contractor%20TechnicianBehaviorStudy-Phase2-EMIConsulting-2015-04.pdf</a>	Research and stakeholder feedback indicate that the Heating, Ventilation, Air Conditioning and Refrigeration (HVACR) technician workforce has significant skill gaps related to performing standards-based Commercial Quality Installation and Maintenance, and that quality installation and maintenance should become the industry and market norm. Additionally, common knowledge and skills gaps exist in the residential HVAC workforce include understanding the value proposition for EE, how different systems work
	Continue to deliver industry-valued standards-based residential HVAC quality installation and maintenance curriculum and pathways to certification	Opinion Dynamics, PY2013-2014 California Statewide Workforce Education and Training Program: Contractor Training Market	

Intervention Strategies	Primary Tactics	Study/Research/Best Practice	Observations/Comments
<p>Develop and deliver WE&amp;T offerings to support / shape the EE market and achieve the State's aggressive EE goals, based on EE potential data, policy mandates, industry needs, emerging trends, and IOU EE Portfolio goals.</p>	<p>Work with current training providers to enhance Residential HVAC technical and soft skills offerings that target the following subjects:</p> <ul style="list-style-type: none"> <li>• Understanding the lifecycle of installed Commercial measures</li> <li>• Knowledge of, and how to sell additional EE opportunities to end-use customers</li> <li>• Understanding end-use customer needs</li> <li>• Right-sizing of equipment and systems</li> <li>• Ability to bid, manage, and supervise projects</li> <li>• Knowledge of systems integration and overall functions/components</li> </ul>	<p>Characterization (June 2016), <i>available at</i> <a href="http://www.calmac.org/publications/CPUC_WET_Contractor_Training_Market_Characterization_FINAL.docx">http://www.calmac.org/publications/CPUC_WET_Contractor_Training_Market_Characterization_FINAL.docx</a></p>	<p>together, and how to clearly communicate these concepts to customers. Additional commonly cited gaps include understanding customer needs and being able to bid, manage, and supervise work.</p>
	<p>Partner with CA Community Colleges and relevant trades to build curriculum targeted to building operators and facility managers that addresses HVAC QI / QM gaps</p>	<p>California Community Colleges Chancellors' Office, High-Performance Building Operations Professionals - Achieving Zero Net Energy (May 2014), <i>available at</i> <a href="https://www.gcccd.edu/sdic-regional-consortium/documents/consortium/sswg/HPBOP_Proposal_053114.docx">https://www.gcccd.edu/sdic-regional-consortium/documents/consortium/sswg/HPBOP_Proposal_053114.docx</a></p>	<p>Research and stakeholder recommendations state that building operators and facility managers function as the hub for HVACR activities at their site and stand out as the most engaged in activities that affect an individual building's performance.</p>
	<ul style="list-style-type: none"> <li>• Focus efforts in local jurisdictions through in-field offerings to Plans Examiners, Building Inspectors, and other decision makers in Government on baseline code and expected changes in future code, while encouraging the adoption of voluntary or measure-specific reach codes.</li> <li>• Continue to collaborate with IOU Codes and Standards, Compliance Improvement teams to design, develop, and deliver relevant and timely codes training</li> </ul>	<p>See Public Sector chapter observations and sector collaborations.</p>	<p>As codes have increased in stringency, local governments and jurisdictions face challenges when enforcing the energy code and pursuing the adoption and implementation of reach codes that are more advanced than T24. As discussed in the Public Sector Section, local jurisdictions need help to better understand complicated code changes in order to improve code compliance and support reach codes.</p>

Intervention Strategies	Primary Tactics	Study/Research/Best Practice	Observations/Comments
Develop and deliver WE&T offerings to support / shape the EE market and achieve the State's aggressive EE goals, based on EE potential data, policy mandates, industry needs, emerging trends, and IOU EE Portfolio goals.	Continue to collaborate with IOU Codes and Standards, Compliance Improvement teams to design, develop, and deliver relevant and timely codes training to high-potential market actors and decision makers		
	<ul style="list-style-type: none"> <li>Develop new curriculum and other educational tools and offerings, targeted to high-potential market actors and decision makers, to enhance knowledge of technological innovations and integrated business strategies that are required to effectively understand, interpret, and meet the ZNE goals.</li> <li>Help develop a well-informed support industry including building inspectors, financial and real estate professionals, and other industries central to the advancement of ZNE</li> </ul>	<p>TRC Energy Services, Residential ZNE Market Characterization Report, TRC, 2015, <i>available at</i> <a href="http://www.calmac.org/publications/TRC_Res_ZNE_MC_Final_Report_CALMAC_PGE0351.01.pdf">http://www.calmac.org/publications/TRC_Res_ZNE_MC_Final_Report_CALMAC_PGE0351.01.pdf</a></p> <p>Zero Net Energy Action Plan: Commercial Building Sector 2010-2012, Engage 360 (2011), <i>available at</i> <a href="ftp://ftp2.cpuc.ca.gov/PG&amp;E20150130ResponseToA1312012Ruling/2010/09/SB_GT&amp;S_0470101.pdf">ftp://ftp2.cpuc.ca.gov/PG&amp;E20150130ResponseToA1312012Ruling/2010/09/SB_GT&amp;S_0470101.pdf</a></p>	<p>The California market is not currently ready to implement a ZNE mandate for all residential new construction. Market actors and decision makers throughout the Residential Homes market value chain have unique drivers and barriers to adopting upcoming ZNE mandates. Additionally, the Commercial Sector faces unique drivers and barriers to adopting upcoming ZNE mandates, as well as strategies to improve ZNE retrofits on existing commercial building stock.</p>
	Develop new curriculum and other educational tools and offerings, targeted to high-potential market actors and decision makers, to enhance knowledge of technological innovations and integrated business strategies that are required to effectively understand, interpret, and meet the ZNE goals		
Develop and deliver WE&T offerings to support / shape the EE market and achieve the State's aggressive EE goals, based on EE potential data,	Partner with IOU Savings By Design teams and other key industry stakeholders to develop integrated, whole building design curricula for targeted, high-potential market actors and decision makers in the Commercial new construction sector	<p>Best practice for WE&amp;T program design, implementation, and collaboration across other Sectors.</p> <p>Energy Employer Survey, Advanced Energy Economy Institute, 2014.</p>	A majority of the Southern California EE employment landscape is primarily focused on designing and increasing EE in buildings. Utility WE&T offerings should align and target EE opportunity awareness and skills development in the Commercial and Residential whole building/integrated focus area.

Intervention Strategies	Primary Tactics	Study/Research/Best Practice	Observations/Comments
policy mandates, industry needs, emerging trends, and IOU EE Portfolio goals.	<p>Enhance Benchmarking and Multifamily Energy Star® Portfolio Manager training awareness, availability, and frequency to high-potential market actors, decision makers, and building owners</p> <ul style="list-style-type: none"> <li>• Align WE&amp;T offerings to both Commercial and Residential whole building/integrated energy efficiency, to enhance EE opportunity awareness and skills.</li> <li>• Aside from traditional workshops and seminars, provide enhanced technical consultations, equipment demonstrations, and building performance tool loans from the Tool Lending Library.</li> </ul> <p>Include special skills training in core WE&amp;T activities to help meet demand, spur innovation, and increase the body of knowledgeable building professionals.</p>	<p>California Existing Buildings Energy Efficiency Action Plan, California Energy Commission (Dec. 2016) <i>available at</i> <a href="http://www.energy.ca.gov/ab758/documents/">http://www.energy.ca.gov/ab758/documents/</a></p>	
Develop and deliver WE&T offerings to support / shape the EE market and achieve the State's aggressive EE goals, based on EE potential data, policy mandates, industry needs, emerging trends, and IOU EE Portfolio goals.	<p>Develop new Ag-focused offerings targeted towards high-potential market actors and decision makers that focus on EE program participation opportunities, new and emerging technologies, and available financing opportunities, while collaborating with other educational providers to expand access and reach of WE&amp;T offerings.</p> <p>The IOUs will offer targeted Energy Efficiency Sales training programs to help increase energy savings potential, bring awareness to the value of energy efficiency, and support market transformation in market actors and</p>	<p>Evergreen Economics, SDG&amp;E Agricultural Sector Market Study (Mar. 2015), <i>available at</i> <a href="http://www.calmac.org/publications/SDG%26E_Agricultural_Sector_Market_Study_Final_Report_032615ES.pdf">http://www.calmac.org/publications/SDG%26E_Agricultural_Sector_Market_Study_Final_Report_032615ES.pdf</a></p> <p>Western HVAC Performance Alliance, Recommendations to Operationalize “Employer Support” for the HVAC Sector Strategy (July 2016), <i>available at</i> <a href="http://www.performancealliance.org/Portals/4/Documents/Work%20Product/Recommendations%20to%20Operationalize%20Empover%20Support.pdf">http://www.performancealliance.org/Portals/4/Documents/Work%20Product/Recommendations%20to%20Operationalize%20Empover%20Support.pdf</a></p>	<p>Research and stakeholder feedback show that barriers to EE adoption in the Agricultural sector include the lack of awareness of EE opportunities and understanding of the value proposition of EE, methodologies and sensibilities span multiple generations, increasing resistance to change, emerging agricultural markets increased energy use without naturally occurring efficiency, and a varying array of financing and program options can be confusing.</p> <p>AB 758 goals state the need to focus on training contractors and other market actors to sell EE. Additional research shows that EE sales skills can increase efficiency project quality, and that over 80 percent of those implementing efficiency projects are also responsible for selling new opportunities.</p>



Intervention Strategies	Primary Tactics	Study/Research/Best Practice	Observations/Comments
	decisions makers across industry sectors	<p>EMI Consulting, California HVAC Quality Installation/Quality Maintenance Customer Decision-Making Study (Apr. 2015), <i>available at</i> <a href="http://emiconsulting.com/assets/CDM-Report-2015-04-15-FINAL.pdf">http://emiconsulting.com/assets/CDM-Report-2015-04-15-FINAL.pdf</a></p> <p>See Assembly Bill 758 (2009)</p>	
Assist workers from disadvantaged communities in gaining skills that may lead to employment and/or advancement in rewarding career track jobs in EE fields	Support the development and delivery of the proposed Statewide Career and Workforce Readiness Pilot Program	<p>Best practice for WE&amp;T program design, implementation, and collaboration across the IOUs.</p>	<p>SB 350 tasks the CEC with adopting a responsible contractor policy to ensure that EE measures meet high quality performance standards and reduce energy savings lost due to poor quality workmanship. The bill also addresses workforce development and job training for residents in disadvantaged communities.</p>
	Collaborate with other educational and/or service providers who already have connections and pathways to reach high-potential WE&T participants from disadvantaged communities (e.g. WIBs, CBOs, etc.)	<p>See Senate Bill 758 (2015)</p> <p>California Long Term Energy Efficiency Strategic Plan, Section 9, p. 70. California Public Utilities Commission (Sept. 2008, updated Jan. 2011).</p>	<p>The need for greater awareness of WE&amp;T activity in disadvantaged communities was identified in the 2011 update to California’s Long-Term Energy Efficiency Strategic Plan (CALTEESP), and has been mentioned as a priority area in previous WE&amp;T Program evaluations, recommendations, stakeholder feedback, and recent legislation.</p>
	Leverage the tools developed and knowledge gained from IOU WE&T Inclusion studies to inform activities and tactics with high-potential participants from disadvantaged communities	<p>Donald Vial Center on Employment in the Green Economy, Workforce Issues and Energy Efficiency Programs: A Plan for California's Utilities (May 2014) <i>available at</i> <a href="http://laborcenter.berkeley.edu/pdf/2014/WET-Plan-Executive-Summary14.pdf">http://laborcenter.berkeley.edu/pdf/2014/WET-Plan-Executive-Summary14.pdf</a></p> <p>ICF International. Survey of Inclusion Workforce Landscape (June, 2016) <i>available at</i> <a href="http://www.calmac.org/publications/Final_Report_6_29_16.pdf">http://www.calmac.org/publications/Final_Report_6_29_16.pdf</a></p>	<p>Additionally, the 2014 Don Vial Center Guidance Plan for WE&amp;T stated that “interventions on the demand side of the labor market are critical to providing the job opportunities needed for graduates of training programs targeted to disadvantaged workers.”</p> <p>The ICF study outlined some promising career opportunities for disadvantaged workers. The understanding and continued learning will inform things such as communications and targeting as the tactics are implemented.</p>

Intervention Strategies	Primary Tactics	Study/Research/Best Practice	Observations/Comments
<p>Enhance and modify where appropriate, EE market and skills, building educational offerings, resources, and tools that support and advance WE&amp;T portfolio of workshops and seminars.</p>	<p>Develop new hands-on teaching tools, exhibits, demonstrations, and training equipment that aligns with the portfolio of educational offerings to enhance the learning environment and drive adult learning principles</p>	<p>Opinion Dynamics, 2010-2012 WE&amp;T Process Evaluation Vol I: Centergies (Dec 2012), <i>available at</i> <a href="http://www.calmac.org/publications/2010-2012_WE%26T_Centergies_Process_Eval_Report_volume_I.pdf">http://www.calmac.org/publications/2010-2012_WE%26T_Centergies_Process_Eval_Report_volume_I.pdf</a></p> <p>Opinion Dynamics, 2013-2014 Statewide WE&amp;T Program: Program Theory and Logic Model Update; Centergies Data Needs; and Critical WE&amp;T Data Needs (June 2014), <i>available at</i> <a href="http://calmac.org/publications/2013-2014_WET_PTLM_and_Critical_Data_Gap_Assessment.pdf">http://calmac.org/publications/2013-2014_WET_PTLM_and_Critical_Data_Gap_Assessment.pdf</a></p> <p>Best practice for WE&amp;T program design and implementation.</p>	
<p>Providing EE education opportunities along an educational pathway for post-secondary students and the potential EE workforce that includes career awareness, core energy education and career enhancement and technical upskill.</p>	<p>Support the development and delivery of other existing and/or new statewide WE&amp;T programs</p>	<p>Best practice for WE&amp;T program design, implementation, and collaboration across the IOUs.</p>	
<p>Reinforce WE&amp;T as a support and advisory role to the EE portfolio providing efficiency and cost-effective interventions, offerings, and other educational resources targeted to specific</p>	<p>Drive awareness of EE program opportunities through applicable WE&amp;T offerings</p>	<p>Opinion Dynamics, 2010-2012 WE&amp;T Process Evaluation Vol I: Centergies (Dec 2012), <i>available at</i> <a href="http://www.calmac.org/publications/2010-2012_WE%26T_Centergies_Process_Eval_Report_volume_I.pdf">http://www.calmac.org/publications/2010-2012_WE%26T_Centergies_Process_Eval_Report_volume_I.pdf</a></p> <p>Opinion Dynamics, 2013-2014 Statewide WE&amp;T Program: Program Theory and Logic Model Update; Centergies Data Needs; and Critical</p>	<p>SCE's EE Portfolio identified some key opportunities where WE&amp;T can help to achieve energy savings goals and overcome barriers to participation. These new and expanding market areas are intended to enhance SCE's portfolio of offerings. Additionally, as direct, publicly-accessible facilities, the IOU Energy Training Centers have a unique opportunity to interact with key decision makers in high-potential sectors, and</p>

Intervention Strategies	Primary Tactics	Study/Research/Best Practice	Observations/Comments
portfolio needs across all sectors		<p>WE&amp;T Data Needs (June 2014), available at <a href="http://calmac.org/publications/2013-2014_WET_PTLM_and_Critical_Data_Gap_Assessment.pdf">http://calmac.org/publications/2013-2014_WET_PTLM_and_Critical_Data_Gap_Assessment.pdf</a></p> <p>Best practice for WE&amp;T program design, implementation.</p>	cultivate new EE opportunities and Program participants.
Reinforce WE&T as a support and advisory role to the EE portfolio providing efficiency and cost-effective interventions, offerings, and other educational resources targeted to specific portfolio needs across all sectors	<p>Train and prepare high-potential participants for applicable EE Programs and other EE opportunities</p> <p>Educate high-potential market actors and decision makers in key sectors and end-use roles on key EE policy and code requirements</p> <p>Provide tactical and operational support for program- and sector-specific education and training needs</p> <p>Leverage the technical subject matter expertise and direct connection to end-use customers, decision makers and market actors throughout the Centergies program to cultivate new EE opportunities and Program participants</p>	<p>California Long Term Energy Efficiency Strategic Plan, Section 9, p. 70. California Public Utilities Commission (Sept. 2008, updated Jan. 2011).</p> <p>Donald Vial Center on Employment in the Green Economy, Workforce Issues and Energy Efficiency Programs: A Plan for California's Utilities (May 2014) available at <a href="http://laborcenter.berkeley.edu/pdf/2014/WET-Plan-Executive-Summary14.pdf">http://laborcenter.berkeley.edu/pdf/2014/WET-Plan-Executive-Summary14.pdf</a></p>	<p>A goal of the California Long Term Energy Efficiency Strategic Plan is to "Advance the state's energy efficiency and demand-side goals by ensuring the training and engagement of workers with the proper skills to carry out the work."</p> <p>Additionally, the 2014 Don Vial Center Guidance Plan for WE&amp;T recommends an "emphasis on and redesign of programs dedicated to EE skills-building—i.e., to incorporate EE skills into the broader skills set of the professional and trades workers in occupations that most impact energy use."</p>
Enhance and streamline the WE&T Program to facilitate cost efficiencies and focus on training opportunities that offer the most benefit for near term	Consolidation of program management staff that will lead to a one-stop-shop approach for WE&T programs and through elimination of activities, such as K-12, that have minimal impact on enabling the development of workforce skills needed to support DSM programs today	Donald Vial Center on Employment in the Green Economy, Workforce Issues and Energy Efficiency Programs: A Plan for California's Utilities, p. 81, 99 (May 2014) available at <a href="http://laborcenter.berkeley.edu/pdf/2014/WET-Plan14.pdf">http://laborcenter.berkeley.edu/pdf/2014/WET-Plan14.pdf</a>	The 2014 Don Vial Center (DVC) Guidance Plan for WE&T recommends an "emphasis on and redesign of programs dedicated to EE skills-building—i.e., to incorporate EE skills into the broader skills set of the professional and trades workers in occupations that most impact energy use."

Intervention Strategies	Primary Tactics	Study/Research/Best Practice	Observations/Comments
employment opportunities			The DVC Guidance Plan also states that “Connections programs can add enrichment within this framework but EE-specific curriculum should not be considered essential to career development for EE occupations at the K-8 levels.” Furthermore, the Guidance Plan goes on to recommend that “K-8 programs continue to emphasize energy awareness and that they do not attempt to specifically address career development.”
	Restructure the three WE&T subprograms (Connections, Planning, and Centergies) into one consolidated WE&T program	Best practice for WE&T program design, implementation, and collaboration across the IOUs.	
Modify offering design and delivery to lower program implementation costs throughout the WE&T portfolio	Actively participate in joint-IOU efforts to deliver a set of consistent market-building offerings through an online/on-demand learning platform	Donald Vial Center on Employment in the Green Economy, Workforce Issues and Energy Efficiency Programs: A Plan for California's Utilities (May 2014) <i>available at</i> <a href="http://laborcenter.berkeley.edu/pdf/2014/WET-Plan-Executive-Summary14.pdf">http://laborcenter.berkeley.edu/pdf/2014/WET-Plan-Executive-Summary14.pdf</a>	The 2014 Don Vial Center Guidance Plan for WE&T recommended that the IOUs modify Centergies market-building class design and delivery, by developing market-building offerings in coordination with ME&O, skills building portfolios, and resource programs, target classes to specific market-building audiences, and lower ratepayer costs by charging fees for classes where feasible, recording and broadcasting classes via an IOU joint WE&T website, and lowering administrative expenditures.
Improve and expand access and reach, building awareness in high-potential sectors and target markets, while enhancing customer experience and ease of participation	Collaborate with Statewide ME&O on joint-IOU promotion and awareness efforts, focusing on both statewide and regional opportunities	Best practice for WE&T program design, implementation, and collaboration across the IOUs.	The IOUs agree that leveraging opportunities to lower program and ratepayer costs, while still delivering comprehensive and compliant programming, is necessary in a dynamic and complex EE environment.
	Collaborate with other educational and/or service providers who already have connections and pathways to reach high-potential WE&T participants	Donald Vial Center on Employment in the Green Economy, Workforce Issues and Energy Efficiency Programs: A Plan for California's Utilities (May 2014) <i>available at</i> <a href="http://laborcenter.berkeley.edu/pdf/2014/WET-Plan-Executive-Summary14.pdf">http://laborcenter.berkeley.edu/pdf/2014/WET-Plan-Executive-Summary14.pdf</a>	Cross-cutting WE&T is one sector in a complex matrix of key stakeholders, collaborators, and other service providers that cannot solely address all EE market transformation efforts. The 2014 Don Vial Center Guidance Plan for WE&T states that "IOU WE&T investments comprise only a narrow slice of California’s rich training and education infrastructure for the key design and trades

Intervention Strategies	Primary Tactics	Study/Research/Best Practice	Observations/Comments
			occupations that impact energy use. This broader infrastructure includes the community colleges, the state-certified apprenticeship system, colleges and universities, and other institutions."

**Appendix 2**

**ENERGY EFFICIENCY PORTFOLIO SAVINGS FORECAST AND BUDGET 2018-2025**

Energy Efficiency Portfolio Savings Forecast and Budget 2018-2025

PY 2018 Optimized	Residential	Commercial	Industrial	Agricultural	Public	ESA	C&S	ET	WE&T	Finance	SoCalREN	Total Savings Portfolio	SCE Total Goal	EM&V Budget (CPUC/SCE)	Total Portfolio with EMV(CPUC,SCE), SoCalREN
<b>Total Budget</b>	\$ 68,386,141	\$ 85,398,136	\$ 27,638,909	\$ 3,088,647	\$ 18,955,849	0	\$ 5,661,248	\$ 7,476,487	\$ 4,845,106	\$ 1,565,166	\$ 17,262,000			\$ 10,011,570	\$ 250,289,260
<b>KWh</b>	210,091,055	270,505,278	127,633,478	1,817,680	28,686,906	30,881,957	421,000,000	-	TBD	-	9,433,702	<b>1,100,050,055</b>	949,000,000		
<b>KW</b>	92,409	46,069	8,130	420	3,728	4,486	106,000	-	TBD	-	9,395	<b>270,636</b>	206,000		
<b>TRC</b>	1.22	0.97	1.09	0.15	0.62		1.49					<b>TRC (W/O C&amp;S) 1.00</b>			
<b>PAC</b>	1.57	1.30	2.03	0.16	0.76		45.10					<b>PAC (W/O C&amp;S) 1.29</b>			
<b>TRC WITH C&amp;S</b>												<b>TRC (With C&amp;S) 1.19</b>			
<b>PAC WITH C&amp;S</b>												<b>PAC (With C&amp;S) 2.31</b>			
PY 2019 Forecasted	Residential	Commercial	Industrial	Agricultural	Public	ESA	C&S	ET	WE&T	Finance	SoCalREN	Total Savings Portfolio	SCE Total Goal	EM&V Budget (CPUC/SCE)	Total Portfolio with EMV(CPUC,SCE), SoCalREN
<b>Total Budget</b>	\$ 83,269,167	\$ 87,960,080	\$ 28,468,076	\$ 3,181,306	\$ 19,524,524	0	\$ 5,831,085	\$ 7,700,782	\$ 4,990,459	\$ 1,612,121	\$ 17,262,000			\$ 10,824,983	\$ 270,624,585
<b>KWh</b>	241,978,794	278,620,436	131,462,482	1,872,210	29,547,513	30,369,317	414,011,400				9,716,713	<b>1,137,578,864</b>	955,000,000		
<b>KW</b>	106,184	47,451	8,374	432	3,840	4,528	106,996				9,677	<b>287,482</b>	210,000		
<b>TRC</b>	1.26	1.46	1.15	0.15	0.65		1.56					<b>TRC (W/O C&amp;S) 1.05</b>			
<b>PAC</b>	1.63	1.95	2.12	0.17	0.79		45.74					<b>PAC (W/O C&amp;S) 1.35</b>			
<b>TRC WITH C&amp;S</b>												<b>TRC (With C&amp;S) 1.23</b>			
<b>PAC WITH C&amp;S</b>												<b>PAC (With C&amp;S) 2.34</b>			
PY 2020 Forecasted	Residential	Commercial	Industrial	Agricultural	Public	ESA	C&S	ET	WE&T	Finance	SoCalREN	Total Savings Portfolio	SCE Total Goal	EM&V Budget (CPUC/SCE)	Total Portfolio with EMV(CPUC,SCE), SoCalREN
<b>Total Budget</b>	\$ 97,833,354	\$ 89,719,282	\$ 29,037,438	\$ 3,244,932	\$ 19,915,015	0	\$ 5,947,707	\$ 7,854,797	\$ 5,090,269	\$ 1,644,363	\$ 17,262,000			\$ 11,564,548	\$ 289,113,706
<b>KWh</b>	272,779,591	284,192,845	134,091,732	1,909,654	30,138,463	28,829,592	393,021,022				9,911,047	<b>1,154,873,947</b>	946,000,000		
<b>KW</b>	119,473	48,400	8,542	441	3,917	4,401	104,001				9,870	<b>299,044</b>	211,000		
<b>TRC</b>	1.31	1.51	1.20	0.16	0.68		1.63					<b>TRC (W/O C&amp;S) 1.10</b>			
<b>PAC</b>	1.69	2.02	2.23	0.18	0.83		46.80					<b>PAC (W/O C&amp;S) 1.42</b>			
<b>TRC WITH C&amp;S</b>												<b>TRC (With C&amp;S) 1.28</b>			
<b>PAC WITH C&amp;S</b>												<b>PAC (With C&amp;S) 2.38</b>			
PY 2021 Forecasted >2%	Residential	Commercial	Industrial	Agriculture	Public	ESA	C&S	ET	WE&T	Finance	SoCalREN	Total Savings Portfolio	SCE Total G	EM&V Budget (CPUC/SCE)	Total Portfolio with EMV(CPUC,SCE), SoCalREN
<b>Total Budget</b>	\$ 95,876,687	\$ 87,924,896	\$ 28,456,689	\$ 3,180,034	\$ 19,875,383	0	\$ 5,828,753	\$ 7,697,701	\$ 4,988,463	\$ 1,611,476	\$ 17,262,000			\$ 11,362,587	\$ 284,064,669
<b>KWh</b>	267,323,999	278,508,988	131,409,897	1,871,461	29,535,694	24,721,375	337,015,526				9,712,826	<b>1,080,099,767</b>	879,000,000		
<b>KW</b>	117,083	47,432	8,371	432	3,838	4,105	97,001				9,673	<b>287,936</b>	201,000		
<b>Therm</b>															
PY 2022 Forecasted >3%	Residential	Commercial	Industrial	Agriculture	Public	ESA	C&S	ET	WE&T	Finance	SoCalREN	Total Savings Portfolio	SCE Total G	EM&V Budget (CPUC/SCE)	Total Portfolio with EMV(CPUC,SCE), SoCalREN
<b>Total Budget</b>	\$ 98,752,988	\$ 90,562,643	\$ 29,310,390	\$ 3,275,435	\$ 20,471,644	0	\$ 6,003,616	\$ 7,928,632	\$ 5,138,117	\$ 1,659,820	\$ 17,262,000			\$ 11,681,887	\$ 292,047,172
<b>KWh</b>	275,343,719	286,864,257	135,352,194	1,927,605	30,421,765	22,301,153	304,021,706				10,004,211	<b>1,066,236,611</b>	863,000,000		
<b>KW</b>	120,596	48,855	8,622	445	3,953	3,894	92,006				9,963	<b>288,333</b>	201,000		
<b>Therm</b>															

Energy Efficiency Portfolio Savings Forecast and Budget 2018-2025

PY 2023 Forecasted <3%	Residential	Commercial	Industrial	Agriculture	Public	ESA	C&S	ET	WE&T	Finance	SoCalREN	Total Savings Portfolio	SCE Total G	EM&V Budget (CPUC/SCE)	Total Portfolio with EMV(CPUC,SCE), SoCalREN
<b>Total Budget</b>	\$ 101,715,577	\$ 93,279,522	\$ 30,189,701	\$ 3,373,698	\$ 21,085,794	0	\$ 6,183,724	\$ 8,166,491	\$ 5,292,261	\$ 1,709,615	\$ 17,262,000			\$ 12,010,766	\$ 300,269,150
<b>KWh</b>	283,604,031	295,470,185	139,412,760	1,985,433	31,334,418	19,219,133	262,005,907				10,304,337	<b>1,043,336,204</b>	835,000,000		
<b>KW</b>	124,213	50,320	8,881	458	4,072	3,682	87,010				10,262	<b>288,899</b>	200,000		
<b>Therm</b>															
PY 2024 Forecasted	Residential	Commercial	Industrial	Agriculture	Public	ESA	C&S	ET	WE&T	Finance	SoCalREN	Total Savings Portfolio	SCE Total G	EM&V Budget (CPUC/SCE)	Total Portfolio with EMV(CPUC,SCE), SoCalREN
<b>Total Budget</b>	\$ 104,767,045	\$ 96,077,908	\$ 31,095,392	\$ 3,474,909	\$ 21,718,367	0	\$ 6,369,236	\$ 8,411,486	\$ 5,451,028	\$ 1,760,903	\$ 17,262,000			\$ 12,349,511	\$ 308,737,787
<b>KWh</b>	292,112,152	304,334,291	143,595,143	2,044,996	32,274,450	18,117,877	246,992,968				10,613,467	<b>1,050,085,344</b>	840,000,000		
<b>KW</b>	127,940	51,830	9,147	472	4,194	3,555	84,008				10,570	<b>291,716</b>	203,000		
<b>Therm</b>															
PY 2025 Forecasted <3%	Residential	Commercial	Industrial	Agriculture	Public	ESA	C&S	ET	WE&T	Finance	SoCalREN	Total Savings Portfolio	SCE Total G	EM&V Budget (CPUC/SCE)	Total Portfolio with EMV(CPUC,SCE), SoCalREN
<b>Total Budget</b>	\$ 107,910,056	\$ 98,960,245	\$ 32,028,254	\$ 3,579,156	\$ 22,369,918	0	\$ 6,560,313	\$ 8,663,831	\$ 5,614,559	\$ 1,813,731	\$ 17,262,000			\$ 12,698,419	\$ 317,460,483
<b>KWh</b>	300,875,517	313,464,319	147,902,997	2,106,346	33,242,684	18,661,413	254,402,757				10,931,871	<b>1,081,587,905</b>	n/a		
<b>KW</b>	131,778	53,385	9,422	486	4,320	3,662	86,528				10,887	<b>300,468</b>	n/a		
<b>Therm</b>															