

## Emerging Technologies Program

<b>SW Program: Emerging Technologies</b>	<p><b>Mission</b></p> <p>The mission is to support increased energy efficiency market demand and technology supply (the term supply encompassing breadth, depth, and efficacy of product offerings) by contributing to development and deployment of new and under-utilized energy efficiency (EE) measures (that is, technologies, practices, and tools), and by facilitating their adoption as measures supporting California’s aggressive energy and demand savings goals.</p> <p>ETP includes seven sub-programs: (1) Technology Assessment, (2) Scaled Field Placement, (3) Demonstration Showcases, (4) Market and Behavioral Studies, (5) Technology Development Support, (6) Business Incubation Support/Technology Resource Incubator (TRIO), and (7) Technology and Testing Center (TTC/ZNE).</p>
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<b>CA EESP Goals/Strategies Addressed by SW Program:</b>	<b>CA EESP Ref. pp. #</b>
<p><u>Goal 1:</u> Refocus utility and Energy Commission energy efficiency research and technology support to create demand pull and set the research agenda for both incremental and game-changing energy efficiency technology innovations.</p> <p><u>Goal Results:</u> Ratepayer-funded R&amp;D programs will explicitly support widely applicable whole-building improvement, lighting, and plug load solutions envisioned in this Plan and will be used to leverage other private and public funds for the deployment of new technologies.</p> <p><u>Goal 2:</u> Conduct targeted emerging technologies R&amp;D to support the Big, Bold Energy Efficiency Strategies and integrated energy solutions goals.</p> <p><u>Goal Results:</u> Profound improvement in equipment efficiency as well as new building materials and designs aimed at achieving more</p>	p. 84.

efficiency from new buildings than technically feasible today, and necessary to achieve Zero Net Energy and hot/dry climate HVAC outcomes.	
CA EE SP Goal 1 (11): Create Demand Pull for New Technology CA EE SP Strategy 1-1: Apply systems approaches to establishing research priorities CA EE SP Strategy 1-2: Leverage private industry and Federally funded technology research and investment	Page 16-17
CA EE SP Goal 2 (11): Targeted R&D CA EE SP Strategy 2-1: Develop general R&D community support for support Big Bold Initiatives CA EE SP Strategy 2-3: Develop initiatives aimed at PIER to support larger gains in support of Big Bold Initiatives.	Page 19-20

<b>Short-term (2010-2012) "SMART" Program Objectives:</b>	<b>Source (SP, AL, DR, PIP, or Staff)*</b>
(1) By 2012, ETP will achieve the PIP objectives set for each of the ETP sub-program as well as the other short-term objectives included in this document.**	Staff

\*\* Projects could be initiated and completed during current cycle where applicable.

<b>Short-term Program PPMs:</b>	<b>Source (SP, AL, DR, PIP, or Staff)*</b>	<b>Metric Type (2a or 2b)**</b>	<b>Baseline Study Required (Y/N)</b>
(1) The number of new "proven" ET measures adopted*** into the EE Portfolio.	Staff/DR	2b	N
(2) Potential energy impacts**** (energy savings and demand reduction) of the adopted ET measures into the EE portfolio.	Staff/DR	2b	N

\*SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]

\*\*Metric type: 2a = reported annually, 2b = reported by end of cycle.

\*\*\* Adoption means measure is available to end-use customers through IOU programs.. Adoption of a measure may be attributed to one or more ET sub-programs

\*\*\*\* Potential energy impacts to be reported based on ET project findings and estimated market potential (reported through quarterly ET database updates

Long-Term (2013-2020) "SMART" Program Objectives:	Source (SP, AL, DR, PIP, or Staff)*
(1) HVAC Technologies: (1-1) Incorporate radiant cooling, ductless systems, ground source heat pumps, etc. into 25 percent or more of new and existing construction by 2015. (1-2) Incorporate radiant cooling, ductless systems, ground source heat pumps, etc. into 50 percent or more of new and existing construction by 2020.	Staff/SP HVAC Chapter Strategies 3-1, page 63.
(2) By 2015, X number of ETP measures originating from past and current program cycles are presented to the Codes & Standards Program to be considered for CASE studies and possibly code adoptions	Staff

\*SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]

Long-Term ETP MT Indicators:	Source (SP, AL, DR, PIP, or Staff)*	Metric Type (3)**	Baseline Study Required (Y/N)
(1) Market penetration (percent of buildings/percent of homes) of new climate-appropriate HVAC technologies (equipment and controls, including system diagnostics) resulting from ETP: (a) Existing Residential (b) Residential New Construction (c) Existing Commercial (d) Commercial New Construction	Staff/SP HVAC Chapter, Goal 4, page 58.	3	N
(2) Number of ETP measures adopted*** into building codes and/or appliance standards by CEC	Staff	3	N

\*SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]

\*\*Metric type: 3 = data collection, tracking, and reporting [by IOUs, CPUC staff, and/or other entities] to be determined later.

\*\*\* Adoption means measure is available to end-use customers through IOU programs. Adoption of a measure may be attributed to one or more ET sub-programs

## Emerging Technologies - Technology Assessment Subprogram

	<b>Mission</b>
SW Program: <b>Emerging Technologies</b>	The cornerstone of ETP remains assessment: testing EE technologies in laboratories or real-life settings to verify performance and energy savings/ demand reduction claims, and usability by customers and installation contractors. Technology assessments will contribute to increased measure awareness, market knowledge and reduced performance uncertainties for ETP stakeholders and IOU customers. This will lead to changes in organizational practices and customs that may otherwise limit EE measure procurement and application. Technology assessments will also contribute to increased and improved technology supply, leading to further reductions in market barriers, increased intent to purchase/employ measures, and more EE rebates issued. Over time, they will support increasing use of measures by customers, aiding EE programs in achieving energy and demand savings targets, and meeting long term Strategic Plan and policy objectives.
SW Sub-program: <b>Technology Assessment</b>	

<b>CA EESP Goals/Strategies Addressed by SW Sub-program:</b>	<b>CA EESP Ref. pp. #</b>
<p><b><u>Residential Chapter CA EESP</u></b></p> <p><u>Goal (1)</u> New construction will reach “zero net energy” (ZNE) performance (including clean, onsite distributed generation) for all new single and multi-family homes by 2020.</p> <p>Goal Results:</p> <ul style="list-style-type: none"> <li>By 2011, 50% of new homes will surpass 2005 Title 24 standards by 35%; 10% will surpass 2005 Title 24 standards by 55%.</li> <li>By 2015, 90% will surpass 2005 Title 24 standards by 35%.</li> <li>By 2020, all new homes are ZNE.</li> </ul> <p><u>Goal (2)</u> Home buyers, owners and renovators will implement a whole-house approach to energy consumption that will guide their purchase and use of existing and new homes, home equipment (e.g., HVAC systems), household appliances, lighting, and “plug load” amenities.</p>	p. 11

<p><u>Goal Results:</u> Energy consumption in existing homes will be reduced by 20% by 2015 and 40% by 2020 through universal demand for highly efficient homes and products.</p> <p><u>Goal (3)</u> Plug loads will be managed by developing consumer electronics and appliances that use less energy and provide tools to enable customers to understand and manage their energy demand.</p> <p><u>Goal Results:</u> Plug loads will grow at a slower rate and then decline through technological innovation spurred by market transformation and customer demand for energy efficient products.</p> <p><u>Goal (4)</u> The residential lighting industry will undergo substantial transformation through the deployment of high-efficiency and high-performance lighting technologies, supported by state and national codes and standards.</p> <p><u>Goal Results:</u> Utilities will begin to phase traditional mass market CFL bulb promotions and giveaways out of program portfolios and shift focus toward new lighting technologies and other innovative programs that focus on lasting energy savings and improved consumer uptake.</p>	
<p><b><u>Commercial Chapter CA EESP</u></b></p> <p><u>Goal (1)</u> New construction will increasingly embrace zero net energy performance (including clean, distributed generation), reaching 100 percent penetration of new starts in 2030.</p> <p><u>Goal Results</u> An increasing percentage of the 50-120 million sq.ft. per year of new commercial construction will be progressively more efficient and all new construction will be zero net energy by 2030.</p> <p><u>Goal (2)</u> 50 percent of existing buildings will be equivalent to zero net energy buildings by 2030 through achievement of deep levels of energy efficiency and clean distributed generation.</p> <p><u>Goal Results:</u> 250 million square feet (1/20th of existing space) per year through 2030 reach deep levels of energy efficiency improvements and clean, distributed generation through whole building approaches.</p> <p><u>Goal (3)</u> The commercial lighting industry will undergo substantial transformation through the deployment of high-efficiency and high-performance lighting technologies, spurred by State and national codes and standards and leading-edge incentive strategies.</p> <p><u>Goal Results</u> Utilities will begin to phase out traditional mass market CFL bulb promotions and giveaways from program</p>	p. 31

portfolios and shift toward new lighting technologies and innovative systems that focus on lasting energy savings and more rapid consumer uptake.	
<p><b><u>HVAC Chapter CA EESP</u></b></p> <p><b>Goal (3)</b> Whole building design and construction practices fully integrate building performance objectives to reduce cooling and heating loads.</p> <p><u>Goal Results:</u> Integrated design and construction practices are standard practice by 2020.</p> <p><b>Goal (4)</b> New climate-appropriate HVAC technologies (equipment and controls, including system diagnostics) are developed with accelerated market penetration.</p> <p><u>Goal Results:</u> At least 15 percent of equipment shipments are optimized for California’s climate by 2015 and 70 percent by 2020.</p>	P. 59
<p><b><u>Residential Chapter (New Construction) CA EESP</u></b></p> <p><b>Strategy 1-1:</b> Drive continual advances in technologies in the building envelope, including building materials and systems, construction methods, distributed generation, and building design.</p> <p>Near Term (2010-12)</p> <ul style="list-style-type: none"> <li>-Develop and participate in pilot projects in specific climates to prove technologies for next generation of lower and zero energy homes, including affordable housing projects.</li> <li>-Continually monitor performance of pilot projects to provide feedback for next level of design and development of technologies.</li> <li>- Advance technological innovation through collaboration of Energy Commission PIER and Emerging Technologies Programs, LBNL, NREL, Utilities, CBIA, and other appropriate organizations.</li> <li>-Assess existing technologies and identify areas for strategic involvement in research and development.</li> </ul>	p. 16
<p><b><u>Residential Chapter (Existing Homes) CA EESP</u></b></p> <p><b>Strategy 2-3:</b> Manage research into new/advanced cost effective innovations to reduce energy use in existing homes</p> <ul style="list-style-type: none"> <li>-Gather and disseminate information on advanced retrofits.</li> <li>- Advance technological innovation through collaboration of Energy Commission PIER and Emerging Technologies Programs, Utilities and other appropriate organizations.</li> <li>- Promote commercialization of home energy management tools including AMI-based monitoring and display tools.</li> </ul>	p. 20
<p><b><u>Residential Sector (Plug Loads) CA EESP</u></b></p> <p><b>Strategy 3-1</b> Drive continual advances in residential energy usage, including plug loads, home energy management systems, and appliances.</p>	P. 21

<p>Near-Term (2010-12)</p> <ul style="list-style-type: none"> <li>- Work with research organizations to develop smarter products with lower energy requirements.</li> <li>- Work with manufacturers to raise product energy efficiency, both when in use and when in standby mode.</li> </ul> <p>Mid-Term (2012-15): 10% reduction in plug loads  Long-Term (2016-20): 25% reduction in plug loads</p>	
<p><u>Commercial Chapter CA EESP</u></p> <p><u>Strategy 1-3</u> Establish a “Path to Zero” Campaign to create demand for high-efficiency buildings.</p> <p>Near-Term</p> <p>Organize forums to develop and exchange experience and data on emerging technologies, practices and designs that deliver ultra-low and ZNE buildings.</p>	p. 34
<p><u>HVAC Chapter CA EESP</u></p> <p><u>Goal: 3-1:</u> Aggressively promote whole building design concepts that improve the overall thermal integrity of new and existing structures.</p> <p>Near Term:</p> <p>Review priorities of PIER and Emerging Technologies program activities to more fully support newer HVAC technologies and systems.</p> <p><u>Goal 4:</u> New climate-appropriate HVAC technologies (equipment and controls, including system diagnostics) are developed with accelerated marketplace penetration.</p> <p>Near Term: Include standard program offerings that emphasize HVAC related elements to whole building approaches.</p> <p>Mid-Term: Incorporate radiant cooling, ductless systems, ground source heat pumps, etc. into 25 percent or more of new and existing construction by 2015.</p> <p>Long-Term: Incorporate radiant cooling, ductless systems, ground source heat pumps, etc. into 50 percent or more of new and existing construction by 2020.</p>	pp. 63-64

<b>Short-term (2010-2012) “SMART” Sub-program Objectives:</b>	<b>Source (SP, AL, DR, PIP, or Staff)*</b>
<p>1. During 2010-12, assess EE measures including integrated demand-side management measures (IDSMS) as follows by utility:</p> <p style="padding-left: 40px;">PG&amp;E: 28  SCE: 30</p>	PIP

SDG&E: XX SCG: XX	
<p>2. During 2010-12, adopted EE measures from ETP into the EE programs, with the goal of producing energy savings and/or demand reduction as follows by utility:</p> <p>PG&amp;E: 12 SCE: 15 SDG&amp;E: XX SCG: XX</p> <p>2. By 2012, one or more technologies are assessed by ETP in the following areas:</p> <p>(a) Climate-appropriate HVAC technologies (equipment and controls, including system diagnostics) (b) High efficiency plug loads, home energy management systems, and/or appliances (c) Advanced lighting technologies (to achieve best practices as laid out in the Lighting Chapter of SP)</p>	<p>PIP</p> <p>Staff (based on SP)</p>

Short-term Sub-program PPMs:	Source (SP, AL, DR, PIP, or Staff)*	Metric Type (2a or 2b)**	Baseline Study Required (Y/N)
<p>1. Number of ETP measures that are adopted*** into the EE portfolio, including but not limited to each of the following:</p> <p>(a) Advance HVAC technologies (b) High efficiency plug loads and appliances (c) Advanced lighting technologies</p>	Staff	2b	N

\*SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]

\*\*Metric type: 2a = reported annually, 2b = reported by end of cycle.

\*\*\* Adoption means measure is available to end-use customers through IOU programs. Adoption of a measure may be attributed to one or more ET sub-programs

Long-Term (2013-2020) "SMART" Sub-program Objectives:	Source (SP, AL, DR, PIP, or Staff)*
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None proposed.	
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<b>Long-Term Sub-program MT Indicators:</b>	<b>Source (SP, AL, DR, PIP, or Staff)*</b>	<b>Metric Type (3)**</b>	<b>Baseline Study Required (Y/N)</b>
None proposed.			

## Emerging Technologies - Scaled Field Placement Subprogram

	Mission
SW Program: Emerging Technologies	<p><b>SFP allows ETP managers the opportunity to "show and tell" the most promising yet underutilized EE measures included but not limited to new measures in the current EE portfolio to key influencers. By placing EE measures at multiple, targeted customer sites, the expectation is that these key stakeholders installers, builders, procurement officers, etc. -- will have a positive first-hand experience and recommend the technology to others, thus enhancing market traction.</b></p> <p>Scaled field placements will contribute to increased measure awareness, market knowledge and reduced performance uncertainties for ETP stakeholders and large scale customer decision makers and decision influencers. This will lead to changes in organizational practices and customs that may otherwise limit EE measure procurement and application.</p> <p>Scaled field placements can also contribute to a market tipping point, in which an influential buyer or decision maker responsible for large volume purchase decides to specify the EE measure – thus creating a spike in market demand and exposure for many people who experience the measure once it is implemented. Over time, scaled field placements may support increasing use of measures by customers, aiding EE programs in achieving energy and demand savings targets, and meeting long term Strategic Plan and policy objectives.</p>
SW Sub-program: Scaled Field Placement (SFP)	

CA EESP Goals/Strategies Addressed by SW Sub-program:	CA EESP Ref. pp. #
CA EE SP Goal 2 (11): Targeted R&D	Page 84
CA EE SP Strategy 2-2: Promote cost-effective near- term performance enhancements of existing technologies CA EE SP Strategy 2-4: Develop initiatives aimed at ET to support Big Bold Initiatives.	Page 88

Short-term (2010-2012) "SMART" Sub-program Objectives:	Source (SP, AL, DR, PIP, or Staff)*
1. During 2010-12 authorized funding period, initiate and/or complete Scaled Field Placements to increase market understanding and traction of new and underutilized measures as follows by utility:	PIP

PG&E: 7 SCE: 4 SDG&E: XX SCG: XX  2. During 2010-12 authorized funding period, at least 25% of the measures addressed in the scaled field placements (new or existing underutilized ETP measures) will be adopted** into the EE portfolio	Staff
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\*\* Adoption means measure is available to end-use customers through IOU programs. Adoption of a measure may be attributed to one or more ET sub-programs

Short-term Sub-program PPMs:	Source (SP, AL, DR, PIP, or Staff)*	Metric Type (2a or 2b)**	Baseline Study Required (Y/N)
1. Number of new or existing underutilized ETP measures that are adopted*** into the EE portfolio.	Staff	2b	N
2.	Staff	2b	N

\*SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]

\*\*Metric type: 2a = reported annually, 2b = reported by end of cycle.

\*\*\* Adoption means measure is available to end-use customers through IOU programs. Adoption of a measure may be attributed to one or more ET sub-programs

Long-Term (2013-2020) "SMART" Sub-program Objectives:	Source (SP, AL, DR, PIP, or Staff)*
1. At least 25% of the new and underutilized ETP measures addressed in the SFP that are adopted** will show an increase in the number of rebates in the EE portfolio	Staff

\*\* Adoption means measure is available to end-use customers through IOU programs. Adoption of a measure may be attributed to one or more ET sub-programs

<b>Long-Term Sub-program MT Indicators:</b>	<b>Source (SP, AL, DR, PIP, or Staff)*</b>	<b>Metric Type (3)**</b>	<b>Baseline Study Required (Y/N)</b>
1. Number of new or existing underutilized ETP measures addressed in the SFP that are adopted*** that show an increase in the number of rebates in the EE portfolio.	staff	3	Y

\*\*\* Adoption means measure is available to end-use customers through IOU programs. Adoption of a measure may be attributed to one or more ET sub-programs

## Emerging Technologies - Demonstration Showcases Subprogram

	<b>Mission</b>
SW Program: <b>Emerging Technologies</b>	DS provides customers the opportunity to "kick the tires" on proven yet underutilized combinations of EE measures that advance ZNE goals. Demonstration Showcases are awareness-generating projects that expose EE measures on a systems level to large groups of customers in real-world settings, thus creating broad public and technical community exposure and increased market knowledge. Demonstration showcases will contribute to increased measure awareness, market knowledge and reduced performance uncertainties for ETP stakeholders and IOU customers. This will lead to changes in organizational practices and customs that may otherwise limit EE measure procurement and application.
SW Sub-program: <b>Demonstration Showcases (DS)</b>	

<b>CA EESP Goals/Strategies Addressed by SW Sub-program:</b>	<b>CA EESP Ref. pp. #</b>
CA EE SP Goal 2 (11): Targeted R&D	p. 84
Strategy 2-4: Develop initiatives aimed at ET to support Big Bold Initiatives.	p. 88

<b>Short-term (2010-2012) "SMART" Sub-program Objectives:</b>	<b>Source (SP, AL, DR, PIP, or Staff)*</b>
<ol style="list-style-type: none"> <li>During 2010-2012, initiate IOU Demonstration Showcases as follows by utility:   PG&amp;E: 5  SCE: 5  SDG&amp;E: X  SCG: X</li> <li>During 2010-2012 authorized funding period, a randomly selected sample of targeted stakeholders who either 1) visited the DS or 2) were informed about the DS in a workshop would on average self-report an increase in knowledge about the benefits of the DS</li> </ol>	           PIP           Staff

Short-term Sub-program PPMs:		Source (SP, AL, DR, PIP, or Staff)*	Metric Type (2a or 2b)**	Baseline Study Required (Y/N)
1.	Self-reported increase in knowledge by randomly selected sample of targeted stakeholders who either 1) visited the DS or 2) were informed about the DS in a workshop about benefits of the DS.	Staff	2b	N
2.		Staff	2b	N

\*SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]

\*\*Metric type: 2a = reported annually, 2b = reported by end of cycle.

Long-Term (2013-2020) "SMART" Sub-program Objectives:	Source (SP, AL, DR, PIP, or Staff)*
1. X% of DS measures and/or combination of measures adopted** into the EE program.	Staff
	Staff

\*\* Adoption means measure is available to end-use customers through IOU programs. Adoption of a measure may be attributed to one or more ET sub-programs

Long-Term Sub-program MT Indicators:	Source (SP, AL, DR, PIP, or Staff)*	Metric Type (3)**	Baseline Study Required (Y/N)
None proposed.			

## Emerging Technologies - Market and Behavioral Studies Subprogram

	Mission
SW Program: Emerging Technologies	<p><b>M&amp;B studies involve primary or secondary research on customer behavior, decision making, and perceptions, as well as market acceptance and potential for new measures. Market &amp; Behavior Studies support all of the other ETP elements.</b></p> <p>Market and behavioral studies will contribute to increased measure awareness, market knowledge and reduced performance uncertainties for ETP stakeholders and IOU customers. This will lead to changes in organizational practices and customs that may otherwise limit EE measure procurement and application. Market and behavioral studies will also contribute to increased and improved technology supply leading to further reductions in market barriers, increased intent to purchase/employ measures, and more EE rebates issued. Over time, they will support increasing use of measures by customers, aiding EE programs in achieving energy and demand savings targets, and meeting long term Strategic Plan and policy objectives.</p>
SW Sub-program: <b>Market and Behavioral Studies (M&amp;B)</b>	

CA EESP Goals/Strategies Addressed by SW Sub-program:	CA EESP Ref. pp. #
CA EE SP Goal 1 (11): Create Demand Pull for New Technology	p. 85
CA EE SP Strategy 1-3: Enhance market intelligence and behavioral research activities related to energy efficient technologies.	P. 86

Short-term (2010-2012) "SMART" Sub-program Objectives:	Source (SP, AL, DR, PIP, or Staff)*
1. By 2012, initiate targeted studies of customer behavior, decision-making, and/or market characteristics to gain understanding of customer/market perception and acceptance, and to identify	PIP

<p>potential barriers to measure adoption as follows by utility:</p> <p>PG&amp;E: 6 SCE: 2 SDG&amp;E: X SCG:X</p> <p>2. During 2010-12 authorized funding period, 80% of internal ET M&amp;B stakeholders who read the report would on average self-report an increase in knowledge about the benefits of the M&amp;B study.</p>	
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Short-term Sub-program PPMs:	Source (SP, AL, DR, PIP, or Staff)*	Metric Type (2a or 2b)**	Baseline Study Required (Y/N)
1. Self-reported increased in knowledge among internal ET M&B stakeholders who read the report of the benefits of the MB& study.	Staff	2b	N

\*SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]

\*\*Metric type: 2a = reported annually, 2b = reported by end of cycle.

Long-Term (2013-2020) "SMART" Sub-program Objectives:	Source (SP, AL, DR, PIP, or Staff)*
None proposed.	

Long-Term Sub-program MT Indicators:	Source (SP, AL, DR, PIP, or Staff)*	Metric Type (3)**	Baseline Study Required (Y/N)
None proposed.			



## Emerging Technologies - Technology Development Support Subprogram

	Mission
SW Program: Emerging Technologies	<p><b>TDS allows ETP the opportunity to lend assistance to private industry in the development of technology. Although product development is the domain of private industry, opportunities exist where the IOUs are well qualified or in a strong position to provide targeted, cost-effective assistance. This support increases market readiness, decreases innovator uncertainties, and allows ETP to have input.</b></p> <p>Technology development support will contribute to increased readiness and availability of EE measures for customers and EE program managers and reduced uncertainties for program participants. It also contributes to engagement in product development decision-making by ETP stakeholders and large-scale customer decision makers and decision influencers. This will lead to changes in organizational practices and customs and can lead to reduced maintenance and installation costs that may otherwise limit EE measure procurement and application.</p> <p>The increased and improved technology supply due to technology development support will also lead to further reductions in market barriers and increased intent to purchase/employ measures. Over time, this will support increasing use of measures by customers, aiding EE programs in achieving energy and demand savings targets, and meeting long term Strategic Plan and policy objectives.</p>
SW Sub-program: <b>Technology Development Support (TDS)</b>	

CA EESP Goals/Strategies Addressed by SW Sub-program:	CA EESP Ref. pp. #
CA EE SP Goal 1 (11): Create Demand Pull for New Technology	pp. 84-85
CA EE SP Goal 2 (11): Targeted R&D	
CA EE SP Strategy 1-2: Leverage private industry and Federally funded technology research and investment	p. 86 and p. 88
CA EE SP Strategy 2-4: Develop initiatives aimed at ET to support Big Bold Initiatives.	

Short-term (2010-2012) "SMART" Sub-program Objectives:	Source (SP, AL, DR, PIP, or Staff)*
<p>1. During 2010-12, ETP will initiate targeted Technology Development Support projects as follows by utility:</p> <p>PG&amp;E: 2 SCE: 2 SDG&amp;E: X SCG: X</p> <p>2. During 2010-12, new performance specifications and/or use case developments will be produced as follows by utility:</p> <p>PG&amp;E: 2 SCE: 2 SDG&amp;E: X SCG: X</p> <p>3. During 2010-12, new performance specifications and/or Use Cases** produced by the TDS sub-program will be presented to manufacturers/private industry for possible action.</p> <p>PG&amp;E: 1 SCE: 1 SDG&amp;E: X SCG: X</p>	<p>PIP</p> <p>Staff</p> <p>Staff</p>

\*\* Use cases describes the need for a technology or application.

Short-term Sub-program PPMs:	Source (SP, AL, DR, PIP, or Staff)*	Metric Type (2a or 2b)**	Baseline Study Required (Y/N)
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1.	Number of targeted technology development support projects initiated.	Staff	2b	N
2.	Number of new performance specifications and/or Use Case *** produced.	Staff	2b	N
3.	Number of new performance specifications and/or Use Cases presented to manufactures/private industry for possible action.****	Staff	2b	N
4.				

\*SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]

\*\*Metric type: 2a = reported annually, 2b = reported by end of cycle.

\*\*\* Use Cases describes the need for a technology or application.

\*\*\*\* Possible action means that the manufacturer/private industry considered TDS results in their product development efforts.

<b>Long-Term (2013-2020) "SMART" Sub-program Objectives:</b>	<b>Source (SP, AL, DR, PIP, or Staff)*</b>
None proposed.	

<b>Long-Term Sub-program MT Indicators:</b>	<b>Source (SP, AL, DR, PIP, or Staff)*</b>	<b>Metric Type (3)**</b>	<b>Baseline Study Required (Y/N)</b>
None proposed.			

## Emerging Technologies – Technology Resource Incubation and Outreach Subprogram

	<b>Mission</b>
SW Program: <b>Emerging Technologies</b>	<b>TRIO is a statewide program designed to nurture new technologies from universities, entrepreneurs, and investors through symposiums and roundtables. Participants receive information on how utilities can help guide the commercialization of EE technologies and/or programs.</b>
SW Sub-program: <b>Business Incubation Support/Technology Resource Incubator (TRIO)</b>	<p>Business incubation support will engender improved understanding of utility programs as well as of technology and business performance and market requirements for small entrepreneurs or large enterprises seeking to develop and/or introduce new EE measures successfully into the market. It will reduce uncertainties for program participants, increase the readiness and availability of EE measures, and increase participation in the IDEEA program as well as in EE incentive and education programs.</p> <p>Business incubation support will also contribute to increased and improved technology supply over the mid- and long-term, leading to reductions in other market barriers, increased intent to purchase / employ measures, and more EE rebates issued. Over time, it will support increasing use of measures by customers, aiding EE programs in achieving energy and demand savings targets, and meeting long term Strategic Plan and policy objectives.</p>

<b>CA EESP Goals/Strategies Addressed by SW Sub-program:</b>	<b>CA EESP Ref. pp. #</b>
CA EE SP Goal 1 (11): Create Demand Pull for New Technology	Page 84
CA EE SP Strategy 1-2: Leverage private industry and Federally funded technology research and investment	Page 86

<b>Short-term (2010-2012) “SMART” Sub-program Objectives:</b>	<b>Source (SP, AL, DR, PIP, or Staff)*</b>

Objective 1.1: Reach out to five universities, PIER, three investors, or other research organizations to solicit innovative EE concepts then screen those measures and bring them in as potential program participants.	PIP
Objective 2.1: Provide four events per year, rotating between utilities, on “how to” do business with utilities.	PIP
Objective 2.2: By 2012, at least 85% of the event attendees who voluntarily respond to the follow up survey, will self-report an increase in understanding on how to do business with the utilities."	

Short-term Sub-program PPMs:	Source (SP, AL, DR, PIP, or Staff)*	Metric Type (2a or 2b)**	Baseline Study Required (Y/N)
1 Percent of attendees who voluntarily respond and self-report increased understanding on how to do business with utilities.	Staff	2b	N
2 N	Staff	2b	N

\*SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]

\*\*Metric type: 2a = reported annually, 2b = reported by end of cycle.

Long-Term (2013-2020) “SMART” Sub-program Objectives:	Source (SP, AL, DR, PIP, or Staff)*
(1) X number of TRIO measures will be assessed by ETP.	Staff
(2) X number of TRIO measures will be adopted** by EE programs.”	Staff

\*\* Adoption means measure is available to end-use customers through programs. Adoption of a measure may be attributed to one or more ET sub-programs

Long-Term Sub-program MT Indicators:	Source (SP, AL, DR, PIP,	Metric Type	Baseline Study
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	or Staff)*	(3)**	Required (Y/N)
1. Number of TRIO measures assessed by ETP.	Staff	3	N
2. Number of TRIO measures adopted*** by EE programs.	Staff	3	N

\*\*\* Adoption means measure is available to end-use customers through programs. Adoption of a measure may be attributed to one or more ET sub-programs

## Emerging Technologies – Technology & Testing Center Subprogram

	<b>Mission</b>
SW Program: <b>Emerging Technologies</b>	<b>TTCs offer flexible and impartial laboratory testing, analysis, and technical expertise for refrigeration, air conditioning, and lighting EE technologies.</b>
SW Sub-program: <b>Technology &amp; Testing Center (TTC/ZNE)</b>	<p>The new residential ZNE Test Center, slated for construction during the 2010-12 cycle, will allow SCE and its partners to assess and validate EE technologies on a systems level.</p> <p><b>SCE</b></p> <p><b>TTC Goal 1:</b> Contribute to the technology evaluation efforts that accelerate the commercialization of energy efficient measures.</p> <p><b>TTC Goal 2:</b> Contribute to the Strategic Plan goal of ZNE residential construction by 2020, commercial ZNE, including existing buildings, by 2030.</p> <p><b>TTC Goal 3:</b> Contribute to increased EE awareness of California residents.</p> <p><b>ZNE Lab Goal 1: Plan and construct ZNE Residential Test Center in support of ZNE big bold initiatives.</b></p>

<b>CA EESP Goals/Strategies Addressed by SW Sub-program:</b>	<b>CA EESP Ref. pp. #</b>
CA EE SP Goal 2 (11): Targeted R&D	p. 84
CA EE SP Strategy 2-4: Develop initiatives aimed at ET to support Big Bold Initiatives	p. 88

<b>Short-term (2010-2012) “SMART” Sub-program Objectives:</b>	<b>Source (SP, AL, DR, PIP, or Staff)*</b>
Objective 3.1 (SCE Only): By 2012, at least 6 innovative measures and/or strategies will be evaluated in support of ET Assessment sub-program adoption** objectives to support Zero Net Energy New Residential Construction, Zero Net Energy New Commercial Construction, Zero Net Energy for Existing Buildings, HVAC Industry and Market Transformation, and related solutions.	PIP

Objective 3.2 – SCE Technology Test Center: (SCE only)  TTC Objective 1.1: Perform independent, unbiased lab testing of existing products, new technologies and control schemes in support of EE goals. TTC Objective 2.1: Expand test capabilities to include a ZNE Test Center.	PIP
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*\*\* Adoption means measure is available to end-use customers through programs. Adoption of a measure may be attributed to one or more ET sub-programs*

<b>Short-term Sub-program PPMs:</b>	<b>Source (SP, AL, DR, PIP, or Staff)*</b>	<b>Metric Type (2a or 2b)**</b>	<b>Baseline Study Required (Y/N)</b>
Number of ETP measures evaluated at the TTCs in support of ET Assessments Sub-Program that are adopted *** into the EE portfolio (and/or available in the market)	Staff	2b	N

*\*\*\* Adoption means measure is available to end-use customers through IOU programs. Adoption of a measure may be attributed to one or more ET sub-programs*

<b>Long-Term (2013-2020) "SMART" Sub-program Objectives:</b>	<b>Source (SP, AL, DR, PIP, or Staff)*</b>
None proposed.	

<b>Long-Term Sub-program MT Indicators:</b>	<b>Source (SP, AL, DR, PIP, or Staff)*</b>	<b>Metric Type (3)**</b>	<b>Baseline Study Required (Y/N)</b>
None proposed.			