

**PY2010-2012 California
Statewide Emerging
Technologies Program
Phase II Program Effects Report
Technical Potential Addendum**



Prepared by
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For the
**California Public Utilities Commission
Energy Division**

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1. Evaluator Contact Information

Table 1 presents the contact information for the firms evaluating the PY2010-2012 Emerging Technologies Program. Itron is the prime contractor and serves as oversight for the efforts undertaken by the subcontractors. Opinion Dynamics is responsible for the majority of the activities and reporting undertaken in the evaluation. SBW Engineering is leading the development of the guidelines for conducting ETP technology assessments with Navigant Consulting supporting this effort.

Table 1. Key Evaluator Contact Information, by Firm

Firm/Agency	Name	Address	Email	Phone
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Table 2. Key CPUC Contact Information

Firm/Agency	Name	Address	Email	Phone
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2. Summary of Technical Potential Findings

This document serves as an addendum to the evaluation results of the Phase II: Program Effects Evaluation for the PY2010-2012 Emerging Technologies Program (ETP).¹ This addendum provides technical potential findings from an evaluation of the effectiveness of the PY2010-2012 Statewide Emerging Technologies Program (ETP).

The CPUC commissioned this addendum to provide technical potential for measures adopted into the IOU EE portfolio in PY2010-2012 from ETP project efforts. The evaluation team was unable to provide this information in Volume I of the Phase II evaluation report because the ETP database does not consistently track measures adopted into the IOU EE portfolio. As a result, for this effort, we requested data for projects adopted into the IOU EE portfolio from the IOUs, and calculated technical potential for these efforts. Due to enhanced data tracking by the IOUs, this is the first time that an evaluation team has been able to calculate technical potential and adoption of ETP projects into the IOU EE portfolio. Tracking of technical potential data is now standard for the IOUs going forward.

2.1 Technical Potential Program Performance Metrics

On December 2, 2010, the Commission issued Resolution E-4385, approving program performance metrics² for the four IOUs for PY2010-2012 statewide energy efficiency programs. Outlined below are the PPMs related to measure adoption and technical potential in the table below (see Phase II report for full list of PPMs).

Table 3: Emerging Technologies Adoption and Technical Potential Program Performance Metrics

Program Element	Description	PIP Objective [^]
Program wide	The number of new "proven" ET measures adopted* into the EE portfolio.	None
	Potential energy impacts** (energy savings and demand reduction) of the adopted ET measures into the EE portfolio.	None
Technology Assessment	Number of ETP measures which have undergone TA that are adopted* into the EE portfolio, including but not limited to each of the following: (a) Advance HVAC technologies (b) High-efficiency plug loads and appliances (c) Advanced lighting technologies	35 measures
Scaled Field Placements	Number of ETP measures that have undergone SFP and are adopted* into the EE portfolio.	None
Technology Test	Number of ETP measures evaluated at the TTCs in support of ET	None

¹ Comprise the utility-specific ETPs operated by four investor-owned utilities (IOUs): Pacific Gas and Electric (PG&E), Southern California Edison (SCE), Southern California Gas (SCG), and San Diego Gas and Electric (SDG&E).

² These represent the approved PPMs and metric types for the Emerging Technologies Program (Resolution E-4385, pp. 39-40).

Summary of Technical Potential Findings

Program Element	Description	PIP Objective^
Centers (TTC)	assessments sub-program that are adopted* into the EE portfolio (and/or available in the market).	
<p>* "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.</p> <p>** Potential energy impacts to be reported based on ET project findings and estimated market potential (reported through quarterly ET database updates) via statistical overview of the ETP portfolio, including technical potential of measures recommended to the EE portfolio.</p> <p>***Note that the evaluation effort did not assess TDS program performance metrics.</p> <p>^There are no adoption objectives for SFP or the overall portfolio.</p>		

2.2 Calculation of Technical Potential

Technical potential refers to the energy savings potential that would be captured if all energy efficiency measures were installed in all applicable and feasible applications, and this is a known overestimation of total impacts. ETP provides technical potential impacts, not market potential (as reported in the IOU portfolio impacts). If market potential were included, the savings would be an overestimate of actual impacts as full market potential is rarely realized. Technical potential are calculated as shown in Equation 1.

Equation 1. Technical Potential Algorithm

$$\text{Technical Potential} = N \text{ Sites} * \% \text{ Sites where Technically Feasible} * kWh / kW / \text{Therm Savings}$$

The evaluation team leveraged information collected by the IOUs in the ETP database to calculate technical potential. The variables used from the ETP database are as follows:

Table 4. ETP Database Variables Used to Calculate Technical Potential

Variable Name	Variable Description & Use
Site type or other unit of measurement (UoM)	Provides the general type of site (e.g., office, single family dwelling) if the unit of measurement is a single building or the unit of measurements if not a single building (i.e., square foot of building).
N Sites or units in your service territory (A)	Estimate based on assessment - this value is the total of whatever unit provided as UoM (variable above) within your service territory (e.g., 3,000,000 SFD or 1,200,000 MFD or 1,800 office buildings or 2.8 billion square feet of commercial space).
Percent of population in your service territory who could use this technology (B)	Estimate based on assessment - this is the percent who could use the technology, regardless of the cost effectiveness or if they wanted to do so. This is not always 100%.
Annual kWh / site or unit (C)	Estimate based on assessment - this is the kWh savings for a single unit of measurement (technical potential = A*B*C)
Peak kW Savings / site or unit (D)	Estimate based on assessment - this is the kW savings for a single unit of measurement (technical potential = A * B * D)
Annual Therm Savings / site or unit (E)	Estimate based on assessment - this is the gas savings for a single unit of measurement (technical potential = A * B * E)

2.3 Adoption and Technical Potential Findings

In PY2010-2012, the IOUs were required to report on all ETP PPMs at the end of the three-year portfolio cycle. For the next program cycle, the IOUs will track PPM's annually and will be able to leverage their enhanced data tracking to support their reporting efforts.

Overall, we found that 131 measures, resulting from or influenced by 53 ETP projects, were adopted into the IOU EE portfolio in PY2010-2012.

Table 5: ETP Projects / Measures Adopted into IOU EE Portfolio in PY2010-2012, by IOU

IOU	ETP Projects Adopted	Measures Adopted ^(a)
PG&E	17	29
SCE	26	74
SCG	4	4
SDG&E	6	24
Statewide	53	131
Source: ETP database provided in October 2013.		

^(a) Represents unique measures, i.e. the same measure from two or more projects is counted as one measure. Note that we count custom efforts as one measure.

There are various terms used to describe ETP activities, which are used differently by each utility; these include “project”, “technology”, and “measure”. We provide one way to differentiate these terms below:

- **Project:** ETP is project based, there were 53 projects, which resulted in 131 measures adopted into IOU EE portfolio in the PY2010-2012 program cycle, representing multiple technologies.
- **Technology:** A technology is an equipment, practice or approach that can cover any end-use. One technology could be assessed by multiple projects. For example, there were multiple projects assessing LED technology in this program cycle.
- **Measure:** A measure is an application of a technology that may ultimately have a different incentive level, potential market sector, etc. For example, the LED technology could subsequently result in multiple measure codes within the energy efficiency portfolio.

The IOUs report adoption using different units. PG&E reported values as projects, whereas the other IOUs reported as measures. The ETP database³ tracks program activities by unique ETP project identifier (which may or may not equate to the PG&E project definition). The PPMs represent measures adopted into the portfolio. Below we include the adopted project or measure values as shown in the June 3, 2013 IOU report compared to values from the ETP database provided by the IOUs. Notably, there is a difference between the IOU reported values and the recent data request.

³ The ETP database was created to provide greater insight into ETP program activities by activity. For more information on the ETP database, please refer to the Phase I PY2010-2012 report; Volume II.

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Table 6: ETP Projects / Measures Adopted into IOU EE Portfolio in PY2010-2012, by Source

IOU	Project/Measures Adopted			
	IOU PPM Report		ETP Database	
	Unit	Count	ETP Project ID Count ^(a)	Measure Code Count ^(b)
PG&E	Project	19	17	29
SCE	Measure	22	26	74
SCG	Measure	5	4	4
SDG&E	Measure	33	6	24
Total	NA	NA	53	131

^(a) A record is the same as an ETP Project. Each record has a unique ETP project ID.

^(b) Represents unique measures, i.e. the same measure from two or more projects is counted as one measure. Note that we count custom efforts as one measure.

Table 7 provides projects that resulted in measures adopted into the IOU EE portfolio in PY2010-2012 by program element. We found 25 instances where two different projects could result in the same measure. This is consistent with ETP element design, where a Technology Assessment project could be moved into a Scaled Field Placement or Demonstration Showcase project.

Table 7: ETP Projects IDs Adopted in IOU EE Portfolio in PY2010-2012, by Element

ETP Elements ^(a)	ETP Project ID
Technology Assessment	36
Scaled Field Placement	6
Market & Behavioral Studies	1
Demonstration Showcase	6
Unknown Element ^(b)	4
All Elements	53
Source: ETP database provided in October 2013.	

^(a) Projects classified under the Technology Introduction Support (TIS) subprogram were reclassified into the Technology Assessment, Scaled Field Placement or Demonstration Showcase subprograms as the TIS subprogram came into effect in the 2013-2014 program cycle.

^(b) Four unknown elements are from SCE projects initiated prior to PY2010-2012.

Table 8 summarizes the technical potential of the projects, which resulted in measures adopted into the IOU EE portfolio in PY2010-2012.

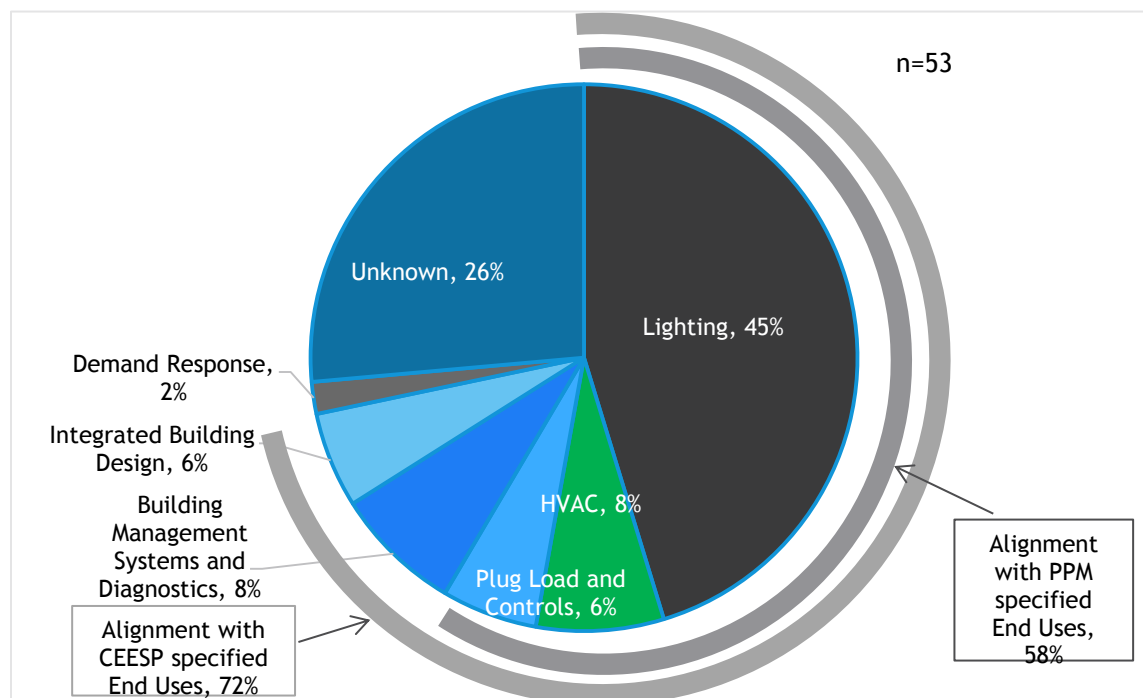
Table 8. Overall Technical Savings Potential of Adopted Measures in PY2010-2012

IOU	ETP Project ID	MWh Potential	MW Potential	Therm Potential
PG&E	17	4,754,171	1,057	208,520,753
SCE	26	1,307,142	330	1,587,007
SCG	4	-	-	7,308,000
SDG&E	6	227,148	93	1,190
Statewide	53	6,288,461	1,480	217,416,951
Source: ETP database provided in October 2013.				

Summary of Technical Potential Findings

An additional ETP PPM states that ETP projects support three specific technology types: advanced HVAC technologies, high-efficiency plug loads and appliances, and advanced lighting technologies. Approximately 58% of ETP projects resulting in adopted measures cover these technology types (Figure 1).

Figure 1. ETP Projects Resulting in Measures Adopted into IOU EE Portfolio in PY2010-2013, by End-Use



Overall, 13 projects had measures adopted into a custom program, 19 projects had measures adopted into a prescriptive program and 20 projects had measures adopted into both custom and prescriptive programs, and one project did not have a designated program.⁴

Table 9: ETP Projects / Measures Adopted in IOU EE Portfolio in PY2010-2012, by Program

Program	ETP Projects IDs	Measures Codes ^(a)
Custom	13	13
Prescriptive	19	55
Custom and Prescriptive	20	62
Unknown	1	1
Overall	53	131
Source: ETP database provided in October 2013.		

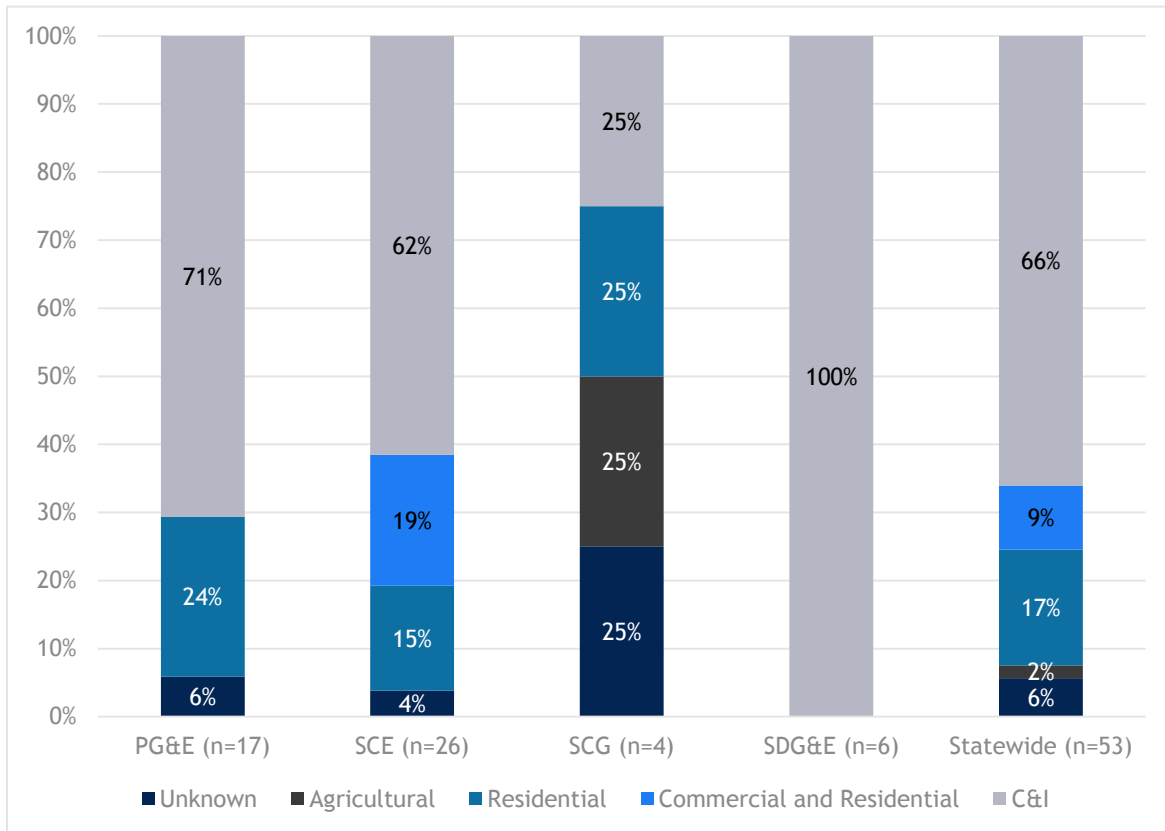
^(a) Represents unique measures, i.e. the same measure from two or more projects is counted as one measure. Note that we count custom efforts as one measure.

⁴ The classification of projects into custom and prescriptive was done by the Evaluation Team based on the ETP Database fields “If technology was transferred to an EE program, what program was it transferred to?” and “If technology was transferred, what is the EE Program Measure Number?”

Summary of Technical Potential Findings

Figure 2 shows that majority of statewide projects were for the commercial and industrial sectors (66%). Of the 53 projects that resulted in measures adopted into the IOU EE portfolio, 35 are for the commercial and industrial sector, 9 are for the residential sector, 5 are for both the commercial and residential sectors, and 4 are unknown.

Figure 2. Adopted Projects in PY2010-2012, by Market Sector



*Findings from ETP database variable "Sector", which provide one response category per project ID.

2.4 Conclusions & Considerations

Below we provide a summary of conclusions and considerations from this effort.

- In PY2010-2012, 131 measures, resulting from 53 ETP projects, were adopted into the IOU EE portfolio. These measures represent a technical potential of 6,288,461 MWh, 1,480 MW, and 217,416,951 therms.
- We found that the measures align for the most part with the California Energy Efficiency Strategic Plan (CEESP) and PPM end-uses, although the program also transferred measures that support other portfolio needs.
- The majority of measures support commercial and residential sectors.

We understand that technical potential does not provide a comprehensive assessment of program effectiveness. It is a single data point that is a known over-estimation as it does not include market potential. However, technical potential does provide context to ETP program efforts by providing a potential scale of eventual contributions to the IOU EE portfolio.

Summary of Technical Potential Findings

As per the requirements of the California Energy Efficiency Evaluation Protocols (Emerging Technology chapter), future evaluations should also track ETP measures adopted into the portfolio. This measure tracking would provide ETP measure uptake and associated ex ante energy savings within the IOU EE portfolio. When tracked over time, this parameter will provide additional information regarding market adoption (which technical potential does not incorporate) as well as provide information regarding ETP's actual contribution to the EE portfolio. As noted in the Protocols, the goal of this effort "is not to attribute savings directly to ETP as a resource, but to show a clear trail of which ETP technologies are being accelerated into utility energy efficiency programs."⁵ This language acknowledges that once ETP staff transfer a measure to the EE portfolio, its uptake in the portfolio is a function of EE program design and implementation and outside the control of ETP. However, only by tracking this parameter can "an evaluation adequately answer the future questions posed by key stakeholders regarding the ultimate impacts of ETP activities"⁶

⁵ California Energy Efficiency Evaluation Protocols, pp.72.

⁶ Ibid.

3. Detailed Adoption & Technical Potential Findings

Below we provide detailed findings related to projects adopted in PY2010-2012. These include a list of each project adopted and its associated technical potential by source. The table below shows all 53 adopted projects.

Table 10. Description of ETP Projects Adopted into the PY2010-2012 IOU EE Portfolio

IOU	Project Number	Project Name	Subprogram	Technology	EE Program It transferred to?	EE Program Measure Number?
PG&E	ET08PGE0825	Hotel Room Occupancy Controls	Technology Assessment (TA)	Lighting	Commercial, Customized Measures	Customized
PG&E	ET09PGE0902	LEDs for Hospital Operating Rooms	Technology Assessment (TA)	Lighting	Commercial, Customized Measures	Customized
PG&E	ET09PGE0906	LED Street Lighting and Network Controls	Technology Assessment (TA)	Lighting	Commercial, Customized Measures	Customized
PG&E	ET09PGE0920	Thin Client	Technology Assessment (TA)	Plug Load	IDS, Business and Consumer Electronics Program	Customized
PG&E	ET10PGE1001	Heat Pump Water Heaters (HPWH) Field Study	Technology Assessment (TA)	Water Heating Domestic Hot Water	HEER, 3P, Commercial	HA47
PG&E	ET09PGE0917	Laboratory Testing of Heat Pump Water Heaters	Technology Assessment (TA)	Water Heating Domestic Hot Water	HEER	HA47
PG&E	ET09PGE0912	Data Center Air Management Research (e-Quest Datacenter Control Delivery)	Technology Assessment (TA)	HVAC	Commercial, 3P, GP Custom Rebate Programs	Customized
PG&E	ET12PGE1011	Assessment of Directional LEDs	Technology Assessment (TA)	Lighting	Lighting	LD01-05, LD08, L038, LC56, LC67, LC75. L037-L041 paid in Residential Upstream in 2012, which includes a percentage of cross-cutting rebates applied to Non-Residential Customers.
PG&E	ET11PGE3251	Follow Up Linear Panel and Controls Study (GSA)	Technology Introduction Support (TIS)	Lighting	Lighting	Customized, Working on Deemed measure development now
PG&E	ET12PGE3151	Food Service Tech Load Shifting Ice Machines (Phase A)	Technology Introduction Support (TIS)	Cooking	Commercial, Food Services	F200, F201, F202, F203

Detailed Adoption & Technical Potential Findings

IOU	Project Number	Project Name	Subprogram	Technology	EE Program it transferred to?	EE Program Measure Number?
PG&E	ET12PGE3191	Water Heaters Alt. Technologies (Phase A)	Technology Introduction Support (TIS)	Water Heating Domestic Hot Water	HEER	HA47, HA48
PG&E	ET12PGE3301	PAR/MR LED Pilot	Technology Introduction Support (TIS)	Lighting	Lighting	LD01-05, LD08, L038, LC56, LC67, LC75. L037-L041 paid in Residential Upstream in 2012, which includes a percentage of cross-cutting rebates applied to Non-Residential Customers.
PG&E	ET12PGE3351	Safeway - Advanced LED Track Fixtures	Technology Introduction Support (TIS)	Lighting	Lighting	LC23
PG&E	ET11PGE2201	CLTC Lighting Demonstration Project	Technology Introduction Support (TIS)	Lighting	Lighting	LD01-05, LD08, L038, LC56, LC67, LC75. L037-L041 paid in Residential Upstream in 2012, which includes a percentage of cross-cutting rebates applied to Non-Residential Customers.
PG&E	ET12PGE2201	Food Service Technology Demo Kitchen	Technology Introduction Support (TIS)	Cooking	Commercial, Food Services	F203, F190, F206, F109, F101, F188, F111
PG&E	ET12PGE2231	ETC Lighting Demo Showcase	Technology Introduction Support (TIS)	Lighting	Lighting	Customized
PG&E	ET12PGE2291	PEC Lighting Demo Showcase	Technology Introduction Support (TIS)	Lighting	Lighting	Customized
SDG&E	ET09SDGE0002	Central Hotel EMS	Technology Assessment (TA)	Whole Building	EEBI	Unknown
SDG&E	ET11SDGE0003	San Diego Zoo Gift Shop LED Lighting	Technology Introduction Support (TIS)	Lighting	EEBI/EEBR	LED Display Case Lighting: (L-011, L-021, L-031) Accent/Directional Lighting: (L-G21, L-U11)
SDG&E	ET11SDGE0004	Restaurant Ambient Lighting Demonstration Showcase	Technology Introduction Support (TIS)	Lighting	EEBI/EEBR	Interior LED Integral Lamps: (L-Q11, L-Q21, L-Q31, L-Q41, L-Q51, L-Q61, L-Q71, L-Q81)
SDG&E	ET11SDGE0016	Demand Control Ventilation with Centralized Air Sensors	Technology Assessment (TA)	HVAC	EEBI	Unknown
SDG&E	ET12SDGE0001	Bi-level Gas Station Lighting Technologies	Technology Introduction Support (TIS)	Lighting	EEBI/EEBR	Exterior LED Fixtures: (L-S51, L-S61, L-S71, L-S81, L-S91)
SDG&E	ET12SDGE0002	Advanced Lighting	Technology Introduction	Lighting	EEBI/EEBR	Interior High Bay LED Fixtures: (L-

Detailed Adoption & Technical Potential Findings

IOU	Project Number	Project Name	Subprogram	Technology	EE Program it transferred to?	EE Program Measure Number?
		Technologies - Fitness Clubs and Courts	Support (TIS)			S11, L-S21, L-S31, L-S41)
SCG	ET09SCG0005	Laundry Ozone Systems - (TA)	Technology Assessment (TA)	Unknown	Unknown	Unknown
SCG	ET10SCG0005	Energx Raydronics Control (SFP)	Scale Field Placement	Water Heating Domestic Hot Water	Residential EE	Unknown
SCG	ET11SCG0001	Thermal Recycler (TA)	Technology Assessment (TA)	Thermal Recycler	Commercial EE, Industrial EE	Unknown
SCG	ET11SCG0015	Acrylic Panel for Greenhouse (TA)	Technology Assessment (TA)	Building Shell	Agricultural EE	Unknown
SCE	ET06SCE1060	LED in Low Temperature Reach in Refrigerated Display Case	Assessments - Lab	Lighting	Commercial	LT-80693
SCE	ET06SCE1070	High Efficiency Medium Temperature Display Case	Unknown	Refrigeration	Commercial	RF-45362
SCE	ET07SCE1030	LED Under Cabinet Lighting	Assessments - Lab	Lighting	Commercial, Residential	LT-78694
SCE	ET07SCE1100	Demand Control Ventilation	Unknown	Unknown	Unknown	FS-23401 (E), FS-17337
SCE	ET07SCE1120	LED Screw-in Floodlight Systems	Assessments - Lab	Lighting	Commercial, Residential	LT-19877 (E), LT-23678 (O), LT-34091 (O), LT-34365 (O), LT-46598 (O), LT-46876 (O), LT-54654 (E), LT-54979 (E), LT-57621 (O), LT-59765 (O), LT-60932 (O), LT-64353 (E), LT-65785 (E), LT-76981 (O), LT-79453 (O), LT-87621 (O), LT-89543 (O), LT-89789 (E), LT-90344 (E), LT-92133 (E)
SCE	ET07SCE1140	LED MR16 Lamp	Assessments - Lab	Lighting	Commercial, Residential	LT-25011 (E)
SCE	ET07SCE1150	Residential LED Down Lights	Assessments - Lab	Lighting	Commercial, Residential	LT-58676
SCE	ET08SCE1020	Air Source Heat Pump for Emergency Generators	Unknown	Air Source Heat Pump	Commercial, Industrial	PR-10295
SCE	ET08SCE1080	Water Cooled Air Conditioners	Assessments - Lab	HVAC	Commercial, Residential	AC-32008 (O)

Detailed Adoption & Technical Potential Findings

IOU	Project Number	Project Name	Subprogram	Technology	EE Program it transferred to?	EE Program Measure Number?
SCE	ET08SCE1150	Car Wash Vacuum Variable Speed Drive	Unknown	Unknown	Commercial	PR-32454
SCE	ET08SCE1160	5 ton Indirect Hybrid Unit	Assessments - Field	HVAC	Commercial	AC-45968 (C)
SCE	ET09SCE1080	Deck Ovens	Technology Assessment (TA)	Oven	Commercial	FS-70944 (O)
SCE	ET09SCE1090	Half size convection oven	Technology Assessment (TA)	Oven	Commercial	FS-72300 (E)
SCE	ET09SCE1210	Office of the Future Federal Building Demonstration	Assessments - Field	Lighting	New Construction Services and Savings by Design	LT-32843, LT-36502, LT-48272, LT-49584, LT-57958, LT-60897, LT-74751, LT-78223, LT-89432
SCE	ET10SCE1130	LED Light for Commercial Pools	Assessments - Field	Lighting	customized	LT-16843 (O), LT-19123, LT-19365 (O), LT-23623, LT-26108 (O), LT-28111 (O), LT-34888 (O), LT-47665 (O), LT-59777 (O), LT-69385 (O), LT-78882 (O), LT-83965 (O), LT-88786 (O), LT-95643 (O)
SCE	ET10SCE1160	Blower for Industrial Applications	Assessments - Field	Blower	Commercial and Industrial	PR-38532, PR-61029
SCE	ET10SCE1290	LED A-Lamp Laboratory Assessment	Assessments - Field	Lighting	customized	LT-10432 (O), LT-10965 (E), LT-12834 (E), LT-26586 (E), LT-98643 (O)
SCE	ET10SCE1310	Hot Food Holding Cabinets for Foodservice	Technology Assessment (TA)	Hot Food Holding Cabinets	Commercial	FS-19589, FS-20224 (E), FS-31559 (E), FS-60594 (E), FS-93639 (E)
SCE	ET10SCE1330	Combination Ovens for Food Service	Assessments - Field	Oven	Commercial	FS-14121 (E), FS-20134 (E), FS-30956 (E), FS-88004 (E)
SCE	ET10SCE1450	Vacuum Sealing/Packaging Machines for Food Service	Assessments - Field	Vacuum Sealing/Packaging Machines	Commercial customized	FS-88864 (C)
SCE	ET11SCE1010	Backlit Signs and Menu Boards Lab Evaluation	Assessments - Field	Lighting	Express	LT-23143
SCE	ET11SCE1130	Evaporator Fan Delay Control	Assessments - Lab	HVAC	Deemed	AC-48754 (O)
SCE	ET10SCE1430	Hot Food Induction Holding Well	Assessments - Field	Induction	Commercial customized	FS-94354 (C)
SCE	ET11SCE5010	LED Lights for Commercial Pools	Market Behavior Studies	Lighting	Customized Program.	LT-19123
SCE	ET12SCE1040	Cheese Melter For Food	Assessments - Field	Cheese Melter	Commercial	FS-10119 (C), FS-10119

Detailed Adoption & Technical Potential Findings

IOU	Project Number	Project Name	Subprogram	Technology	EE Program it transferred to?	EE Program Measure Number?
		Service			customized	
SCE	ET12SCE1080	Conveyor Broilers for Foodservice Applications	Technology Assessment (TA)	Broiler	Commercial customized	PR-34466

The table below details the technical potential calculations for all 53 adopted projects.

Table 11. Technical Potential Calculations of ETP Projects Adopted into the PY2010-2012 IOU EE Portfolio

Project ID	Data from ETP Database							Estimated Technical Potential		
	Annual kWh / site or unit	Peak kW Savings / site or unit	Annual Therm Savings / Year	Site Type or Unit of Measurement	N sites	% Sites Use technology	Useful Life (n)	MWh	kW	Therm
PG&E (n=17)										
ET08PGE0825	51	NA	0.10	Hotel Guest Rooms	245,032	100%	NA	12,497	NA	24,503
ET09PGE0902	972	NA	NA	Operating rooms	3,840	100%	15	3,732	NA	NA
ET09PGE0906	547	-	NA	Street light	37,871	100%	15	20,715	0	NA
ET09PGE0920	258	1.50	-	PCs	48,318	50%	7	6,230	36	0
ET10PGE1001	2,024	4.00	-	Heat Pump Water Heater	360,000	9%	15	65,578	130	0
ET09PGE0917	2,024	4.00	-	Heat Pump Water Heater	360,000	9%	15			
ET09PGE0912	300,000	275	-	Commercial Data Centers and Telecom Switching Centers	450	50%	10	67,500	62	0
ET12PGE1011	107	0.02	NA	Directional replacement lamps	25,000,000	25%	NA	668,750	119	NA
ET11PGE3251	133	0.01	-	Recessed fixtures	2,655,000	100%	5	353,115	37	0
ET12PGE3151	2,500	1.26	NA	Restaurant Kitchens	50,000	80%	10	100,000	50	NA
ET12PGE3191			43.10	Residential Storage Gas Water Heaters	5,375,000	90%	15	0	0	208,496,250
ET12PGE3191	1,725	0.37		Residential Storage Electric Water Heaters	5,375,000	10%	15	927,187	199	0
ET12PGE3301	93	0.02	NA	PAR/MR Lamps in Non-Residential SMB Spaces	7,500,000	100%	8			
ET12PGE3351	59	0.01	NA	Commercial Retail -MR16 Lamps	4,070,000	100%	6	240,130	41	NA
ET11PGE2201	93	0.02	-	commercial directional lamps	9,100,000	100%	8	846,300	152	0
ET12PGE2201	NA	NA	NA	Small to Medium Commercial Kitchens	36,000	45%	12	NA	NA	NA

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Project ID	Data from ETP Database							Estimated Technical Potential		
ET12PGE2231	77	0.01	-	Commercial Downlight and Track Lighting Fixtures	9,100,000	80%	NA	556,920	102	0
ET12PGE2291	109	0.02	-	Commercial Troffers, Pendants, Downlights	10,155,000	80%	NA	885,516	130	0
TOTAL for PG&E								4,754,171	1,057	208,520,753
SCE (n=26)										
ET06SCE1060	12,561	2.01	-	Case	5,000	50%	11	31,403	5	0
ET06SCE1070	Unknown	Unknown	Unknown	Unknown	Unknown	NA	Unknown	NA	NA	NA
ET07SCE1030	23	0.00	-	Foot	1,000,000	5%	11	1,149	0	0
ET07SCE1100	Unknown	Unknown	Unknown	Unknown	Unknown	NA	Unknown	NA	NA	NA
ET07SCE1120	195	0.04	-	Lamp	3,000,000	5%	11	29,175	7	0
ET07SCE1140	184	0.04	-	Lamp	500,000	5%	11	4,598	1	0
ET07SCE1150	17	0.14	-	Lamp	4,000,000	5%	11	3,340	28	0
ET08SCE1020	30,300	3.50	-	kW	1,935	10%	15	5,863	1	0
ET08SCE1080	500	0.50	-	Sites	4,000,000	0%	15	5,000	5	0
ET08SCE1150	13,420	-	-	hp	1	1%	15	0	0	0
ET08SCE1160	5,906	-	14.00	Ton	275,000	0%	-	0	0	0
ET09SCE1080	7,745	1.75	-	Oven	23,973	100%	12	185,671	42	0
ET09SCE1090	2,968	0.66	-	Oven	34,278	100%	12	101,737	23	0
ET09SCE1210	46,280	17.80	3.50	Square Foot	18,230	15%	Unknown	126,553	49	9,571
ET10SCE1130	1,795	-	0.10	Lamp	8,754	5%	-	786	0	44
ET10SCE1160	238,200	40.00	-	Unknown	2,000	10%	-	47,640	8	0
ET10SCE1290	198	0.05	1.00	Lamp	8,763,457	5%	-	86,758	22	438,173
ET10SCE1310	1,642	0.30	-	cabinet	34,278	100%	12	56,284	10	0
ET10SCE1330	16,532	3.70	-	oven	34,278	100%	12	566,684	127	0
ET10SCE1450	1,652	0.20	-	vacuum sealing machine	300	100%	12	496	0	0
ET11SCE1010	884	-	20.00	Menu Board Sign	56,961	100%	-	50,354	0	1,139,220
ET11SCE1130	1,000	-	10.00	Fan Controller	-	0%	-	0	0	0
ET10SCE1430	6,991	1.18	-	Store	80	100%	12	559	0	0
ET11SCE5010	600	-	10.00	NA	-	0%	-	0	0	0
ET12SCE1040	302	3.33	-	unit	800	100%	12	242	3	0
ET12SCE1080	7,131	1.09	-	Conveyor Broiler	400	100%	12	2,852	0	0
TOTAL for SCE								1,307,142	330	1,587,007

Detailed Adoption & Technical Potential Findings

Project ID	Data from ETP Database							Estimated Technical Potential		
SCG (n=4)										
ET09SCG0005	NA	NA	80,000	site	108	20%	15	NA	NA	1,728,000
ET10SCG0005	NA	NA	59.10	MFD	100,000	50%	15	NA	NA	2,955,000
ET11SCG0001	NA	NA	1,050,000	site	10	5%	15	NA	NA	525,000
ET11SCG0015	NA	NA	420,000	site	100	5%	15	NA	NA	2,100,000
TOTAL for SCG								0	0	7,308,000
SDG&E (n=6)										
ET09SDGE0002	100	1.04	NA	Hotel Guest Rooms	57,345	100%	NA	5,735	60	NA
ET11SDGE0003	222	0.04	NA	MR16lamps	81,400	100%	5	18,071	4	NA
ET11SDGE0004	70	0.01	NA	Recessed Downlights	2,300,000	100%	5	159,850	28	NA
ET11SDGE0016	45,430	Varies	1,190	DCV Potential	1	100%	10	45	NA	1,190
ET12SDGE0001	3,531	0.15	-	Gas Station Outdoor Fixtures	11,060	100%	5	39,053	2	0
ET12SDGE0002	17,579,300	Varies	-	Indoor2x2HOTrofferLighting	1	25%	Unknown	4,395	NA	0
TOTAL for SDG&E								227,148	93	1,190
STATEWIDE TOTAL								6,288,461	1,480	217,416,951

3.1 Revisions to Data

To calculate the technical potential accurately, the evaluation team made minor changes to the data received. We document these changes below:

- **Removed duplicate measure codes:** Consistent with ETP element design, where a Technology Assessment project could be moved into a Scaled Field Placement or Demonstration Showcase project, multiple project ID’s could correspond to one measure code with the same savings values. As such, to accurately calculate the technical potential, duplicate project IDs with the same measure code and savings values were removed. This was done for two PG&E projects:
 - ET09PGE0917 due to duplicate measure code with ET10PGE1001
 - ET12PGE3301 due to duplicate measure code with ET11PGE2201