UNIVERSITY OF CALIFORNIA
STRATEGIC ENERGY PLAN

Systemwide Summary Report

FINAL

Prepared for

University of California
Office of the President

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PREFACE

This report was produced by Newcomb Anderson McCormick for the University of California, Office of the President (UCOP).

Valuable assistance and direction was provided for this project by George Getgen, Dirk VanUlden, Clifton Bowen, Matthew St. Clair and John Rolle of the UC Office of the President, and numerous representatives from the campuses.

1. EXECUTIVE SUMMARY

1.1 Policy on Sustainable Practices

The Regents of the University of California adopted a Policy on Sustainable Practices in March 2007 which states that the University will develop a Strategic Energy Plan (SEP) for implementing energy efficiency projects in existing buildings. The initial goal for the retrofit projects is to reduce systemwide, growth adjusted energy consumption by 10% or more by 2014 from the year 2000 base consumption level.

In addition, the Policy directs the campuses to pursue the goal of reducing greenhouse gas (GHG) emissions to year 2000 levels by 2014 and to 1990 levels by 2020. This target is not growth adjusted. The 2020 target follows the California Global Warming Solutions Act of 2006 (Assembly Bill 32) directive on GHG emissions. Because electricity and gas purchases are expected to represent perhaps three quarters of a campus' GHG emissions, the energy and GHG reduction goals are closely linked. It is anticipated that the Strategic Energy Plan projects will be one of the main tools the campus uses to meet its GHG targets.

With the demanding goals of the Policy on Sustainable Practices providing the background for this effort, the purpose of this study is to generate projects to help the University meet the goals set forth. This study looks at nine campuses and five medical centers which includes all the UC campuses except the newest UC Merced. This study strives to provide the initial identification of as many projects as possible to present the campuses with a roadmap for implementation over the next 6 years to meet the goals set forth.

1.2 Energy Use, Greenhouse Gas Reduction Targets and Results

Table 1.1 lists past, current and projected energy purchases by the University of California, starting with the baseline year 2000. The energy purchases are divided by the gross building area of the campuses to establish an Energy Use Index to evaluate the growth adjusted energy use targets.

The energy purchases are also converted to GHG emissions, using emissions factors for electricity generation and natural gas use. Individual campuses are preparing plans for meeting the GHG goals, due by December 2008. Those plans will address the historical campus emissions in detail. At present the emissions factors for the different electricity providers operating in 2000 and 1990 are not available. For this Strategic Energy Plan the GHG emissions factors are based on the statewide emissions factors for 2000. The 1990 utility purchases are not currently available from university or utility records for many campuses so the 2020 targets for those are undefined. Individual campuses are in the process of defining these GHG baselines and targets, including sources other than energy, in their Climate Action Plans which are scheduled to be complete by December 2008.

The energy purchases in the most recent year (FY 06-07) are also shown in Table 1.1. The cost of this energy in this year is $111,869,289 for electricity and $110,546,037 for natural gas, for a combined cost of $222.4M. This report identifies projects at a total project cost of $949M that would save the University of California a total of $80.3M per year in energy savings. The projected utility incentives for these projects are $167M, yielding a net project cost of $782M and a net simple payback of 9.7 years. The campuses have reviewed the projects, and have selected and planned projects for implementation totaling $381M in

construction cost, with anticipated incentives of $86M yielding a net cost to the University of California of $295M. These selected projects are projected to save $40.1M per year in purchased utility savings with a net simple payback of 7.3 years.

Table 1.1 also shows growth in building area and energy use projected to the year 2014 without investment in new energy efficiency, based on new construction identified in the Five Year Capital Program (2007-08 to 2011-12). Actual growth could be higher. In addition, allowance was made for the anticipated changes in electricity and gas purchases due to the operation of the cogeneration systems, such as UC Irvine's which was just starting up during FY 06-07. Finally this growth number includes the energy savings anticipated by the end of 2008 for the Partnership projects funded in the 2006-08 Program.

1.3 Strategic Energy Plan Projects

This Strategic Energy Plan provides initial identification of potential for energy efficiency retrofit projects at all buildings over 50,000 square feet at University of California campuses and Medical Centers, summarized in Table 1.2. This includes primarily lighting, HVAC, commissioning and central plant measures. A number of other measures that apply in all sizes of buildings are identified as well. The potential for energy efficiency in new construction and renovated buildings is also addressed, based on the same Capital Program. A number of these efficiency projects were initially identified and evaluated by the campuses. A separate line item shows the potential from addition of photovoltaic power utilizing all of the available roof area on campuses. This report does not represent an investment grade audit so the numbers are expected to be refined in the engineering process before the campus submits them for funding. All projects except photovoltaics were evaluated using the campus energy recharge rates.

The Strategic Energy Plan attempts to be comprehensive in its identification of potential energy projects. As a result the total potential savings is significant and the payback periods for some of the measures are fairly long. During implementation the campus will select measures to implement which meet its investment and physical plant needs.

The efficiency measures will be implemented through the UC/CSU Investor Owned Utility Partnership Program in the 2009-11 and 2012-14 funding cycles. As of the time of this report the incentive rates have been finalized with the Investor Owned Utilities, and remain unchanged from previous program years. The utility incentives used throughout this report are based on $0.24/kWh and $1.00/therm annual savings. Energy savings have been calculated on a project by project basis, with incentives based on the building level energy savings. The photovoltaic projects would be implemented using the California Solar Initiative incentives.

The magnitude of project investment is many times greater than the size of past Partnership cycles, which have been constrained by the limited capital available from the campuses. A new funding mechanism will offer bond money from the Office of the President to pay upfront the University portion of the project cost, with the 15 year bond to be repaid by the campus through utility savings.

The effect of these potential projects on meeting the efficiency and GHG targets is illustrated in Table 1.1A. In this table the energy savings are reported as they would be measured at the utility meters, and incorporate the full project potential identified in this report. Table

1.1B shows the effect of the projects planned and committed to by the campuses for implementation as Tier 1 and Tier 2 Projects. The indication is that the system wide energy goals for 2014 can be surpassed with the potential energy efficiency projects identified in this report. The energy component of the GHG goals are nearly achievable, but more aggressive action is required than implementation of the energy projects identified in this report.

Accounting for the projects selected by the campuses as committed (Tier 1) and planned (Tier 2) projects, the indication is that the University will be within reach of the energy goal for 2014, but require aggressive actions to meet the GHG goals at the system wide level. Because 1990 data was not available for the majority of the campuses, the 2020 goals are not addressed.

Table 1.1A: Summary of Baseline and Projected Energy Usage, Emissions, and Goals, All Potential Projects

Year	Energy Use Basis	Purchased Electricity (kWh/yr)	Purchased Natural Gas (th/yr)	Campus Area (GSF)	Source Energy Use Index (kBtu/sf-yr)	Source Energy Use Index vs. 2000 Baseline 2014 Target: 90%	GHG Emissions (tonne CO2 eq.)[3]	GHG Emissions vs. 2000 Baseline 2014 Target: 100%[3]
2000 Baseline	FY 99-00 Historical Use per UCOP[1]	985,987,491	103,824,285	84,838,996	241	**100%**	910,569	**100%**
Most Recent Year	FY 06-07 Historical Use per UCOP[1]	1,272,634,063	138,114,743	101,761,071	264	**110%**	1,197,033	**131%**
2014 Projected	With Projected Growth and 2006-2008 Partnership Projects	1,344,048,467	155,935,838	113,209,105	259	**107%**	1,317,524	**145%**
2014 Projected	Add Potential Strategic Energy Plan Efficiency Projects	782,791,155	123,091,981	113,209,105	180	**75%**	938,212	**103%**
2014 Projected	Add Potential Full Roof PV	734,011,477	123,091,981	113,209,105	175	**73%**	920,359	**101%**

Table 1.1B: Summary of Baseline and Projected Energy Usage, Emissions, and Goals, All Committed Projects

Year	Energy Use Basis	Purchased Electricity (kWh/yr)	Purchased Natural Gas (th/yr)	Campus Area (GSF)	Source Energy Use Index (kBtu/sf-yr)	Source Energy Use Index vs. 2000 Baseline 2014 Target: 90%	GHG Emissions (tonne CO2 eq.)[3]	GHG Emissions vs. 2000 Baseline 2014 Target: 100%[3,4]
2000 Baseline	FY 99-00 Historical Use per UCOP[1]	985,987,491	103,824,285	84,838,996	241	**100%**	910,569	**100%**
Most Recent Year	FY 06-07 Historical Use per UCOP[1]	1,272,634,063	138,114,743	101,761,071	264	**110%**	1,197,033	**131%**
2014 Projected	With Projected Growth and 2006-2008 Partnership Projects	1,344,048,467	155,935,838	113,209,105	259	**107%**	1,317,524	**145%**
2014 Projected	Add Potential Strategic Energy Plan Efficiency Projects	1,069,111,784	139,652,887	113,209,105	220	**91%**	1,130,687	**124%**

Notes

[1] Historical data adjusted for UCB to include non-state space missing from records. Usage scaled on square footage of FY99-00, and CalCAP reported figures used for most recent year

[2] Conversion Factors:

Source Energy		Emissions	
10,239	Btu/kWh Electric	0.000366	tonne CO2 eq/kWh
100,000	Btu/th Gas	0.005295	tonne CO2 eq/th

[3] GHG Emissions only reflect the energy component using statewide average emissions factors. The emissions reflected in this report should be considered for relative impacts of energy projects, and not considered as absolute or comprehensive values. Total GHG emissions are being determined by individual campuses and may vary.

[4] While the projected 21% reduction in energy related GHG by 2014 is admirable, additional measures may be required to meet the GHG Goals, including measures that affect the GHG components other than energy.

The economics of all potential projects are described in Table 1.2 for the aggregate of projects system wide. The projects listed include all potential projects identified in this report, and sorts them according to the funding source for the facility and the type of project. This table also lists the projected Partnership Program for efficiency projects and considers potential solar incentives in the power purchase agreement rates for photovoltaic projects, thereby factoring incentives into the net simple paybacks. Tables 1.3 and 1.4 provide a breakdown of these projects to the campus level for the efficiency and photovoltaic projects. Complete lists of these projects are provided later in this report.

The campuses have reviewed a preliminary version of the list of potential projects in this report and have initiated a planning process for engineering, scheduling and implementation of the projects over the next six years. As part of this review, the campuses have selected projects committed to and planned for implementation in the upcoming Investor Owned Utilities Partnership cycles. The projects designated as Tier 1 are those projects which are "committed" to being completed over the next six years, and Tier 2 projects are the additional "planned" projects. Although it is anticipated that the list of potential projects will be continuously tuned and updated as projects are built, savings are measured, new technologies become commercially available, and campus loads change over the course of the next six years, the energy savings corresponding to the Tier 1 projects establish the basis for the goals committed to for the Partnership. Tier 2 projects provide the ability for the campuses to surpass the goals. Table 1.5 provides details of the impacts by campus of the Tier 1 (committed) and Tier 2 (planned) projects. It should be noted that the energy savings provided here are the purchased energy savings which take cogeneration effects into account, so they vary from the energy savings used as the commitment for incentive purposes. Finally, Figure 1.1 incorporates the historical energy purchases, projected growth and projected energy savings to provide a graphical representation of the impacts of the findings of this report. The figure graphs the source Energy Use Index, which is a potential way to account for the growth adjusted energy goal, and shows the path if campuses were to achieve the full potential of projects identified in this report, as well as the planned and committed projects.

Table 1.2: SEP Project Savings and Economics Summary

Efficiency Projects	Purchased Utility Savings: Electricity (kWh/yr)	Demand (kW)	Gas (th/yr)	Monetary ($/yr)	Project Cost ($)	Anticipated Incentive ($)	Net Project Cost ($)	Net Simple Payback Period (yr)
State Funded[1]								
MBCx	65,436,580	6,689	4,667,930	9,968,525	52,976,822	18,898,303	$ 34,078,519	3.4
HVAC Retrofits	219,966,852	13,449	15,718,352	33,444,240	466,077,891	68,890,241	$ 397,187,650	11.9
Lighting Retrofits	62,831,813	14,647	272,503	6,357,258	80,721,457	15,738,663	$ 64,982,794	10.2
Other Retrofits	40,131,864	4,549	1,096,932	4,659,542	69,506,254	11,152,888	$ 58,353,366	12.5
New Construction	41,087,561	4,279	1,969,281	5,383,471	55,757,661	11,263,320	$ 44,494,341	8.3
Deferred Maintenance & Capital Renewal	49,440,223	5,616	1,622,959	6,125,299	100,361,467	13,471,213	$ 86,890,254	14.2
Subtotals	478,894,893	49,229	25,347,958	$ 65,938,335	$ 825,401,552	$ 139,414,628	$ 685,986,924	10.4
Non State Funded[2]								
MBCx	12,180,325	1,183	2,374,713	$ 3,188,874	$ 16,223,670	$ 5,322,079	$ 10,901,591	3.4
HVAC Retrofits	23,572,160	3,585	2,181,021	4,138,575	38,863,422	7,825,314	$ 31,038,108	7.5
Lighting Retrofits	20,865,814	4,490	902,355	$ 2,905,725	$ 26,182,476	$ 6,653,209	$ 19,529,267	6.7
Other Retrofits	2,539,134	258	608,309	$ 801,346	$ 7,836,849	$ 1,383,471	$ 6,453,378	8.1
New Construction	23,204,985	2,222	1,131,192	$ 3,088,724	$ 31,813,380	$ 6,346,388	$ 25,466,992	8.2
Deferred Maintenance & Capital Renewal	-	-	230,848	$ 200,305	$ 2,709,000	$ 324,311	$ 2,384,689	11.9
Subtotals	82,362,418	11,738	7,428,439	$ 14,323,549	$ 123,628,796	$ 27,854,772	$ 95,774,024	6.7
Total Efficiency Projects	**561,257,311**	**60,967**	**32,776,397**	**$ 80,261,884**	**$ 949,030,348**	**$ 167,269,400**	**$ 781,760,948**	**9.7**

[1] State Funded refers to the funding source that is anticipated to pay for projects. State funded buildings receive funds from the State of California.

[2] Non State Funded refers to the funding source that is anticipated to pay for projects, and include Housing, Medical Centers, Athletetics and other sources.

Renewable Projects	Purchased Utility Savings: Electricity (kWh/yr)	Demand (kW)	Gas (th/yr)	Monetary ($/yr)	Note
Photovoltaics, Systemwide Potential	51,042,722	36,269	-	$ (1,778,145)	Assumes Power Purchase Agreement Method of Delivery
Subtotals	51,042,722	36,269	-	$ (1,778,145)	

Total Projects	Purchased Utility Savings: Electricity (kWh/yr)	Demand (kW)	Gas (th/yr)	Monetary ($/yr)	Project Cost ($)	Anticipated Incentive ($)	Net Project Cost ($)	Net Simple Payback Period (yr)
State Funded Efficiency Projects	478,894,893	49,229	25,347,958	$ 65,938,335	$ 825,401,552	$ 139,414,628	$ 685,986,924	10.4
Non State Funded Efficiency Projects	82,362,418	11,738	7,428,439	$ 14,323,549	$ 123,628,796	$ 27,854,772	$ 95,774,024	6.7
Renewable Projects	51,042,722	36,269	-	$ (1,778,145)				
TOTAL	**612,300,034**	**97,236**	**32,776,397**	**$ 78,483,739**	**$ 949,030,348**	**$ 167,269,400**	**$ 781,760,948**	**10.0**

Table 1.3: Efficiency Project Savings and Economics Summary by Campus

	Purchased Utility Savings							
Potential Efficiency Projects	Electricity (kWh/yr)	Demand (kW)	Gas (th/yr)	Monetary ($/yr)	Project Cost ($)	Anticipated Incentive ($)	Net Project Cost ($)	Net SPB (yr)
UC Berkeley	46,926,981	6,380	4,071,170	7,058,239	53,559,854	14,863,726	$ 38,696,128	5.5
UC Davis	62,589,141	7,874	6,070,711	10,912,659	128,922,788	20,125,236	$ 108,797,552	10.0
UC Davis MC	-	-	3,212,818	2,827,280	15,562,078	4,621,022	$ 10,941,056	3.9
UC Irvine	45,550,855	4,993	6,341,246	11,212,535	149,088,217	21,195,358	$ 127,892,859	11.4
UC Irvine MC	11,359,753	1,651	848,503	2,191,751	19,367,842	3,482,863	$ 15,884,979	7.2
UC Los Angeles	108,938,355	10,817	279,298	9,773,705	102,849,562	24,895,987	$ 77,953,575	8.0
UC Riverside	49,251,854	6,261	2,193,133	5,558,052	82,716,025	13,777,616	$ 68,938,409	12.4
UC Santa Barbara	37,955,774	4,975	1,839,788	5,618,556	58,813,641	10,553,427	$ 48,260,214	8.6
UC Santa Cruz	20,196,905	2,533	1,054,939	2,983,921	32,934,277	5,731,994	$ 27,202,283	9.1
UC San Diego and MC	127,114,398	9,772	1,931,193	11,672,308	205,538,301	31,330,296	$ 174,208,005	14.9
UC San Francisco and MC	51,084,966	5,678	4,894,282	10,360,700	97,191,889	16,548,570	$ 80,643,319	7.8
UCOP Buildings	288,330	33	39,318	60,261	316,587	108,517	$ 208,070	3.5
Systemwide Potential Efficiency Projects	**561,257,311**	**60,967**	**32,776,397**	**$ 80,229,966**	**$ 946,861,061**	**$ 167,234,612**	**$ 779,626,449**	**9.7**

Table 1.4: Photovoltaic Potential Savings and Economics Summary by Campus

	Purchased Utility Savings			
Renewable Projects	Electricity (kWh/yr)	Demand (kW)	Gas (th/yr)	Monetary ($/yr)[1]
UC Berkeley	1,599,178	1,189	-	$ (58,884)
UC Davis	8,038,978	6,031	-	$ (294,899)
UC Davis MC	3,800,499	2,851	-	$ (125,360)
UC Irvine	4,511,843	3,293	-	$ (180,474)
UC Irvine MC	687,987	502	-	$ (27,519)
UC Los Angeles	6,950,118	5,015	-	$ (250,285)
UC Riverside	6,660,875	3,888	-	$ (232,175)
UC Santa Barbara	3,645,156	2,492	-	$ (116,546)
UC Santa Cruz	4,180,355	3,108	-	$ (140,314)
UC San Diego and MC	7,918,685	5,633	-	$ (268,311)
UC San Francisco and MC	3,049,048	2,267	-	$ (83,378)
Subtotals	51,042,722	36,269	-	$ (1,778,145)

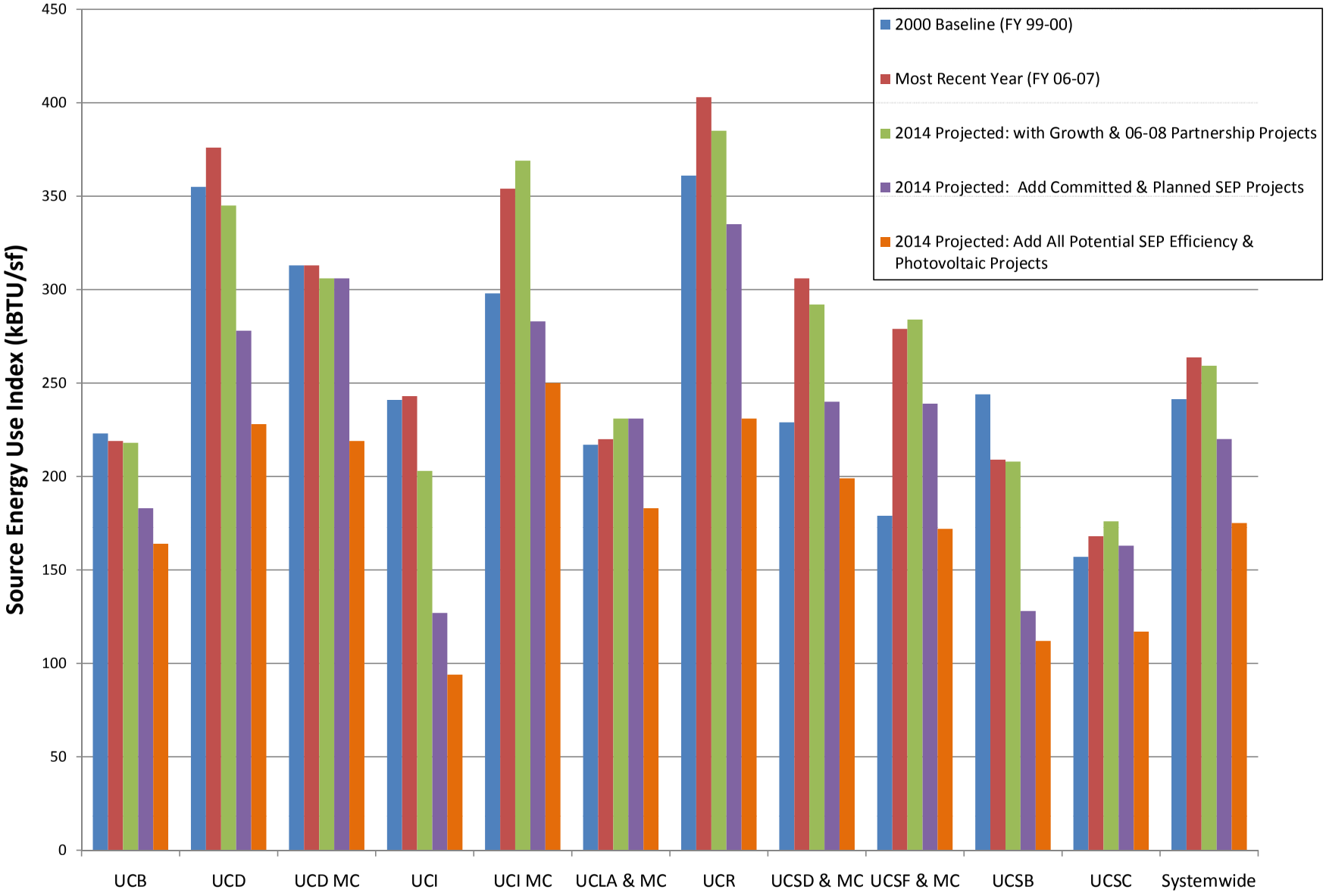
[1] Assumes Power Purchase Agreement Method of Delivery

Table 1.5: Campus Commitment Summary

Campus Planned & Committed Projects (Tier 1 & 2 Project Totals)		Purchased Utility Savings[2] Electricity (kWh/yr)	Demand (kW)	Gas (th/yr)	Monetary ($/yr)	Project Cost ($)	Anticipated Incentive ($)	Net Project Cost ($)	Net SPB (yr)
UC Berkeley	Tier 1	18,929,644	2,311	2,219,902	$ 3,296,024	$ 12,236,104	$ 6,601,963	$ 5,634,141	1.7
	Tier 2	12,130,081	2,087	669,027	$ 1,526,630	$ 14,530,223	$ 3,495,973	$ 11,034,250	7.2
	Subtotal	31,059,725	4,398	2,888,928	$ 4,822,654	$ 26,766,326	$ 10,097,936	$ 16,668,390	3.5
UC Davis	Tier 1	36,913,998	3,380	3,448,615	$ 6,320,127	$ 32,985,816	$ 12,039,483	$ 20,946,333	3.3
	Tier 2	7,489,062	1,244	58,846	$ 718,311	$ 8,887,399	$ 1,844,451	$ 7,042,948	9.8
	Subtotal	44,403,060	4,624	3,507,461	$ 7,038,438	$ 41,873,214	$ 13,883,934	$ 27,989,280	4.0
UC Davis MC	Tier 1	-	-	-	$ -	$ -	$ -	$ -	N/A
	Tier 2	-	-	-	$ -	$ -	$ -	$ -	N/A
	Subtotal	-	-	-	$ -	$ -	$ -	$ -	N/A
UC Irvine	Tier 1	14,225,472	2,103	1,971,069	$ 3,494,040	$ 35,387,033	$ 6,895,958	$ 28,491,075	8.2
	Tier 2	19,245,264	2,314	2,660,913	$ 4,722,324	$ 69,233,096	$ 8,670,191	$ 60,562,905	12.8
	Subtotal	33,470,737	4,417	4,631,982	$ 8,216,364	$ 104,620,129	$ 15,566,149	$ 89,053,980	10.8
UC Irvine MC	Tier 1	6,409,255	1,185	667,887	$ 1,393,689	$ 6,078,247	$ 2,116,988	$ 3,961,259	2.8
	Tier 2	2,626,227	81	13,353	$ 357,611	$ 8,578,194	$ 640,978	$ 7,937,216	22.2
	Subtotal	9,035,482	1,266	681,240	$ 1,751,300	$ 14,656,440	$ 2,757,966	$ 11,898,474	6.8
UC Los Angeles	Tier 1	-	-	-	$ -	$ -	$ -	$ -	N/A
	Tier 2	-	-	-	$ -	$ -	$ -	$ -	N/A
	Subtotal	-	-	-	$ -	$ -	$ -	$ -	N/A
UC Riverside	Tier 1	6,747,310	440	598,293	$ 947,124	$ 8,963,362	$ 2,213,548	$ 6,749,814	7.1
	Tier 2	3,436,201	391	382,683	$ 548,633	$ 3,317,011	$ 1,130,833	$ 2,186,178	4.0
	Subtotal	10,183,511	831	980,975	$ 1,495,757	$ 12,280,373	$ 3,344,381	$ 8,935,992	6.0
UC Santa Barbara	Tier 1	26,105,353	3,632	1,264,757	$ 3,883,394	$ 36,498,504	$ 7,468,243	$ 29,030,261	7.5
	Tier 2	7,012,501	898	230,819	$ 956,030	$ 15,912,415	$ 2,311,286	$ 13,601,129	14.2
	Subtotal	33,117,854	4,530	1,495,576	$ 4,839,424	$ 52,410,919	$ 9,779,529	$ 42,631,390	8.8
UC Santa Cruz	Tier 1	3,207,743	391	233,763	$ 525,563	$ 4,981,730	$ 965,112	$ 4,016,618	7.6
	Tier 2	1,707,816	109	71,223	$ 238,290	$ 2,596,218	$ 472,259	$ 2,123,959	8.9
	Subtotal	4,915,559	500	304,985	$ 763,853	$ 7,577,949	$ 1,437,371	$ 6,140,578	8.0
UC San Diego and MC	Tier 1	49,644,036	2,603	654,097	$ 4,467,463	$ 63,725,763	$ 14,944,142	$ 48,781,621	10.9
	Tier 2	29,532,332	2,855	77,025	$ 2,373,614	$ 28,770,455	$ 6,828,701	$ 21,941,754	9.2
	Subtotal	79,176,368	5,458	731,122	$ 6,841,077	$ 92,496,218	$ 21,772,843	$ 70,723,375	10.3
UC San Francisco and MC	Tier 1	14,424,073	1,497	1,006,776	$ 2,640,279	$ 15,939,193	$ 4,607,319	$ 11,331,874	4.3
	Tier 2	7,647,802	801	962,304	$ 1,725,566	$ 12,237,122	$ 2,730,299	$ 9,506,823	5.5
	Subtotal	22,071,875	2,298	1,969,080	$ 4,365,845	$ 28,176,315	$ 7,337,618	$ 20,838,697	4.8
Systemwide Planned & Committed Projects	**Tier 1**	**176,606,885**	**17,542**	**12,065,158**	**$ 26,967,703**	**$ 216,795,750**	**$ 57,852,756**	**$ 158,942,994**	**5.9**
	Tier 2	**90,827,286**	**10,780**	**5,126,191**	**$ 13,167,010**	**$ 164,062,133**	**$ 28,124,971**	**$ 135,937,162**	**10.3**
	Subtotal	**267,434,171**	**28,322**	**17,191,349**	**$ 40,134,713**	**$ 380,857,883**	**$ 85,977,727**	**$ 294,880,156**	**7.3**
% of Planned & Committed vs Potential		48%	46%	52%	50%	40%	51%	38%	

[2] Purchased Utility Savings include cogeneration effects and therefore differ from savings as committed to utilities. See table 11.2 for committed savings values.

Figure 1.1: Projected Campus Source Energy Use Indices



2. INTRODUCTION

2.1 Strategic Energy Plan Methodology

The University of California Office of the President has contracted with Newcomb Anderson McCormick (NAM) to create a Strategic Energy Plan for nine campuses and five medical centers. This Plan will identify potential energy saving projects throughout these campuses that can be implemented over the next six years, and will evaluate their contribution to helping the campuses meet the system-wide goals of reduced energy consumption and reduced greenhouse gas emissions.

In conjunction with the campus sub-consultant selection process, Newcomb Anderson McCormick assembled a team of highly respected engineering firms and experts to perform the work at the campus and assemble the Strategic Energy Plan. The team included:

Team Member	Role
Newcomb Anderson McCormick	Program Manager Project Audit & Analysis, Lighting & Other Projects SEP Aggregation
Cogent Energy	Campus Field Auditor, HVAC Efficiency Projects: UC Berkeley UC Davis UC Davis MC UC Irvine MC UC San Francisco UC San Francisco MC Primary Analysis for Air Handler Simulations
DEC Engineers	Campus Field Auditor, HVAC Efficiency Projects: UC Riverside UC San Diego UC San Diego MC Air Handler Simulations
Michael Wall Engineering	Renewable Energy Projects, Power Quality
Bart Wallace	Lighting Field Auditor
P2S Engineering	Campus Field Auditor, Efficiency Projects: UC Irvine UC Los Angeles
AESC, Inc.	Campus Field Auditor, Efficiency Projects: UC Santa Barbara
Enovity, Inc.	Campus Field Auditor, Efficiency Projects: UC Santa Cruz

A kickoff meeting was held at the individual campuses beginning January 14, 2008, with good representation from the campus and appropriate auxiliaries. The kickoff meeting introduced the SEP team and process, collected valuable input and provided an understanding of the campus' priorities and needs. Additionally, the list of 50,000 square foot and larger buildings to be included in the SEP was reviewed and substitutions and additions were made to align the effort of the SEP with campus priorities and the best opportunities for energy savings. The resulting list of buildings (referred to as SEP Building

List, or SEP Buildings) became the basis for the field work and building specific project identification.

Following the kickoff meetings the field investigation phase ensued. Collectively, the team performed audits and analysis of all SEP buildings and other specific opportunities to identify the list of projects included in this report. The energy efficiency projects identified by the Campus Field Auditor were focused on the SEP Buildings' mechanical and lighting systems, with field data collected on standardized field data templates (included in Appendix A of individual campus reports). Renewable energy potential was investigated by Michael Wall Engineering, along with a brief power quality and reliability investigation, while Newcomb Anderson McCormick's efforts focused on historical data collection, campus wide projects, projects outside of the SEP buildings and green house gas emission impacts.

During the analysis phase, the previously compiled field data was analyzed to develop projects with consistency and reasonableness in mind, using the most detailed methods of analysis possible in the time available. To this end, a standardized analysis tool was used to analyze the majority of the air hander related projects. The analysis tool provides results which incorporate factors typical of a more detailed investigation as opposed to a strategic level project analysis, including system specifics, site specific weather data, operating schedules, control strategies and typical system setpoints as determined by field investigation. Analysis of other projects was performed using project-specific engineering calculations and followed recognized engineering principles. Reasonable engineering judgment was applied to all project analyses.

Construction costs of recommended projects are built up from contractor quotes, Means manuals, experience from past project cycles, and a variety of other sources. Project costs are the sum of the construction cost and contingency (10%), engineering and design (15%), construction management (5%) and project management (6%). While individual projects' final costs and savings may vary from the results presented in this report, it is anticipated that the aggregate level of accuracy by campus or by utility service territory will be reasonable.

A preliminary list of energy efficiency projects, delivered to UCOP on March 28, was the initial step in delivery of the Strategic Energy Plan results. This list of projects was reviewed, prioritized and scheduled by the individual campuses and returned to UCOP. The compiled results were then used to determine the level of savings commitment for the Investor Owned Utilities to use in support of their filings to the CPUC for the UC/CSU/IOU Partnership Program. The results will also assist UCOP in planning for a bond to finance the campus contributions for the construction of these projects.

As of the writing of this report, the details of the Partnership Program have not been finalized for the 2009-2011 cycle, and discussions are ongoing with the Municipal utilities to solicit similar participation and incentive levels for the campuses. While these crucial details are not confirmed, this Strategic Energy Plan was in large part commissioned to determine overall potential for projects, and is a critical step in securing the incentive funding levels from both the IOU and Municipal utilities, and for UCOP funding. Consequently, this report assumes that many of the aspects of the current plan will be carried forward, including the incentive rates of $0.24/kWh and $1.00/therm of annual savings. These rates are used in the analyses of all projects in this report, including those at campuses served by Municipally Owned Utilities.

Following delivery of the Preliminary List, the projects in this Strategic Energy Plan report were aggregated and assembled. The projects from the Preliminary List are included, with some refinements following additional quality control checks. Projects have been compared to historical energy use and project costs have been refined. Other projects have been added following the development of the Preliminary List, including renewable electric generation projects (such as photovoltaics, which qualify for different utility programs), and projects which save electricity supplied by Municipally Owned Utilities whose energy efficiency programs are not regulated by the CPUC (including SMUD, LADWP and the City of Riverside). Details for these projects replace the placeholder savings previously projected.

The projects included in this SEP are the result of a survey of the campus, discussions with campus personnel, and preliminary engineering of projects. This effort is not an investment grade audit. This means that the projects will require additional detailed cost estimating and refinement of savings before the campuses or the utilities can commit to specific construction budgets and energy saving calculations.

This effort was designed to identify significant physical modifications required to make buildings energy efficient. It did not concentrate on operational details that might be found in an investment grade audit, such as a broken economizer, or an improper control sequence. However, the Strategic Energy Plan does recommend the monitoring-based commissioning (MBCx) of each of these buildings over the next six years (excluding buildings that have already been commissioned through the Partnership). This process will ensure that the operational problems of each building are identified and corrected, so that all measures that might be identified in an investment grade audit will ultimately be included.

The equivalent energy and cost savings for projects presented in the Preliminary List were simplified to meet the financial criteria established for the UCOP funding mechanism, and to be consistent with utility incentive requirements. For HVAC projects, chilled water and hot water (or steam) savings calculated at the buildings were converted to electric (kWh) and natural gas (therm) savings using marginal central plant efficiencies, and summed with direct electric and natural gas savings, which include cooling or heating from local sources. For all other projects, the electric and gas savings were calculated directly, without involving the intricacies of the central plant. The sums of these savings for each project became the equivalent electric and gas savings, and are used as the basis for the utility incentive. The published FY06-07 recharge rates, as provided by UCOP, were applied to the equivalent electric and gas savings to estimate the energy cost savings of projects. Using the recharge rate builds in a level of conservatism for future energy savings, as no utility rate escalation is built in, and meets UCOP bond funding requirements. Operational and maintenance savings have generally been discounted in financial analysis of measures, as UCOP funding will involve only the purchased utility budgets as a repayment source.

The equivalent energy savings methodology remains unchanged from the preliminary list to this SEP report. However, the central plant and any cogeneration impacts are incorporated to reflect a purchased utility cost savings and give a more true estimate of utility cost savings for the campus.

The following tables show the recharge rates and marginal central plant efficiencies used in this report. The individual campuses may charge themselves different prices internally, or

may calculate marginal utility costs differently, and so can use other pricing in their internal project evaluation.

Table 2.1: Recharge Rates - Non-State Funded and Auxiliaries FY 06-07

Campus	$/kWh	$/Therm
Berkeley	$0.083	$0.777
Davis	$0.089	$0.880
Davis Med Center	$0.089	$0.880
Irvine	$0.132	$0.820
Irvine Med Center	$0.132	$0.820
Los Angeles and Med Center	$0.088	$0.670
Riverside	$0.065	$0.850
San Diego and Med Center	$0.078	$0.910
San Francisco and Med Center	$0.130	$0.760
Santa Barbara	$0.110	$0.800
Santa Cruz	$0.107	$0.780

Table 2.2: Marginal Central Plant Efficiencies

Campus	Plant kWh/ Bldg ton-hr	Plant Therm /Bldg ton-hr	Plant Therm/ Bldg MMBTU
Berkeley	0.8	0	12.5
Davis	0.8	0	12.5
Davis Med Center	0.8	0	12.5
Irvine	0.8	0	12.5
Irvine Med Center	0.8	0	12.5
Los Angeles and Med Center	0.8	0	12.5
Riverside	0.8	0	12.5
San Diego and Med Center	0.8	0	12.5
San Francisco and Med Center	0.8	0	12.5
Santa Barbara	0.8	0	12.5
Santa Cruz	0.8	0	12.5

Table 2.3: Central Plant & Cogeneration Impacts on Purchased Utilities

Campus	Building Energy Saved	Purchased Utility Savings	Notes
Berkeley	Steam	12.5 th gas/MBtu	Steam is purchased in pounds from a third party cogenerator which usually duct fires or supplements with boilers. Marginal steam is assumed to come from this supplementary firing.
	Chilled Water	N/A	No central chiller plant
	Electricity	1 kWh/kWh	Cogen: Thermal only
Davis	Steam	12.5 th gas/MBtu	Steam is generated by natural gas fired boilers.

Campus	Building Energy Saved	Purchased Utility Savings	Notes
	Chilled Water	0.8 kWh/tonh	Chilled water is delivered by electric chillers. TES just for medical campus.
	Electricity	1 kWh/kWh	No cogenerated electricity
Davis Med Center	Steam	12.5 th gas/MBtu	Large gas turbine operates at part load almost all of the time, provides steam through a back pressure turbine to HTHW exchangers and single stage absorption chiller.
	Chilled Water	0.150 th gas/tonh	It is assumed a chilled water load reduction will lower the use of the absorption chiller, which operates in a piggyback mode with the back pressure steam turbine.
	Electricity	0.14 kWh/kWh	Gas Turbine/ Backpressure Turbine Cogen: Reduction in electricity use results in lower natural gas use. Use simple cycle efficiency. Typical part load heat rate for LM2500 indicated by campus staff to be 14,000 Btu/kWh HHV.
Irvine	HTW	63 kWh/MBtu	High temperature hot water will be delivered by a combined cycle cogeneration system. When heat is saved in a building the steam will be used in the condensing steam turbine generator to offset electrical purchases.
	Chilled Water	0.8 kWh/tonh	Bulk of cooling is from electric centrifugal chillers with TES. Night operation is on combined cycle cogeneration sytem.
	Electricity	1 kWh/kWh	Combined Cycle Cogen: Reduction in electricity use lowers purchases from utility. Import several MW during the day.
Irvine Med Center	Steam	12.5 th gas/MBtu	Steam is generated by natural gas fired boilers.
	Chilled Water	N/A	No central chiller plant
	Electricity	1 kWh/kWh	No cogenerated electricity
Los Angeles	Steam	62.4 kWh/MBtu	Steam not required for space heating is used in the low pressure end of the steam turbine to increase electrical output.
	Chilled Water	0.72 kWh/tonh	High pressure steam diverted from the chillers to the steam turbine will increase electrical output.
	Electricity	1 kWh/kWh	Combined Cycle Cogen: Reduction in electricity use lowers purchases from utility.
Santa Monica Hospital	Steam	12.5 th gas/MBtu	Steam is delivered by natural gas fired boilers.
	Chilled Water	0.8 kWh/tonh	
	Electricity	1 kWh/kWh	No cogenerated electricity
Los Angeles, Westwood Med Facilities	Steam	62.4 kWh/MBtu	Steam comes from UC Los Angeles.
	Chilled Water	0.72 kWh/tonh	From UC Los Angeles
	Electricity	1 kWh/kWh	Combined Cycle Cogen: Buy from UCLA.
Riverside	Steam	12.5 th gas/MBtu	Steam is delivered by natural gas fired boilers.
	Chilled Water	0.8 kWh/tonh	
	Electricity	1 kWh/kWh	No cogenerated electricity
San Diego	Chilled Water	0.36 kWh/tonh	Assumes cogeneration electric output does not

Campus	Building Energy Saved	Purchased Utility Savings	Notes
		0.088 therm / tonh	normally meet campus load and marginal cooling comes from a mix of steam and electric chillers. TES shifts electric cooling to nighttime. No duct burners. Boilers used during peak cooling season.
	HTW	63 kW / MBtu	High temperature hot water is delivered by a combined cycle cogeneration system which operates with no boiler steam production except in high cooling season. When heat is saved in a building the steam will be used in the condensing steam turbine generator to offset electric purchases.
	Electricity	1 kWh/kWh	Combined Cycle Cogen: Reduction in electricity use lowers purchases from utility during most hours.
San Diego Med Center Hillcrest	Steam	12.5 th gas/MBtu	Steam is delivered by natural gas fired boilers.
	Chilled Water	0.8 kWh/tonh	Primarily electric centrifugal chillers with TES.
	Electricity	1 kWh/kWh	No cogenerated electricity
San Diego Med Center La Jolla	Steam	12.5 th gas/MBtu	Steam is delivered by natural gas fired boilers.
	Chilled Water	0.8 kWh/tonh	Buys electricity from UCSD.
	Electricity	1 kWh/kWh	Combined Cycle Cogen: Buys electricity from UCSD
San Francisco Med Center Mt. Zion	Steam	12.5 th gas/MBtu	Steam is delivered by natural gas fired boilers.
	Chilled Water	0.8 kWh/tonh	Gas engine driven chillers. New base load to be served by electric chillers.
	Electricity	1 kWh/kWh	No cogenerated electricity
San Francisco Med Center Parnassus	Steam	12.5 th gas/MBtu	Steam is delivered from UC San Francisco Parnassus.
	Chilled Water	0.225 th gas/tonh	Single stage absorption chillers in Moffitt and Long Hospitals.
	Electricity	1 kWh/kWh	Combined Cycle Cogen: Buys from San Francisco Parnassus
San Francisco Other Than Parnassus	Gas	1 th gas/th	No Central Plant
	Chilled Water	N/A	No central chiller plant
	Electricity	1 kWh/kWh	No cogenerated electricity
San Francisco Parnassus	Steam	12.5 th gas/MBtu	Steam is delivered by a combined cycle cogeneration system which normally operates with supplementary gas firing with duct burners.
	Chilled Water	0.8 kWh/tonh	Campus operates steam chillers during day, electric at night. Duct fire most hours, so main savings is in steam.
	Electricity	1 kWh/kWh	Combined Cycle Cogen: Reduction in electricity use lowers purchases from utility during day. Excess electricity is sold to utility at night, SO-1.
Santa Barbara	Gas	1 th gas/th	No Central Plant
	Chilled Water	0.8 kWh/tonh	Partial central CHW plant. No TES.
	Electricity	1 kWh/kWh	No cogenerated electricity

Campus	Building Energy Saved	Purchased Utility Savings	Notes
Santa Cruz	HHW	12.5 th gas/MBtu	Hot water is delivered to some buildings by a central plant with a cogeneration system which normally requires supplementary heating from gas fired boilers.
	Chilled Water	N/A	No central chiller plant
	Electricity	1 kWh/kWh	Partial Engine Based Cogen: No adjustment for marginal savings.

2.2 General Project Identification Categories and Approach

The following is a general description of the projects that were identified by the Strategic Energy Plan. More detailed scope and savings information is included in the Project Descriptions section of the report.

In general, projects were selected for this report that will bring campus systems up to the state of the art technology. This is intended to identify all of the possible energy savings available through retrofit projects. This results in some projects with longer paybacks where the existing system may be moderately efficient, but not necessarily state of the art. However, it defines a maximum savings target for the buildings evaluated. The campuses can decide on the appropriate level of investment based on their individual needs and their performance in meeting energy savings and green house gas emissions goals.

2.2.1 Lighting Projects

The report identifies the potential to convert existing T12 and 32W T8 fluorescent fixtures to 28W T8 lamps with premium efficiency ballasts with low ballast factor, at 42 W per two lamp fixture. Several campuses have alternative standards, including UC Santa Barbara, which is emphasizing dimming ballasts. Also recommended are increased penetration of occupancy sensor controls, daylight harvesting, new stairwell fixtures, and replacement of interior HID fixtures with fluorescent. Fluorescent conversion is also generally recommended for parking structures.

2.2.2 HVAC Projects

A variety of HVAC projects are recommended for implementation at campus buildings. The general intention of these retrofits is to make all air handlers of 10 hp and above meet basic efficiency standards: variable air volume with economizers, operating only the hours necessary, with direct digital controls, demand control ventilation where warranted, and static pressure reset. Laboratory air handlers would also be converted to variable air volume, with variable flow fume hoods and minimum ventilation controls set at 6 air changes per hour. In some cases further savings will be achieved through air quality monitoring and automatic sash closers. Kitchen hoods are recommended for conversion to variable air volume as well. A variety of other chiller and boiler projects are recommended for other buildings that are not served by a central plant.

2.2.3 Monitoring Based Commissioning Projects

This report includes a monitoring-based commissioning project at every Strategic Energy Plan building. This is an integral element of the retrofit projects that are recommended at most buildings. The combination of retrofits and commissioning will capture the majority of the energy saving potential of the HVAC systems. Monitoring based commissioning is also recommended for all main central plants where it has not yet been implemented.

2.2.4 New Construction and Renovation from Capital Program

This report includes a number of planned construction and renovation projects at each campus. It is assumed that a Savings By Design process will be in place to generate a design which outperforms Title 24 by at least 30%. The campus contribution to the resulting construction costs are assumed to come from UCOP bond funding. This removes the capital constraint from the construction budget and allows more efficient buildings to be designed and built.

2.2.5 Deferred Maintenance and Capital Renewal Projects

The campuses each spend up to $10 million per year on deferred maintenance and capital renewal projects. This report estimates that about 12% of these projects have an energy savings component. It is recommended that utility incentives be employed to make these measures marginally more efficient. It is also recommended that UCOP bond funds be used where possible to supplement project funding to allow construction of energy saving projects that otherwise might not be funded.

2.2.6 Campus Wide Projects

Campus wide projects include the replacement of pre-2001 refrigerators with Energy Star units, replacement of lab freezers with more efficient units, and the installation of occupancy sensor controls on vending machines. The campus wide use of power management software is recommended to reduce the energy consumption of network computers when they are not in use. The replacement of CRT monitors with LCD monitors is recommended as well. Finally, an estimate of the potential energy savings from computer server virtualization was included.

2.2.7 Other Projects

Several other miscellaneous projects were evaluated, including swimming pool projects. Pool covers with powered take up spools were recommended where they are not currently used. Variable speed drives are recommended for pool filter pumps during off hours operation. Solar collectors are also recommended for pools where adjacent roof space is available. In addition, boiler replacement was evaluated for swimming pool and other boilers for thermal loads not served by the central plant.

2.3 System Overview

The University of California is comprised of ten campuses and five medical centers, as well as numerous ancillary locations, including national labs and research stations. The University of California opened its first campus in 1869, and today includes more than

220,000 students and 170,000 faculty. This report concentrates on all of the main campuses and Medical Centers, with the exception of Merced which is the newest campus. Medical Centers are combined with their respective campuses for purposes of this report, with the exception of UC Irvine Medical Center and UC Davis Medical Center since they are physically separate from the main campus, and report separately to UCOP in most cases (e.g. energy purchases).

2.3.1 UC Berkeley

Campus Overview

University of California, Berkeley is a major research university located in Berkeley, California. UC Berkeley is the oldest of the ten campuses affiliated with the University of California. The Berkeley campus encompasses approximately 1,232 acres, though the "central campus" occupies only the low-lying western 178 acres of this area. UC Berkeley's more than 130 academic departments and programs are organized into 14 colleges and schools and it offers over 7,000 courses in nearly 300 degree programs. In Fall 2007, undergraduate enrollment is 24,636 students while graduate enrollment is 10,317 students. Faculty and staff bring the total campus population to almost 47,000.

Central Plant

There is no central chilled water plant on campus; however some of the buildings are cooled by local chiller plants located in individual buildings or by packaged units.

The campus purchases steam from a third party, Delta Power, that owns and operates cogeneration equipment and sells its electricity to PG&E and steam which is purchased by the university. The plant is located in the center of campus in a former campus steam plant.

The campus buys all of its electricity through PG&E, separate from the cogeneration system. Delta Power sells steam at about 90 psig directly to UC Berkeley, supplying all of the campus needs. Steam condensate from the campus is provided back to the cogeneration system.

The cogeneration plant comprises a GE LM 2500 combustion turbine generator fired on natural gas and rated at about 20 MW, a heat recovery steam generator to create steam from the combustion turbine exhaust, a duct burner to increase the output of the heat recovery steam generator, and three boilers which are still owned by the campus. This equipment allows the combustion turbine to be operated at full or varying load, while always supplying the campus with adequate steam. The contract between UC Berkeley and Delta Power runs for approximately another 9 years.

The steam recoverable from the combustion turbine exhaust is approximately 70,000 lb/hr. The output of the HRSG can be increased to 120,000 lb/hr with the duct burners. To meet steam loads greater than this the boilers are operated. The campus steam load peaks around 200,000 lb/hr.

The campus distributes this high pressure steam throughout the campus through steam pipes that travel through steam tunnels in some areas and are direct buried in other areas.

The campus has no central chilled water plant. There are a few locations where a chiller in one building delivers chilled water to an adjacent building.

2.3.2 UC Davis

Campus Overview

University of California, Davis is a public, coeducational university located in the city of Davis, California. It was established as the University Farm in 1905 and was formally established as a general UC campus in 1959. The University of California, Davis campus is the largest campus in the UC system, spanning over 5,500 acres. UC Davis, through its 10 colleges and schools, offers over 100 academic majors and 86 graduate programs. In Fall 2007, undergraduate enrollment was 23,499 students, graduate enrollment was 4,094 students while professional student enrollment was 3,092.

Central Plant

The UC Davis campus is served by two central plants. The Central Heating and Cooling Plant (CHCP) contains a boiler plant which generates steam that is distributed around the entire campus. The CHCP also includes chillers which distribute chilled water throughout the main campus. A separate chilled water plant known as the TES plant has additional chillers as well as a chilled water thermal energy storage tank. The TES plant primarily serves the medical sciences portion of the campus, southwest of the main campus. The two chilled water loops are linked together, but due to the hydraulic limitations, flow between the two loops is restricted and one plant cannot serve the entire campus.

The CHCP houses two 100,000 pound per hour natural gas fired boilers that generate steam year round at 110 to 140 psig. Steam is distributed through underground lines throughout the campus and used to heat buildings, primarily through hot water heat exchangers. Condensate is recovered in the buildings and returned to the CHCP.

The CHCP historically contained steam driven chiller systems, both absorption and piggyback (combined steam turbine and absorption) systems. In 2007 5,000 tons of electric centrifugal chillers were installed to carry the majority of the cooling load served by this plant. The planned addition of another 5,000 tons of electric centrifugal chillers (half currently underway) will effectively convert this plant from steam load to electric load. It is treated as all electric cooling for the purposes of this report.

The TES plant uses electric chillers which operate during off peak hours and charge the TES tank. This plant employs two electric chillers with a combined capacity of 10,000 tons and a chilled water thermal energy storage tank with a capacity of 40,000 ton hours.

2.3.3 UC Davis MC

Campus Overview

The UC Davis Medical Center is a major research hospital located in Sacramento, California and is the primary teaching hospital of UC Davis School of Medicine. The Medical Center encompasses approximately 65 acres with 577 beds. Founded in 1852 under the name 'The Sacramento County Hospital', the medical center witnessed various changes. A completely

new facility was proposed in 1914 resulting in the completion of the main hospital in 1928, which still stands today. The facility became a community hospital in 1966. An affiliation agreement in the same year with UC Davis made the hospital a primary teaching hospital expanding its mission to include education and research.

Central Plant

The UC Davis Medical Center Central Plant is built around a GE LM2500 gas turbine generator which has an electrical capacity of 25 MW, and a back pressure steam turbine generator with an electrical capacity of 3.8 MW. The gas turbine operates continuously, using natural gas to generate electricity in parallel with the SMUD grid. The steam turbine operates most of the year except the winter. The electric load of the campus is significantly below the capacity of this plant, ranging from 7 to 13 MW. The campus is under contract with SMUD to export about 12 MW of power on demand for 15 to 20 days a year.

The gas turbine is said to have a heat rate of approximately 9,800 Btu/kWh (LHV) at full load and 14,000 Btu/kWh (LHV) at 40% load. The low heat rate in normal operation range is partially offset by the improved HRSG operation at part load.

Heat is recovered from the turbine exhaust in a heat recovery steam generator (HRSG) which produces superheated steam at 400 psig and 600°F. Most of this steam passes through the backpressure steam turbine generator, although some is dropped to 100 psig through a PRV for distribution to high pressure loads on the campus (sterilizers and kitchen equipment). The backpressure turbine exhaust steam is at 12 psig and is used in a hot water heat exchanger for space heating loads on the campus (220°F) and in four single stage absorption chillers (three at 1,400 tons and one at 1,000 tons). These chillers are supplemented by three 2,000 ton electric centrifugal chillers with VFDs. There are reportedly some hours when the available low pressure steam cannot be used as hot water or to generate chilled water. During these hours the steam is condensed with cooling tower water. There is not a functioning flow meter to determine how much steam is condensed over the course of the year.

Chilled water and space heating hot water are distributed through the campus by pumps with VFDs and pressure controls. Four boilers (25,000 lb/hr each) and five diesel generators (2 MW each) provide backup steam and electric power to the Medical Center.

The opening of the new Pavilion portion of the Medical Center will increase the load on the Central Plant significantly. The amount of steam that is condensed annually should be evaluated once this facility is in operation to determine whether a project is appropriate to allow use of this steam instead of wasting it.

2.3.4 UC Irvine

Campus Overview

University of California, Irvine was founded in 1965 and currently has 27,000 students, nearly 2,000 faculty members and 8,900 staff. UCI is among the fastest-growing campuses in the University of California system with over 200 buildings spread across 1,500 acres. The Campus has executed numerous energy retrofit projects in the past, ranging from

retrofitting lighting systems with DDC controls, CV Fume Hoods to VAV conversions, installation of VFD's on air handling units, and installation of high efficiency motors.

Central Plant

The central plant at UCI serves most of the campus with chilled water (CHW) and high temperature hot water (HTHW). It comprises four gas fired steam boilers (totaling 90,000 lb/hr), seven electric centrifugal chillers (totaling 14,000 tons), one condensing steam turbine centrifugal chiller (2,000 ton), a 4.5 million gallon thermal energy storage chilled water tank, a 6 cell cooling tower with 12 fans, steam to high temperature hot water heat exchangers for distribution to the campus, and a new cogeneration system including a gas turbine and a condensing steam turbine generator.

The forced draft steam boilers are natural gas fired. They produce saturated steam at about 230 psig. The steam in the central plant serves the HTHW heat exchanger, the steam turbine chiller, the cogeneration steam turbine generator, and the deaerator. Steam does not leave the plant for space or domestic water heating.

High temperature hot water is distributed to the campus at 360°F, with a return temperature ranging from 230 to 180°F. Chilled water is generated at 39°F at night to charge the TES tank. When distributed during the day the chilled water has a 15 to 25°F delta T across the buildings, depending upon the age of the chilled water coils. Variable speed pumping is used for both HTHW and CHW.

The cogeneration equipment in the UCI Central Plant includes a 13.5 MW Solar Titan gas turbine generator, which uses an SCR with urea injection for NOx control. A heat recovery steam generator produces approximately 58,000 lb/hr of steam unfired and 120,000 lb/hr with a duct burner. The steam is produced at 230 to 240 psig, slightly superheated. A condensing steam turbine drives a 5 MW generator. In typical operation the gas turbine would track the campus electric load, the steam chiller would be operated when the steam was not needed for space heating, and the steam turbine generator would continuously modulate to maintain the steam header pressure. This tracking will be done manually by the operators, with an effort to avoid exporting power to the grid.

The cogeneration plant was turned over to the campus in July 2007. The steam turbine generator has not operated any significant hours because of vibration issues that have not yet been resolved. The gas turbine is still controlled to track electrical demand. During periods of low space heating demand there is heat available from the HRSG that would normally be used in the steam turbine generator. Since this is not available, the excess steam is used in the steam turbine chiller. When this operates it offsets TES chilled water use, so it reduces the need to generate chilled water the following night. A power import of 3 MW was observed during daytime operations. It is anticipated that the operation of the condensing steam turbine will not offset all of this power import so that the campus will remain a net importer during the day.

Electricity savings at the buildings will appear at the meter as electric purchase reductions because the campus is likely to remain a net electricity importer during daytime hours. During nighttime hours the campus does not normally import power. Electric savings at the buildings were projected to reduce imported electricity 50% of the time and to reduce natural gas use in the cogeneration plant the rest of the time.

Heating savings at the buildings are likely to result in increased steam availability at the central plant, which will allow the steam turbine to generate additional power, offsetting electricity purchases during the daytime. Therefore, when heating savings are passed through the cogeneration plant the resulting utility impact is projected to be a reduction in electricity purchases half of the time. The other half of the time the savings are projected to come as reduced gas use in the duct burner which is tracking the steam load.

Chilled water savings at the buildings will result in a reduced chiller load at the plant. The chilled water is generated at night by electric chillers and stored in the TES tank. At night the chillers will be driven by electricity from the gas and steam turbines, as electric imports at night are not anticipated. Therefore, reductions in chilled water loads at the buildings are projected to reduce natural gas purchases to operate the gas turbine combined cycle system.

2.3.5 UC Irvine Medical Center

Campus Overview

University of California, Irvine Medical Center, located in Orange County, is the principal clinical facility for the UCI School of Medicine's teaching and research programs. UCI Medical Center was opened in 1976 and now has more than 3,500 employees. Each year, more than 100 new medical students and 500 residents are trained at UC Irvine Medical Center.

The UCI Medical Center Campus currently has one main hospital and more than 20 auxiliary buildings used for research, classrooms, offices, and patient care. Currently under construction at UCI Medical Center is a second hospital, to be completed in 2009. The new seven-story facility will be used for medical research and patient care.

Central Plant

UC Irvine Medical Center has a central plant that supplies high pressure steam to most of the buildings on the site, including the new hospital building which is currently nearing completion. There is no central generation of chilled water. Each building typically has its own chiller or package units for cooling. The new hospital has a remote chilled water plant serving the new building exclusively.

The central plant houses two Babcock & Wilcox 12,000 Btu/hr water tube steam boilers from the 1960's, as well as one Zurn Keystone Pyrocore firetube boiler installed in 1995. The Pyrocore boiler is a nonstandard design which currently is used only for standby. The B&W boilers operate at 100 psig and use oxygen trim controls to improve combustion efficiency. They do not have stack economizers, which is a potential future project.

The condensate returned to the boiler plant totals about 85 to 90% of the steam sent out. The condensate return temperature is 180 to 200°F. The high percentage condensate return and high return temperature contribute to the overall efficiency of the steam production.

2.3.6 UC Los Angeles

Campus Overview

University of California, Los Angeles was founded in 1919 and opened its medical center in 1955. The campus currently has approximately 27,000 undergraduate and 11,500 graduate students, and over 4,000 faculty members. UCLA is one of the most prestigious campuses in the University of California system with 174 buildings spread across 419 acres.

The majority of the buildings audited for at UCLA are old and historic. Chilled water and heating hot water is supplied from campus central plant except for few buildings which have localized chillers and hydronic boilers. Buildings audited included residential, educational, athletic, medical and research facilities. Residential buildings use water source heat pumps and split air conditioning units. A majority of the laboratory buildings have constant volume fume hoods and dual duct mixing boxes for zone control. Molecular Science Building, a laboratory building has variable air volume fume hoods with VAV box for zone control. Animal research facilities also have constant volume terminal boxes with higher air change rate (ACH @ 15). Buildings employ either direct digital controls (DDC) or pneumatic controls to control and monitor major mechanical equipment and for zone control. Air handling units serving buildings vary from and include constant volume dual duct air handlers, variable air volume air handlers, and multi zone units. Some of VAV AHU's have inlet guides vanes to control supply air flow. All major mechanical equipment in building is controlled and scheduled through campus energy management system (Siemens Apogee).

Central Plant

The central plant at UCLA serves the main campus in Westwood. It is based on a cogeneration system which includes two GE LM 1600 gas turbines, each with a rating of 14.5 MW, two high pressure (600 psig) heat recovery steam generators with duct burners, and an induction/extraction condensing steam turbine, for a total generation capacity of about 40 MW. Power is generated in parallel with LADWP, providing most of the campus electric load, which peaks at about 50 MW. The facility also houses two backpressure steam turbine centrifugal chillers rated at 5,300 tons, four single stage absorption chillers, and an electric centrifugal chiller rated at 5,300 tons. Steam is provided to the campus at 100 psig. A portion of the gas used to operate this plant is recovered from a landfill in nearby Mountain Gate Landfill.

2.3.7 UC Riverside

Campus Overview

University of California, Riverside opened for classes in 1954 in the city of Riverside. The campus currently has over 16,000 students, 5,500 staff members, and 1,000 faculty members. UCR has over 200 buildings spread across 1,200 acres. The campus is continuing to expand, with over $730 million invested in construction since 1999.

Central Plant

This campus has a central plant with gas fired boilers and electrically driven chillers. A satellite plant houses additional chillers. The plant has no cogeneration.

The steam plant has four boilers with operating capacities of 30,000 lb/hr for three and 40,000 lb/hr for one. The boilers were derated to this output when low NOx burners were installed in 1991. The large boiler has both a selective catalytic reduction (SCR) unit with anhydrous ammonia injection and an economizer for lower emissions and higher efficiency. It operates more hours than the other boilers. There is room in the plant for one additional large boiler. The operating pressure of the boilers is about 100 psig. Steam is distributed throughout the campus through tunnels to most buildings. Approximately 80% of the condensate is returned in the range of 140 to 150°F. No steam or chilled water is supplied to dormitories.

The chilled water system comprises five electric centrifugal chillers in the steam plant with a total capacity of 6,250 tons and two similar chillers in the satellite plant with a total capacity of 4,000 tons. All of the chillers feed into the same loop and all are operated at 4,160 volts, constant speed. The chillers at the steam plant are arranged in a series configuration, able to cool chilled water from 60 to 38°F.

There are two chilled water storage tanks with a combined capacity of 5 million gallons. A third tank is planned. The chillers are never run from noon through 6:00 p.m. during any time of year. During summer days the chillers may operate the other 18 hours per day to charge the tank and cool the campus. During winter days the chillers may only operate from 10:00 p.m. to 5:00 a.m.

Electricity is purchased from Riverside Public Utilities through a flat rate schedule. The thermal energy storage system is operated under a commitment to Riverside Utilities, which paid for a portion of the chilled water tanks.

This plant is properly configured to take advantage of the historically low electric rate from Riverside Utilities. Should electric rates increase in the future to state wide levels cogeneration could become cost effective. The existence of the high pressure steam distribution system as the thermal load for a potential cogeneration plant would likely lead to the selection of gas turbines as prime movers for cogeneration (as opposed to engines). This could require the addition of some absorption chiller capacity to increase the summer steam load.

There are several opportunities for energy efficiency projects in the central plant which have not been quantified in this report. These include adding VFDs to the cooling tower fans, which currently operate with two speed motors, and adding VFDs to the boiler forced draft fans.

2.3.8 UC San Diego and San Diego Medical Center

Campus Overview

The University of California San Diego (UCSD) campus is located in La Jolla. There are a total of 67 permanent buildings, representing approximately seven million total square feet. The buildings on campus include all of the following types of space utilization: classroom, office, administrative, lab and research, lecture and auditorium, library, commons, and residential. UCSD has a central energy management system which is constantly being

commissioned, programmed and updated. The system consists of Johnson Metasys panels in the larger buildings and a front-end located in the central plant.

The University of California, San Diego (UCSD) Medical Center is located in the Hillcrest area of San Diego. The Medical Center encompasses approximately 70 acres with 25 permanent buildings and 11 temporary buildings. The main hospital building was built in the early 1960's and acquired by the University of California in 1967. Several renovation projects have been completed in the older buildings. Beside the medical functions of the facility, the campus also includes the School of Medicine including a library, offices, classrooms, parking, etc. The central plant provides the majority of permanent buildings with chilled water and steam. The centralized control systems are located at the central plant. The utilities are distributed to the buildings in tunnels, above ground, or buried. Emergency power and deionized water for the hospital are also supplied by the central plant.

The UCSD Medical Center also includes Perlman and Thorton Hospitals which are located on the main La Jolla campus, east of the freeway. This location is planned for significant growth in the near future, with the addition of a number of beds and medical services.

Central Plant

The central plant at UC San Diego serves most of the main campus west of the freeway with chilled water and high temperature hot water. It comprises four gas fired steam boilers, electric centrifugal chillers, condensing steam turbine centrifugal chillers, a 39,000 ton hour thermal energy storage chilled water tank, a 7 cell cooling tower, steam to high temperature hot water heat exchangers for distribution to campus, and a cogeneration system including two gas turbines with heat recovery steam generators and a condensing steam turbine generator.

The forced draft steam boilers are natural gas fired. They produce saturated steam at 250 psig. The steam in the central plant serves the HTHW heat exchanger, the steam turbine chillers, the cogeneration steam turbine generator, and the deaerator.

The cogeneration equipment in the central plant includes two 13 MW Solar Titan gas turbine generators. A heat recovery steam generator produces about 60,000 lb/hr of 250 psig steam. A condensing steam turbine drives a 5 MW generator.

In typical operation the gas turbines track the campus electric load, the steam chillers operate when the steam is not all needed for space heating hot water, and the steam turbine generator continuously modulates to maintain the steam header pressure. However, the campus electric load often exceeds the capacity of the cogeneration system so the gas turbines typically run at full capacity much of the time.

On the east side of the freeway a separate chilled water plant which serves several campus buildings. This is provided electricity from the central cogeneration system. This is the site of the installation of a new fuel cell plant.

The UC San Diego Medical Center is located on two campuses. The Medical Center La Jolla campus is on part of the main campus, on the east side of the freeway. The Medical Center Hillcrest campus is located ten miles south of the La Jolla campus.

The Medical Center La Jolla campus receives electric service from the main campus service, which is primarily supplied by the cogeneration system. The hospital is served chilled water and steam by a small conventional central plant.

The Medical Center Hillcrest campus has its own central plant which includes high pressure steam boilers (50,000 lb/hr), electric chillers (2,450 tons), an absorption chiller (600 tons), and a chilled water thermal energy storage system (4,000 ton hr).

2.3.9 UC San Francisco and San Francisco Medical Center

Campus Overview

The University of California, San Francisco became part of the University of California in 1873 and is the only UC campus dedicated solely to health sciences. UC San Francisco's Schools of Dentistry, Medicine, Nursing and Pharmacy and a Graduate Division offer 18 graduate academic programs. Graduate enrollment is 2,951 students at four major campus sites within the city of San Francisco, as well as numerous other minor sites scattered through San Francisco and the Bay Area.

The 107-acre Parnassus campus serves as the main campus and also houses two 600 bed hospitals of UCSF Medical Center. The central plant provides the majority of permanent buildings with chilled water and steam. The centralized control systems are located at the central plant. The utilities are distributed to the majority of the buildings in tunnels or are direct buried. Some of the buildings are cooled by local chiller plants located in individual buildings.

A 43-acre Mission Bay Campus, opened in 2003 with construction still ongoing, contains research space and facilities to foster biotechnology and life sciences companies. The San Francisco General Hospital campus at 1001 Potrero Avenue cares for the indigent population of San Francisco.

UCSF Medical Center is part of the University of California, San Francisco. The medical center is primarily located on two sites – UC San Francisco's 107-acre Parnassus campus and the Mount Zion campus. The Parnassus campus facilities include Moffitt and Long hospitals with 600-beds. The Mount Zion campus contains UCSF's Comprehensive Cancer Center, Women's Health Center, and outpatient resources.

At the Parnassus Campus, gas and steam turbines owned by UC San Francisco generate 13.75 MW electricity and steam. The steam is purchased by UCSF Medical Center and distributed to the Long and Moffitt hospitals. The steam is distributed via steam piping located in tunnels or direct buried. Buildings are cooled by local chiller plants located in individual buildings or by packaged units.

At the Mount Zion campus, a central plant using gas-fired chillers provides chilled water to the majority of permanent buildings, though some of the buildings are cooled by local chillers. Heating requirements of the majority of the buildings are met by boilers located within the buildings. The utilities are distributed to the majority of the buildings via piping located in tunnels or direct buried.

Central Plant

The UC San Francisco Parnassus campus has a central plant which serves the University buildings as well as three Medical Center buildings: Moffitt Hospital, Long Hospital and the Ambulatory Care Center. The plant includes a cogeneration system which provides electricity to the whole Parnassus campus. The central plant also produces steam, which is distributed throughout the whole campus, and chilled water, which is distributed to University buildings on the south side of Parnassus. The Medical Center and the University buildings north of Parnassus either have their own chillers or do not have air conditioning.

The cogeneration system comprises two Solar Taurus 60 combustion turbines burning natural gas and generating nominally 5 MW each. Each of the two heat recovery steam generators produces steam at 200 psig, generating 25,000 pounds per hour unfired and 54,000 pounds per hour with supplementary firing.

Most of the steam produced by the heat recovery steam generators is passed through a back-pressure steam turbine, where its pressure is reduced from 200 psig to 15 psig, which is the steam distribution pressure. This steam turbine generator has a nominal capacity of 3.75 MW. It operates in cascade mode, which allows the power output to vary based on the low-pressure steam demand at any given time. A pressure reduction valve allows for production of low-pressure steam when the steam turbine is offline for maintenance. A small amount of 100 psig steam is produced at the central plant for laboratory autoclave loads.

The two combustion turbines operate continuously at full output. During the day this supplies most of the campus load, with additional imports of 3 to 4 MW. At night this generates approximately 1 MW more than the campus load, and the excess power goes onto the utility grid. The power is sold to PG&E through a Standard Offer-1 contract at a varying value in the range of $0.08/kWh. Steam fired boilers provide a backup steam source.

The central plant main chilled water loop includes electric chillers (one centrifugal at 1,200 tons, three reciprocating at 200 tons) and low pressure steam single stage absorption chillers (three at 1,200 tons). The chiller plant is operated year round. There are also a 440 ton single stage absorption chiller at the Library and a 200 ton scroll chiller at Vision. The low pressure steam single stage absorption chillers in Moffitt and Long Hospitals (two at 385 tons, two at 180 tons) and screw chillers (two at 164 tons) provide chilled water year round.

At the Mt. Zion Medical Center campus main chillers are two 350 ton Tecochill screw chillers which are driven by reciprocating gas fired engines serving Buildings A and B. There is also a 350 ton Governair chiller in the University Cancer Center building. These chilled water loops are tied together, with the Tecochill chillers taking the lead. Building J has several smaller scroll chillers. Buildings S and T have natural draft boilers for space heating, rated at 2.0 and 1.5 million Btu/hr output, respectively. These both run continuously.

The Mission Bay University buildings are on a new campus which does not have a central plant, but has boilers and chillers distributed in each building. It was built, however, with the intention that a central plant would be built at some point. Construction of this central plant and distribution system is planned but not yet funded. The potential central plant is not addressed directly in this report, but measures with long paybacks are not recommended for

the existing boilers and chillers. The conversion to a central plant may offer some energy efficiency opportunities, although they will be partially offset by new distribution losses. The potential for staffing savings is expected to be a compelling reason for the installation of the central plant.

Once the central plant is in place at Mission Bay, cogeneration will be an option. It is anticipated that the central plant will include steam boilers and electric chillers. The addition of cogeneration would likely add combustion turbines, heat recovery steam generators, possibly steam driven chillers, and possibly a condensing steam turbine generator.

2.3.10 UC Santa Barbara

Campus Overview

University of California, Santa Barbara joined the UC System in 1944 and currently has approximately 20,000 students and over 1,000 faculty members. UCSB occupies 989 acres along the California coast. The campus has executed numerous energy retrofit projects in the past, including lighting retrofits, MBCx, and the installation of low pressure drop filters on air handling units. UCSB has also shown a commitment to sustainability in all aspects of operation including the built environment, energy, procurement, and transportation.

Central Plant

UC Santa Barbara does not have a conventional central plant. There is no centralized delivery of hot water or steam to buildings. Every building has its own hot water boiler for space heating. Steam is supplied to several buildings as required through local steam boilers. All of this equipment is fired with distributed natural gas.

Campus academic buildings were built with individual electric chillers as well. The housing and athletic buildings typically have no air conditioning. The electric chillers in some buildings have been tied together in a virtual chilled water loop to serve these and adjacent buildings in the central and eastern areas of the campus. Nine chillers located in eight buildings are tied together in this loop to serve 15 buildings. The chillers range from 200 to 1,000 tons in size and have a total capacity of approximately 5,000 tons. The campus has been supported by the Partnership Program to measure and evaluate the efficiency of these chillers and to set up operations in the most efficient configurations. There is the potential to expand this loop to serve additional buildings as well.

On the east side of campus the Humanities and Social Sciences Building chiller plant serves the Student Resource and Snidecor buildings as well.

2.3.11 UC Santa Cruz

Campus Overview

UC Santa Cruz is located 75 miles south of San Francisco at Santa Cruz, CA. The campus lies on 2,001 acres overlooking the Monterey Bay and Pacific Ocean. Founded in 1965, UC Santa Cruz has a current enrollment of more than 15,000 students with approximately 800 Faculty and 3,200 staff. The Universities' long term plan is for 21,000 students prior to 2020. The campus's current buildings (existing and approved development) total approximately

3,113,000 assignable square feet, 4,825,000 gross square feet. The UC Santa Cruz long term plans estimate additional space needs of 2,699,000 assignable square feet, 4,069,000 gross square feet for a total of 9 million gross square feet.

Over the past decades, UCSC has actively pursued energy conservation through energy efficient new construction practices and energy retrofit programs. The campus will continue to promote energy efficiency and consistent service quality with demand-reduction strategies, compliance with the University of California Policy on Green Building Design and Clean Energy Standards, and self-generation when financially viable.

Central Plant

The UC Santa Cruz central plant is located at the north end of the campus. It distributes hot water and condenser water to roughly a dozen buildings in the core area of the campus. These buildings are typically the higher energy use buildings housing the science and engineering schools. Buildings in the individual colleges and in the theater and music portions of the campus utilize individual boilers for space heating. There are no central chillers and much of the campus has no air conditioning.

The central plant has three boilers, each with an input capacity of roughly 29 million Btu/hr of natural gas. These boilers have modern burner controls for high efficiency combustion at all loads, funded partially by the Partnership Program. Hot water is supplied continuously to the core campus.

In the cogeneration plant a single 2,400 kW reciprocating engine also operates continuously on natural gas and diesel to serve a portion of the campus electrical load. Heat is recovered from the jacket water, lube oil and exhaust in the form of hot water for use in the core campus hot water loop. This engine is always the first source of heat, with the boilers operating only when additional heat is needed. During the warmer weather the heating load includes the reheat coils in the 100% outside air buildings, as well as a small single stage absorption chiller. The engine was originally installed in 1985.

The central plant also includes cooling towers and condenser water pumps. These provide conditioned water to some of the core campus buildings for cooling the condensers on individual building chillers, as well as other cooling loads.

There is a 290 kW cogeneration engine located at the physical education complex. The exhaust heat from this engine is used to heat the swimming pool, and provide domestic hot water and space heating. It is understood that the swimming pool is not covered during the summer months because the heat available from the engine is more than adequate to heat the pool. Consideration should be given to covering the pool and throttling back the engine to match the recoverable heat to the actual heat requirement for more efficient cogeneration performance.

2.4 Strategic Energy Plan Buildings

The following 422 buildings were investigated as part of this SEP effort, and were selected using the criteria described above. The total gross area of the SEP buildings represents more than 50 million square feet, or 52% of the systemwide campus gross area (exclusive of parking).

Table 2.4: SEP Buildings

Building Key	Campus	Building Name	Area - Non-assignable Parking Area
01C1092	BERKELEY	CHANNIN2535 (Channing-Bowditch Student Housing)	71,994
01C1095	BERKELEY	HEARST2195 (SRB1)	69,032
01C1098	BERKELEY	RESSTUSRVBLD (Central Dining/Cesar Chavez Stu Ctr)	85,906
01C1145	BERKELEY	RH1 CHRSTIAN	66,391
01C1146	BERKELEY	RH1 SLOTTMAN	70,051
01C1147	BERKELEY	RH2 TOWLE	67,155
01C1148	BERKELEY	RH2 WADA	68,791
01C1149	BERKELEY	STANLEY	304,333
01C1210	BERKELEY	SPROUL	111,193
01C1220	BERKELEY	BIRGE	97,768
01C1225	BERKELEY	LS ADDITION	201,824
01C1229	BERKELEY	NW AN FACIL	52,845
01C1230	BERKELEY	BOWLES	73,700
01C1231	BERKELEY	LAW	216,489
01C1234	BERKELEY	HAAS STU BLD	95,712
01C1236	BERKELEY	HAAS FAC BLD	106,295
01C1237	BERKELEY	SODA	109,014
01C1270	BERKELEY	CALIFORNIA	56,343
01C1271	BERKELEY	STADIUM	288,653
01C1286	BERKELEY	TANG CENTER	75,228
01C1292	BERKELEY	LEWIS	68,146
01C1295	BERKELEY	DWINELLE	305,268
01C1297	BERKELEY	GARDNERSTACK	189,425
01C1298	BERKELEY	DOE ANNEX	161,197
01C1299	BERKELEY	MOFFITT	130,581
01C1301	BERKELEY	DOE LIBRARY	164,476
01C1302	BERKELEY	MINOR ADDITN	55,516
01C1318	BERKELEY	EDWARDS FLD	59,326
01C1323	BERKELEY	DAVIS	137,806
01C1325	BERKELEY	CORY	206,054
01C1346	BERKELEY	MULFORD	93,420
01C1355	BERKELEY	GIANNINI	68,410
01C1360	BERKELEY	HAAS PAVIL	237,845
01C1365	BERKELEY	REC SPRT FAC	178,913
01C1371	BERKELEY	HAVILAND	51,020
01C1372	BERKELEY	HEARST GYM	124,197
01C1373	BERKELEY	HEARST MIN	141,461
01C1376	BERKELEY	HILGARD	77,137
01C1382	BERKELEY	MORGAN	56,637
01C1390	BERKELEY	I HOUSE	185,200
01C1405	BERKELEY	LE CONTE	148,032
01C1406	BERKELEY	VALLEY LSB	418,707
01C1419	BERKELEY	DONNER LAB	53,234
01C1486	BERKELEY	KROEBER	117,814
01C1488	BERKELEY	STEPHENS	58,733
01C1495	BERKELEY	STERN	86,959
01C1520	BERKELEY	UCB ART MUSE	102,794
01C1552	BERKELEY	WHEELER	139,240
01C1594	BERKELEY	UNIVERSITY	152,264

Table 2.4: SEP Buildings (Continued)

Building Key	Campus	Building Name	Area - Non-assignable Parking Area
01C1761	BERKELEY	BARROWS	193,232
01C1762	BERKELEY	MCCONE	123,612
01C1774	BERKELEY	TOLMAN	240,884
01C1776	BERKELEY	OXFORD RES (Oxford Tract)	66,240
01C1782	BERKELEY	LATIMER	182,943
01C1783	BERKELEY	ETCHEVERRY	177,281
01C1784	BERKELEY	CHAVEZ (Golden Bear)	105,470
01C1790	BERKELEY	EVANS	276,206
01C1791	BERKELEY	KING UNION	110,111
01C1793	BERKELEY	BARKER	86,091
01C1794	BERKELEY	FULTON2223	51,814
01C1796	BERKELEY	KOSHLAND	153,700
01C1797	BERKELEY	WURSTER	222,434
01C1800	BERKELEY	LAWRENCE	128,540
01C1802	BERKELEY	ZELLERBACH	153,118
01C1808	BERKELEY	TAN	116,121
01C1809	BERKELEY	HILDEBRAND	127,494
02C2012	SAN FRANCISCO	LIBRARY	128,706
02C2018	SAN FRANCISCO MC	MTZ BLDG A	118,800
02C2019	SAN FRANCISCO MC	MTZ BLDG B	106,400
02C2020	SAN FRANCISCO MC	MTZ 2330 POS (S Building)	50,491
02C2022	SAN FRANCISCO MC	MTZ BLDG C (2200 Post)	65,950
02C2031	SAN FRANCISCO MC	MTZ BLDG J (2356 Sutter)	53,500
02C2036	SAN FRANCISCO MC	MTZ 1701 DIV (T Building)	57,980
02C2037	SAN FRANCISCO	MTZ CANCER RESEARCH (2340 SUTTER)	109,671
02C2212	SAN FRANCISCO	MILLBERRY	163,096
02C2251	SAN FRANCISCO	CLINICAL SCI	107,647
02C2252	SAN FRANCISCO	MED SCIENCES	392,649
02C2274	SAN FRANCISCO MC	MOFFITT HOSP	378,718
02C2275	SAN FRANCISCO MC	LONG HOSP	372,469
02C2290	SAN FRANCISCO	LPPI	107,237
02C2408	SAN FRANCISCO MC	UC CLINICS (ACC)	330,681
02C2410	SAN FRANCISCO	NURSING	88,668
02C2412	SAN FRANCISCO	DENTISTRY	128,403
02C2415	SAN FRANCISCO	MISSION CTR	290,883
02C2418	SAN FRANCISCO	OYSTER POINT	144,429
02C2450	SAN FRANCISCO	LAUREL HTS	363,297
02C3000	SAN FRANCISCO	PSSRB	90,500
02C3001	SAN FRANCISCO	ROCK HALL	170,565
02C3002	SAN FRANCISCO	GENENTECH HA	438,361
02C3003	SAN FRANCISCO	COMMUNITY CE	158,605
02C3004	SAN FRANCISCO MC	MTZ CANCER C (OCC, H Building)	89,862
02C3008	SAN FRANCISCO	HSIR EAST	206,305
02C3009	SAN FRANCISCO	HSIR WEST	233,516
02C3029	SAN FRANCISCO	FRESNO MERC	84,175
02C3034	SAN FRANCISCO	BYERS HALL	154,935
02C3035	SAN FRANCISCO	MB HOUSING W	65,866
02C3036	SAN FRANCISCO	MB HOUSING S	96,801
02C3037	SAN FRANCISCO	MB HOUSING N	142,197
02C3038	SAN FRANCISCO	MB HOUSING E	105,420
02C3520	SAN FRANCISCO MC	2300 HARRISO	65,494
03C3207	DAVIS	HART	71,511

Table 2.4: SEP Buildings (Continued)

Building Key	Campus	Building Name	Area - Non-assignable Parking Area
03C3266	DAVIS	YOUNG	87,134
03C3331	DAVIS	HICKEY GYM	82,842
03C3350	DAVIS	EVERSN	47,622
03C3390	DAVIS	LIB	400,710
03C3460	DAVIS	MU	144,588
03C3607	DAVIS	HOAGLD	52,140
03C3745	DAVIS	VRHIES	48,816
03C3772	DAVIS	SEG MALCOLM	42,946
03C3773	DAVIS	FRBORN	52,268
03C3788	DAVIS	HUTCH	113,440
03C3793	DAVIS	SEG RYERSON	42,946
03C3803	DAVIS	OLSON	55,872
03C3815	DAVIS	SPROUL	50,578
03C3970	DAVIS	MUSIC	18,000
03C3971	DAVIS	ART	50,900
03C3972	DAVIS	WRIGHT HALL	46,550
03C4004	DAVIS	BAINER	168,999
03C4023	DAVIS	TEC COMMUNIT	58,007
03C4073	DAVIS	STORER	91,708
03C4098	DAVIS	SURGE 3	58,447
03C4267	DAVIS	VMTH	82,944
03C4427	DAVIS	TUPPER HALL	253,166
03C4428	DAVIS	MED SCI I B	50,151
03C4444	DAVIS	ARC PAVILION	145,681
03C4466	DAVIS	VET MED 2	45,000
03C4556	DAVIS	MEYER	208,224
03C4567	DAVIS	THURMAN	46,514
03C4632	DAVIS	ACADMC SURGE	125,590
03C4633	DAVIS	KEMPER	197,388
03C4656	DAVIS	SOCSCI&HUMAN	143,094
03C4683	DAVIS	LIF-SCI ADN	134,304
03C4684	DAVIS	CTR COMP MED	28,558
03C4708	DAVIS	DUTTON HALL	41,200
03C4716	DAVIS	MADDY LAB	27,235
03C4722	DAVIS	CFA MONDAVI	106,370
03C4725	DAVIS	ENGINEER 3	67,575
03C4726	DAVIS	PLNT&ENV SCI	125,973
03C4786	DAVIS	GENOME & BIO	228,955
03C4792	DAVIS	SCIENCES LAB	139,724
03C4795	DAVIS	VM LAB FAC	42,267
03C4799	DAVIS	ARC	172,130
03C4806	DAVIS	SEGN THOMPSN	42,071
03C4821	DAVIS	MATH SCI	65,643
03C4825	DAVIS	TECS2 LABEN	56,385
03C8065	DAVIS MC	UMC MIND CL	74,707
03C8125	DAVIS MC	UMC 14A WARE	120,960
03C9416	DAVIS MC	UMC HOSPITAL	598,074
03C9438	DAVIS MC	UMC CYPRESS	50,491
03C9519	DAVIS MC	UMC ADMN SPT	63,203
03C9524	DAVIS	EMERSON	114,950
03C9529	DAVIS MC	UMC CNCR CTR	65,319
03C9814	DAVIS MC	UMC GLASSRCK	67,795

Table 2.4: SEP Buildings (Continued)

Building Key	Campus	Building Name	Area - Non-assignable Parking Area
03C9880	DAVIS MC	UMC STK RES	109,162
03C9897	DAVIS MC	UMC PAT SUPP	73,340
03C9902	DAVIS MC	UMC FAC SUPP	67,445
03C9921	DAVIS MC	UMC BROADWAY	109,479
03C9927	DAVIS MC	UMC DAV TWR	454,000
03C9929	DAVIS MC	UMC CENTRAL	54,010
03C9968	DAVIS	DV 3820 CHLS	55,059
03C9986	DAVIS MC	UMC RSCH III	57,592
03C9992	DAVIS MC	UMC LJE ACC	377,000
03CNEW1	DAVIS MC	UMC EDUCATION BLDG (4610 X ST)	
04C4200	LOS ANGELES	MURPHY HALL*	220,188
04C4202	LOS ANGELES	PERLOFF HALL	65,909
04C4203	LOS ANGELES	YOUNG LIBRY	305,919
04C4227	LOS ANGELES	SLICHTER*	62,557
04C4228A	LOS ANGELES	GEOLOGY	182,149
04C4228B	LOS ANGELES	YOUNG HALL*	297,589
04C4228C	LOS ANGELES	MOLECULR SCI	178,666
04C4235	LOS ANGELES	WOODEN/PS4	207,721
04C4256A	LOS ANGELES	ENGR BLDG 4	294,124
04C4260	LOS ANGELES	FACMGMT BLDG	189,197
04C4265	LOS ANGELES	TIVERTON HSE	57,224
04C4270	LOS ANGELES	WILSHIRE CTR	315,208
04C4302A	LOS ANGELES	CANYON POINT	107,419
04C4302D	LOS ANGELES	COVEL COMMON	144,067
04C4310	LOS ANGELES	KERCKHOFF	70,820
04C4315	LOS ANGELES	GONDA CENTER	125,202
04C4317	LOS ANGELES	LAW	275,439
04C4318A	LOS ANGELES	POWELL LIB	166,846
04C4319	LOS ANGELES	FRANZ HALL*	238,054
04C4320	LOS ANGELES	LIFE SCIENCE	214,613
04C4325	LOS ANGELES	DORIS STEIN	94,309
04C4329	LOS ANGELES	REED RESRCH*	69,176
04C4331	LOS ANGELES	PUBLIC HLTH	140,563
04C4332B	LOS ANGELES	BRAIN RSCH*	86,578
04C4332D	LOS ANGELES	HEALTH SCI*	1,265,387
04C4332E	LOS ANGELES	M DAVIES CC	70,228
04C4333	LOS ANGELES	JULES STEIN	87,905
04C4334	LOS ANGELES	DENTISTRY*	204,369
04C4335	LOS ANGELES	SCHOENBERG*	122,552
04C4336	LOS ANGELES	FACTOR*	199,857
04C4343	LOS ANGELES	BOELTER HALL	373,904
04C4344	LOS ANGELES	MORTON MED	366,834
04C4345	LOS ANGELES	MED PLZA 300	101,095
04C4348	LOS ANGELES	MACDONALDLAB	144,611
04C4352	LOS ANGELES	SYCAMORE CT	98,951
04C4359	LOS ANGELES	MATH SCIENCE*	224,078
04C4360	LOS ANGELES	SAC	113,383
04C4363	LOS ANGELES	KNUDSEN HALL*	164,702
04C4374	LOS ANGELES	FOWLER MUSM	101,995
04C4375	LOS ANGELES	ROYCE HALL	184,673
04C4403	LOS ANGELES	BOYER HALL*	133,042
04C4415	LOS ANGELES	UNEX	95,065

Table 2.4: SEP Buildings (Continued)

Building Key	Campus	Building Name	Area - Non-assignable Parking Area
04C4562	LOS ANGELES	SOUTHERN REGIONAL LIBRARY FACILITY	228,306
04C4577A	LOS ANGELES	MELNITZ HALL*	61,827
04C4578	LOS ANGELES	MACGOWAN*	129,542
04C4579	LOS ANGELES	PUBLIC AFFAIRS*	201,667
04C4580	LOS ANGELES	BUNCHE HALL	229,248
04C4581	LOS ANGELES	WARREN HALL*	102,205
04C4594	LOS ANGELES	REHAB CENTER*	142,566
04C515A	LOS ANGELES	COLLINS CTR	31,311
04C515B	LOS ANGELES	GOLD HALL	55,344
04C515C	LOS ANGELES	ENTREP HALL	72,591
04C515D	LOS ANGELES	CORNELL HALL	71,737
04C515E	LOS ANGELES	ROSNFLD LIBR	51,046
04C515F	LOS ANGELES	MULLIN CMNS	33,957
05CP5186	RIVERSIDE	BIOLOGIC SCI	54,300
05CP5194	RIVERSIDE	ENGINEERING2	157,987
05CP5224	RIVERSIDE	BOOKSTORE	32,139
05CP5261	RIVERSIDE	BOURNS	157,189
05CP5301	RIVERSIDE	INSECTARY	8,783
05CP5307	RIVERSIDE	HUM & SOC SC	105,966
05CP5322	RIVERSIDE	RIVERA LIB	225,413
05CP5323	RIVERSIDE	SPIETH	100,927
05CP5334	RIVERSIDE	PE	66,335
05CP5335	RIVERSIDE	GEOLOGY	96,019
05CP5341	RIVERSIDE	BOYCE	124,321
05CP5342	RIVERSIDE	WEBBER	48,565
05CP5343	RIVERSIDE	ABER INVER	203,939
05CP5354	RIVERSIDE	WATKINS	62,237
05CP5380	RIVERSIDE	CAMPUS SURGE	72,340
05CP5411	RIVERSIDE	ARTS	106,659
05CP5414	RIVERSIDE	PHYSICAL SCI	134,709
05CP5417	RIVERSIDE	ENTOMOLOGY	69,417
05CP5418	RIVERSIDE	SCIENCE LIB	175,719
05CP5480	RIVERSIDE	HINDERAKER	44,873
05CP5497	RIVERSIDE	OLMSTED	92,594
05CP5501	RIVERSIDE	BATCHELOR	105,334
05CP5502	RIVERSIDE	LOTHIAN HALL	246,791
05CP5504	RIVERSIDE	PHYSICS	89,541
05CP5508	RIVERSIDE	PIERCE	141,355
05CP5511	RIVERSIDE	STU REC CTR	86,048
05CP5523	RIVERSIDE	SPROUL	78,834
05CP5588	RIVERSIDE	STAT COMP	41,939
05CP5715	RIVERSIDE	UNV PLZA APT	72,544
05CP5722	RIVERSIDE	UCR EXTEN CT	127,802
05CP5991	RIVERSIDE	STONEHAVEN	158,511
05CP5998	RIVERSIDE	INTER VILLAG	103,000
06C6115	SAN DIEGO	RIMAC	217,864
06C6119	SAN DIEGO	MTF	93,419
06C6129	SAN DIEGO	CMRR	43,654
06C6131	SAN DIEGO	ENG UNIT 1	247,585
06C6132	SAN DIEGO	ENG UNIT 2	123,007
06C6135	SAN DIEGO	CENT MOL GEN	39,551
06C6137	SAN DIEGO	SUPERCOMPUTR	59,070

Table 2.4: SEP Buildings (Continued)

Building Key	Campus	Building Name	Area - Non-assignable Parking Area
06C6143	SAN DIEGO	CMM WEST	78,580
06C6156	SAN DIEGO	CLIN SCI BLD	96,320
06C6157	SAN DIEGO MC	PERLMAN HOSP	56,373
06C6162	SAN DIEGO MC	THORNTON HSP	235,242
06C6172	SAN DIEGO	WAR LEC HALL	73,612
06C6176	SAN DIEGO	CMM EAST	87,603
06C6188	SAN DIEGO	SCI ENG RSCH	96,450
06C6206	SAN DIEGO	HUBBS HALL	74,731
06C6218	SAN DIEGO	NIERENBERG	48,370
06C6246	SAN DIEGO	NIEREN ANNEX	15,591
06C6328	SAN DIEGO	SVERDRUP	62,166
06C6335	SAN DIEGO	CENT UTLTIES	62,974
06C6336	SAN DIEGO	UREY HALL	181,749
06C6352	SAN DIEGO	MAYER HALL	105,369
06C6353	SAN DIEGO	BONNER HALL	120,749
06C6355	SAN DIEGO	PACIFIC HALL	185,191
06C6357	SAN DIEGO	GALBRTH HALL	112,674
06C6361	SAN DIEGO	YORK HALL	96,891
06C6365	SAN DIEGO	TOR PINE NOR	54,497
06C6367	SAN DIEGO	TOR PIN CTR	149,758
06C6371	SAN DIEGO	7835 TRADE	182,240
06C6405	SAN DIEGO	CENTER HALL	56,819
06C6429	SAN DIEGO	RITTER REPL	49,027
06C6461	SAN DIEGO	BAS SCI BLDG	333,043
06C6507	SAN DIEGO	RCRH ARGO	65,758
06C6510	SAN DIEGO	GYMNASIUM	51,534
06C6548	SAN DIEGO	EBU 3B	149,804
06C6598	SAN DIEGO	MANDEVILLE	115,769
06C6599	SAN DIEGO	GEISEL LIB	422,239
06C6600	SAN DIEGO	AP M BLDG	194,670
06C6601	SAN DIEGO	BIOLOGY BLDG	81,914
06C6602	SAN DIEGO	MCGILL/MANDLER BLDG	80,794
06C6603	SAN DIEGO	H SS BLDG	80,924
06C6604	SAN DIEGO	TENAYA HALL	72,500
06C6605	SAN DIEGO	TIOGA HALL	94,700
06C6611	SAN DIEGO	CHEM RES BLD	52,769
06C6612	SAN DIEGO	COG SCI BLDG	57,061
06C6657	SAN DIEGO MC	MULTIPURPOSE (Hillcrest)	70,793
06C6658	SAN DIEGO MC	UH AMB CARE	52,860
06C6661	SAN DIEGO	CALITIT	235,819
06C6701	SAN DIEGO	PRICE CTR	169,274
06C6783	SAN DIEGO	PEPCYNHALL	67,052
06C6811	SAN DIEGO	SOC SCI BLDG	68,010
06C6974	SAN DIEGO MC	U HOSPITAL	342,520
06C6976	SAN DIEGO MC	UH OUTPT CTR	65,633
06C6977	SAN DIEGO MC	CTF (Hillcrest)	117,573
06C6983	SAN DIEGO MC	UH SOUTH WNG	55,771
06C7157	SAN DIEGO	BLACK	58,209
06C7158	SAN DIEGO	BRENNAN	59,037
06C7159	SAN DIEGO	DOUGLAS	58,154
06C7160	SAN DIEGO	GOLDBERG	58,834
07C7116	SANTA CRUZ	THIMANN LAB	89,333

Table 2.4: SEP Buildings (Continued)

Building Key	Campus	Building Name	Area - Non-assignable Parking Area
07C7134	SANTA CRUZ	CL COLL COM (Dining)	41,387
07C7175	SANTA CRUZ	COMM. BLDG	39,475
07C7179	SANTA CRUZ	NAT SCI 2	88,753
07C7194	SANTA CRUZ	J BASKIN ENG	165,483
07C7303	SANTA CRUZ	PORTER HSE A	48,915
07C7304	SANTA CRUZ	PORTER HSE B	72,135
07C7305	SANTA CRUZ	PORTER DIN C	27,666
07C7306	SANTA CRUZ	PORTER ACAD D	27,004
07C7376	SANTA CRUZ	KERR HALL	77,970
07C7744	SANTA CRUZ	SINSHEIMR LB	98,359
07C7775	SANTA CRUZ	EARTH MAR SC	149,110
07C7782	SANTA CRUZ	SCI &ENG LIB	75,099
07C7920	SANTA CRUZ	SOC SCI 1	53,216
07C7921	SANTA CRUZ	SOC SCI 2	75,619
07C7922	SANTA CRUZ	MUSIC CTR	49,206
07C7933	SANTA CRUZ	COL 9 DINE	46,485
07C7940	SANTA CRUZ	ENGINEER BLD	148,854
08C8225	SANTA BARBARA	ENG SCI	88,845
08C8235	SANTA BARBARA	LIFESCI	77,000
08C8251	SANTA BARBARA	PSYCH ADDITI	32,115
08C8266	SANTA BARBARA	CNSI	116,999
08C8503	SANTA BARBARA	ENGR 2	126,247
08C8505	SANTA BARBARA	EVENTS CNTR	64,266
08C8511	SANTA BARBARA	MAC	53,564
08C8515	SANTA BARBARA	HSSB	148,411
08C8516	SANTA BARBARA	RECCEN	66,130
08C8520	SANTA BARBARA	MAR SCI BLDG	60,542
08C8521	SANTA BARBARA	BREN	85,941
08C8525	SANTA BARBARA	DAVIDSON LIB (Main)	334,552
08C8527	SANTA BARBARA	SANTA ROSA	84,495
08C8528	SANTA BARBARA	SOUTH HALL	131,730
08C8531	SANTA BARBARA	MUSIC	78,476
08C8533	SANTA BARBARA	ROBERTSN GYM	76,516
08C8534	SANTA BARBARA	ARTS	79,151
08C8535	SANTA BARBARA	NORTH HALL	66,188
08C8547	SANTA BARBARA	ANACAPA	78,113
08C8548	SANTA BARBARA	SANTA CRUZ	78,114
08C8551	SANTA BARBARA	PSYCHOLOGY	48,480
08C8552	SANTA BARBARA	CHEADLE HALL	68,617
08C8556	SANTA BARBARA	HAROLD FRANK	100,051
08C8557	SANTA BARBARA	CHEMISTRY	96,804
08C8558	SANTA BARBARA	UNIV CENTER	148,936
08C8561	SANTA BARBARA	SAN NICOLAS	84,950
08C8568	SANTA BARBARA	SAASB	80,330
08C8571	SANTA BARBARA	BIOLOGY 2	129,737
08C8572	SANTA BARBARA	BROIDA HALL (Physics)	135,256
08C8586	SANTA BARBARA	SAN RAFAEL W	61,473
08C8615	SANTA BARBARA	MRL	37,159
08C8657	SANTA BARBARA	PSB NORTH	96,861
08C8860	SANTA BARBARA	FRANCISCO TO	251,100
08CNEW1	SANTA BARBARA	STUDENT RESOURCES BLDG (BLDG 221)	
09C9001	IRVINE	LANGSON LIBRARY	150,883

Table 2.4: SEP Buildings (Continued)

Building Key	Campus	Building Name	Area - Non-assignable Parking Area
09C9003	IRVINE	ADMIN BLDG	101,022
09C9005	IRVINE	UCI STU CNTR	164,042
09C9035	IRVINE	HIB	74,090
09C9050	IRVINE	W SMITH HALL	9,458
09C9051	IRVINE	CTB THEATRE	20,377
09C9052	IRVINE	SOTA DANCE	12,747
09C9053	IRVINE	SOTA PROD ST	5,182
09C9054	IRVINE	SOTA DRAMA	8,772
09C9055	IRVINE	UNIV ART GAL	8,920
09C9056	IRVINE	SOTA ART STD	10,570
09C9057	IRVINE	SOTA SCULPTR	10,894
09C9073	IRVINE	SCILIBRARY	189,590
09C9075	IRVINE	STEINHAUS H	107,521
09C9082	IRVINE	GILESPIE BLD	82,920
09C9084	IRVINE	MCGAUGH HALL	213,717
09C9087	IRVINE	SPRAGUE HALL	90,211
09C9088	IRVINE	HEWITT HALL	78,871
09C9090	IRVINE	NAT SCI 1	120,913
09C9091	IRVINE	NAT SCI 2	136,305
09C9100	IRVINE	ROWLAND HALL	196,057
09C9107	IRVINE	BERKELEY PL	114,000
09C9108	IRVINE	REINES HALL	156,514
09C9114	IRVINE	M SCI & TECH	63,111
09C9115	IRVINE	CROUL HALL	66,170
09C9118	IRVINE	CAL (IT)2	119,860
09C9125	IRVINE	ENG TOWER	113,941
09C9126	IRVINE	COMP SCI BLD	60,678
09C9128	IRVINE	SOC ECOLOGY	55,000
09C9132	IRVINE	IRVINE HALL	54,620
09C9140	IRVINE	ENG GATEWAY	132,090
09C9204	IRVINE	SOCSCI TOWER	83,844
09C9212	IRVINE	SOC SCI PL A	46,479
09C9221	IRVINE	SOC SCI PL B	49,078
09C9222	IRVINE	SOC ECOLOGY2	35,753
09C9299	IRVINE	ANT REC CTR	89,320
09C9300	IRVINE	CRAWFORD HAL	57,437
09C9314	IRVINE	BREN EVENTS	97,259
09C9322	IRVINE	MED SCI C	55,853
09C9323	IRVINE	MED SCI D	71,959
09C9325	IRVINE	MED SCI A	13,418
09C9328	IRVINE	MED SCI B	35,864
09C9329	IRVINE	MED SURG 2	60,238
09C9701A	IRVINE MC	MC BLDG 1A	101,105
09C9703	IRVINE MC	MC BLDG 3	81,358
09C9722A	IRVINE MC	MC BLDG 22A	33,643
09C9722C	IRVINE MC	MC BLDG 22C	17,509
09C9723	IRVINE MC	MC BLDG 23	71,359
09C9725	IRVINE MC	MC BLDG 25	36,799
09C9729	IRVINE MC	MC BLDG 29	36,615
09C9729A	IRVINE MC	MC BLDG 29A	16,416
09C9730	IRVINE MC	MC BLDG 30	18,525
09C9730A	IRVINE MC	MC BLDG 30A	18,972

Table 2.4: SEP Buildings (Continued)

Building Key	Campus	Building Name	Area - Non-assignable Parking Area
09C9753	IRVINE MC	MC BLDG 53	51,538
09C9755	IRVINE MC	MC BLDG 55	60,178
09C9763	IRVINE MC	MC BLDG 63	157,886
09C9770	IRVINE MC	MC BLDG 70	50,444
09CTBD1	IRVINE	BREN HALL	147,975

2.5 Recent Energy Project Inventory

The University campuses have actively participated in the UC/CSU/IOU Partnership Programs. The projects in Table 2.5 were implemented during the 2004-05 Partnership cycle. Since they were implemented no later than calendar year 2005, the associated energy savings are considered to be reflected in the historical energy use data gathered for 2006-07. Therefore, no adjustment has been made to the campus' baseline energy use.

The projects in Table 2.6 are planned, or may have begun during the current 2006-08 UC/CSU/IOU Partnership, but were not substantially complete prior to the FY06-07 historical energy use baseline. Since they are scheduled for implementation, the SEP has considered these projects in a couple of ways. First, the projects recommended in this report have not included these projects, thereby avoiding duplication of measures. Second, the 2006-07 baseline energy use has been adjusted by the anticipated energy savings for baseline energy use to compare the proposed projects to, and for the comparison of, building benchmarks. Details of savings for each project in SEP buildings and the associated adjustment in baseline energy are reflected on the building summary sheets later in this report.

Table 2.5: 2004-05 UC/CSU/IOU Partnership Project History

Campus/Building	Project Description	Electric Savings (kWh/yr)	Gas Savings (th/yr)
UC Berkeley			
Multi	HVAC	428,800	5,193
Multi	Lighting Improvement	151,098	
Multi	T12 to T8 conversion with controls	210,994	0
Multi	Lighting Controls	74,598	0
Soda Hall	MBCx	462,472	0
Tan Hall	MBCx	663,184	0
UC Davis			
UCD Kearney Research Center	UCD Kearney Research Center Lighting Retrofit Project	114,409	0
Center for Neuroscience	MBCx	4,354	3587
School of Medicine Neurosciences	MBCx	76,670	661
Central Thermal Plant	MBCx	3,010	56541
UC Irvine			
Crawford Hall	LightingT-12 to T-8 with Electronic Ballast	25,279	
Engineering Gateway	LightingT-12 to T-8 with Electronic Ballast		
Engineering Tower	LightingT-12 to T-8 with Electronic Ballast	107,183	
Langson Library	LightingT-12 to T-8 with Electronic Ballast	176,406	
McGaugh Hall	LightingT-12 to T-8 with Electronic Ballast		
Multi	Elevator Lighting: Replace Incandescent lights with CFLs/Pars	120,538	
Reines Hall	LightingT-12 to T-8 with Electronic Ballast		
Social Ecology I	LightingT-12 to T-8 with Electronic Ballast	72,169	
Sprague Hall	Install occupancy sensors on fume hoods	23,536	4,685
Gillispie Research	Install occupancy sensors on fume hoods	23,536	4,685
Berkeley Place	MBCx	245,010	28621
McGaugh Hall	MBCx	1,348,620	0
UC Los Angeles			
3 Pools	Pool covers - 3 pools (19,320 sqft)	0	90,070
Pool	Pool cover - 1 pool (6000 sqft)	0	23,470
Pool	Pool cover - 1 pool (3,750 sqft)	0	17,910
Pool	Pool cover - 1 pool (525 sqft)	0	2,610
Factor Building	MBCx	0	0
UC Merced			
Fresno Center	LIGHTING CONTROLS	44,619	0
Fresno Center	ENGINEERING ASSISTANCE		
UC Riverside			
Boyce Hall	Boyce Hall Fume Hood Occupancy Sensor		59,475
Entomology Building	Entomology Bld Fume Hood Occupancy Sensor		23,003
Insectary Building	Insectary Bld Fume Hood Occupancy Sensors		3,487
Science Lab	Science Lab Fume Hood Occupancy Sensor		82,848

Table 2.5: 2004-05 UC/CSU/IOU Partnership Project History (Continued)

Campus/Building	Project Description	Electric Savings (kWh/yr)	Gas Savings (th/yr)
Rivera Library	MBCx	0	0
Boyce Hall	MBCx	0	0
Science Library	MBCx	0	0
Physics Building Research Laboratory	MBCx	0	0
Campus Infrastructure	MBCx	0	0
UC San Diego			
Main Library (Giesel Lib)	Main Library Lighting	665,000	0
Nimitz Marine Facility (Marfac Shop)	Lighting retrofit - T-17 to T-5 and T-8	289,000	0
Pacific Hall	Install VFD on supply and exhaust fan, rebalance zones	699,048	56,230
San Diego Super Computing Center	Install VFDs on data center air handlers, rebalance, and rezone	414,120	0
Stein Clinical Sciences	Install VFD on supply and exhaust fans, rebalance zones	1,040,688	57,890
Torrey Pines Center	Lighting retrofit - T-12 mag ballast to T-8	237,652	0
Science & Engineering Research Facility	MBCx	238,571	0
Chilled Water Distribution System	MBCx	0	0
UC San Francisco			
Mission Center Building	Mission Center Building (MCB) Retrofit Project	527,422	
Rock Hall	MBCx	720,038	76987
UC Santa Barbara			
Multi	Install occupancy sensors, ballasts, lamps in 450 toilet rooms	531,440	0
Multi	Retrofit traffic lights to LED	68,020	0
Chemistry Building	Install Trane chiller/tower optimization controller	784,614	0
Broida Hall	MBCx	943,452	0
Engineering Science	MBCx	164,893	0
Chilled Water Distribution System	MBCx	210,750	0
UC Santa Cruz			
Cowell College Commons	Cowell Commons: Replace T-12 Fixtures with T-8 Fixtures	22,109	
Crown College Commons	Crown Commons: Replace T-12 Fixtures with T-8 DMW fixtures	16,955	

Table 2.5: 2004-05 UC/CSU/IOU Partnership Project History (Continued)

Campus/Building	Project Description	Electric Savings (kWh/yr)	Gas Savings (th/yr)
Earth & Marine Sciences	Earth & Marine Sciences: Add VFD to existing HHW pumps	17,370	
Eight Kitchen1	Eight Kitchen: Replace T-12 Lamps/Ballast with T-8 and new diffusers	21,119	
Fackler Cogen Plant	Fackler Cogen Plant: Replace two speed fan with one VFD motor	13,145	
Porter Building C (Porter College Dining Common)	Porter Bldg C: Replace T-12 Lamps/Ballast with T-8 and New Diffusers	22,718	
Thimann Labs	Thimann Labs: Add VFD to existing HHW pumps	38,022	
Earth & Marine Sciences (WetLab)	WetLab: Add control valves to repipe coils in series to create economizer cycle	70,350	
Earth & Marine Sciences (WetLab)	WetLab: Add VFD drive to building CHW pump	21,369	
Earth & Marine Sciences	MBCx	129,394	0
Condenser Water Loop	MBCx	199,700	0

Table 2.6: 2006-08 UC/CSU/IOU Partnership Project History

Campus/Building	Project Description	Electric Savings (kWh/yr)	Gas Savings (th/yr)
SEP Buildings			
UC Berkeley			
2195 Hearst Ave	2195 Hearst Ave - AHU 1&2 Static Pressure Reset Strategy	177,834	0
Barrows	Barrows Hall - AHU-2 CAV to VAV System Conversion	187,911	17,702
Barrows Hall	Occupancy Sensors	5184	0
Boalt Hall	Ballast: T12-T8 Hallways	15,768	0
Boalt Hall	Occupancy Sensors: Lib, hlwys	7884	0
Boalt Hall	Photocell	5256	0
Boalt Hall	Install wireless lighting controls	5,256	0
Cory Hall	Cory Hall - MBCx	1,878,042	8,910
Cory Hall	Cory Hall T8 LBF ballasts; Delamping; Occupancy Sensors	34,549	0
Cory Hall	Ballast: T12-T8 Hallways	12,614	0
Davis Hall	Occupancy Sensors: Restrooms	946.08	0
Evans Hall	Install bi-level stairwell lighting	7,726	0
Evans Hall	Ballast: T12-T8 Hallways, Library	42,048	0
Evans Hall	Install wireless lighting controls	9,900	0
Gardner Stacks	Gardner Stacks - AHU-6 CAV to VAV System Conversion	177,905	15,820
Haas School	Occupancy Sensors: Lib, clsrms	23040	0
Haas School	Photocell	2400	0
Hearst Mining	Hearst Mining Building - AHU 1&2 Static Pressure Reset Strategy	111,970	0
Hearst Mining	Install wireless lighting controls	3,600	0
Hildebrand	Hildebrand - T8 LBF Ballasts, Delamping, Occupancy Sensors, and High Bays	107,270	0
Koshland garage	Ballast: 1F96 to 2F32	18,396	0
Koshland garage stairs	Photocell	2628	0
Koshland Hall	Koshland Hall - Add VFDs to Supply and Exhaust Fans and Rebalance	416,932	7,755
Koshland Hall	Koshland Hall - Re-size Motors, Sheave and Balance	39,352	0
Koshland Hall	Koshland Hall T8 LBF ballasts; Delamping; HID to CFL Conversion	144,310	0
Koshland Hall	MBCx	593,810	23,906
Koshland Hall	Ballast: T12-T8 Hallways	10,512	0
Koshland Hall	Install wireless lighting controls	3,600	0
Kroeber Hall	Kroeber Hall - Lighting retrofits and EMS controls	152,315	0
Kroeber Hall	Convert Incandescent Fixtures to Fluorescent: Library	9,600	0
Kroeber Hall	Ballast: T12-T8 Hallways, Library	5,256	0
Latimer	Latimer Hall - T8 LBF Ballasts, Delamping, and Occupancy Sensors	167,983	0
Lawrence Hall	Ballast: T12-T8 Hallways	21,024	0
Lewis Hall	Lewis Hall T8 LBF ballasts	45,096	0

Table 2.6: 2006-08 UC/CSU/IOU Partnership Project History (Continued)

Campus/Building	Project Description	Electric Savings (kWh/yr)	Gas Savings (th/yr)
Life Sciences Addition	Life Sciences Addition - Add 4 Supply Fan and 6 Exhaust Fan VFDs, Rebalance	1,198,111	9,300
Life Sciences Addition	Life Sciences Addition - Re-size Motors, Sheave and Balance	142,614	0
Life Sciences Addition	Life Sciences Addition T8 LBF ballasts; Delamping	148,178	0
Minor Addition	Install bi-level stairwell lighting	5,151	0
Minor Addition	Ballast: T12-T8 Hallways	5,256	0
Moffitt Library	Moffitt Library - AHU 1 Static Pressure Reset Strategy	95,529	0
Moffitt Library	Install bi-level stairwell lighting	5,151	0
Moffitt Library	Install wireless lighting controls	63,930	0
Mulford Hall	Ballast: T12-T8 Hallways	8,410	0
Mulford Hall	Install wireless lighting controls	5,256	0
Recreation Sports Facility	Recreation Sports Facility T8 LBF ballast; HID to CFL; Hi-Bay Fixt Conversion	536,202	0
Soda	Soda Hall - Lighting retrofits, delamping, and occupancy sensor controls	72,798	0
Tan Hall	Tan Hall T8 LBF ballasts; HID to CFL Conversion	96,784	0
University Hall	Ballast: T12-T8 Hallways	8,760	0
Valley Life Sciences	Valley Life Sciences - AHU-13, 15 CAV to VAV System Conversion	78,217	6,955
Valley Life Sciences	Valley Life Sciences T8 LBF ballasts; HID to CFL Conversion	33,376	0
VLSB	Occupancy Sensors: Restrooms	18921.6	0
Wheeler Hall	Wheeler Hall T8 LBF ballasts	37,950	0
Wurster Hall	Wurster Hall - Lighting Retrofits with EMS and occupancy sensor controls	581,777	0
Wurster Hall	Ballast: HO to T8 fixtures	7,860	0
UC Davis			
Bainer	Bainer Hall MBCx	215,775	52,855
Freeborn	MBCx - Freeborn Hall	0	24,966
Genome Center	MBCx Genome Center	665,343	209,319
Hutchinson	MBCx - Hutchinson Hall	5,187	75,070
Life Sciences Addition	Life Sciences Addition MBCx	146,738	126,974
Life Sciences Addition	Install Turbocor Variable Speed Chiller	482,217	0
Memorial Union	MBCx - Memorial Union	49,895	58,316
Plant and Environmental Sciences	Plant and Environmental Sciences MBCx	132,742	89,077
Shields Library	MBCx - Shields Library	460,000	4,655
Tupper Hall	Tupper TAB and Controls	1,407,800	119,900
VMTH	MBCX - Veterinary Medical Teaching Hospital	24,319	50,028
UC Irvine			
Crawford Hall	Fan Rooms S-2,3&4 - Install DDC controls, install VSDs, optimize economizer control	95,478	10,094

Table 2.6: 2006-08 UC/CSU/IOU Partnership Project History (Continued)

Campus/Building	Project Description	Electric Savings (kWh/yr)	Gas Savings (th/yr)
Crawford Hall	First floor attic S-5 - Install full DDC controls, install VSDs, optimize economizer control	38,721	6,925
Crawford Hall	Ground Floor S-1 - Install DDC controls, implement demand controlled ventilation, implement VAV control	14,313	-14
Crawford Hall	Room G-4 P-5&6 - Install VSDs on hot water pumps	23,217	0
Croul Hall	Croul Hall - Install Aircuity	117,399	9,443
Gillispie Research	Gillispie - Add occupancy sensors and change bulbs	143,273	0
Gillispie Research	Gillispie Research MBCx	435,000	10,000
Langson Library (Main Library)	Langson Library - Install PC Management Software in 709 PCs	251,776	0
McGaugh Hall	Replace fans on AHU 1 and 3, install VFDs, remove sound attenuators, replace cooling coils and controls valves	1,685,501	21,761
Social Science Tower	Replace existing stairwell lighting with bi-level technology	6,460	
McGaugh Hall	Replace existing stairwell lighting with bi-level technology	16,465	
Reines Hall	Replace existing stairwell lighting with bi-level technology	12,058	
Rowland Hall	Replace existing stairwell lighting with bi-level technology	15,105	
Science Library	Replace existing stairwell lighting with bi-level technology	14,607	
Steinhaus Hall	Replace existing stairwell lighting with bi-level technology	8,284	
HIB	Replace existing stairwell lighting with bi-level technology	5,708	
CAL IT2	Replace existing stairwell lighting with bi-level technology	9,234	
Berkeley Place	Replace existing stairwell lighting with bi-level technology	8,783	
Croul Hall	Replace existing stairwell lighting with bi-level technology	5,098	
Eng Gateway	Replace existing stairwell lighting with bi-level technology	10,177	
Hewitt Hall	Replace existing stairwell lighting with bi-level technology	6,076	
Natural Sciences I	Replace existing stairwell lighting with bi-level technology	9,315	
Social Ecology I	Replace existing stairwell lighting with bi-level technology	4,237	
Irvine Hall	Replace existing stairwell lighting with bi-level technology	4,208	
Multipurpose Science and Tech Bldg	1st & 2nd Floor FC-1-8 - Optimize controls	0	2,282

Table 2.6: 2006-08 UC/CSU/IOU Partnership Project History (Continued)

Campus/Building	Project Description	Electric Savings (kWh/yr)	Gas Savings (th/yr)
Multipurpose Science and Tech Bldg	Roof AHU 1&2 - Convert to fully networked DDC controls, replace VIV with VSDs, improve control sequences	299,316	3,960
Natural Sciences I	Natural Sciences I MBCx	528,335	18,000
Reines Hall	Install Phoenix Controls on Lab Fume Hoods and Supply Air VAVs - Reines Hall	679,391	30,981
Sprague Hall	MBCx	350,000	9,000
Sprague Hall	Sprague Hall - Add occupancy sensors and change bulbs	188,001	0
Steinhaus Hall	Reduce air changes in Teaching Labs by installing dampers, controls, and occupancy sensors	463,966	26,347
UC Los Angeles			
MSB	Upgrade vent and controls and install ZP sensors on 194 fume hoods	0	167,232
MSB	Upgrade vent and controls and install ZP sensors on 26 fume hoods	0	22,410
UC Riverside			
Boyce Hall	Boyce Hall - Heat recovery ventilation	0	94,038
Physical Science	Physical Science - Office exhaust into air intake plenum	0	6,584
UC San Diego			
Basic Sciences Building	MBCx	443,212	35,000
Center for Molecular Medicine West	MBCx	337,500	27,000
Engineering Building Unit 2	MBCx	300,000	24,000
Basic Sciences Building	Chilled Water Valve Replacement; DP Sensors (for MBCx)	409,723	5,556
Medical Teaching Facility	Chilled Water Valve Replacement; DP Sensors (for MBCx)	409,723	5,556
Stein Clinical Sciences	Chilled Water Valve Replacement; DP Sensors (for MBCx)	409,723	5,556
Urey Hall	Chilled Water Valve Replacement; DP Sensors (for MBCx)	409,723	5,556
Bonner Hall	Chilled Water Valve Replacement; DP Sensors (for MBCx)	409,723	5,556
Mayer Hall	Chilled Water Valve Replacement; DP Sensors (for MBCx)	409,723	5,556
Engineering Building Unit 1	Chilled Water Valve Replacement; DP Sensors (for MBCx)	409,723	5,556
Engineering Building Unit 2	Chilled Water Valve Replacement; DP Sensors (for MBCx)	409,723	5,556
Science & Engineering Research Facility	Chilled Water Valve Replacement; DP Sensors (for MBCx)	409,723	5,556
Center Hall	Chilled Water Valve Replacement; DP Sensors (for MBCx)	409,723	5,556

Table 2.6: 2006-08 UC/CSU/IOU Partnership Project History (Continued)

Campus/Building	Project Description	Electric Savings (kWh/yr)	Gas Savings (th/yr)
Pacific Hall	Chilled Water Valve Replacement; DP Sensors (for MBCx)	409,723	5,556
AP&M	Chilled Water Valve Replacement; DP Sensors (for MBCx)	409,723	5,556
Muir Biology (Biology Bldg)	Chilled Water Valve Replacement; DP Sensors (for MBCx)	409,723	5,556
HS&S	Chilled Water Valve Replacement; DP Sensors (for MBCx)	409,723	5,556
P&L (McGill Bldg)	Chilled Water Valve Replacement; DP Sensors (for MBCx)	409,723	5,556
Mandeville	Chilled Water Valve Replacement; DP Sensors (for MBCx)	409,723	5,556
Galbraith Hall	Chilled Water Valve Replacement; DP Sensors (for MBCx)	409,723	5,556
CMM East	Controls, sensors, actuators, and Duct Refurbishment; Air Rebalance to New Standards - CMM East	2,222,147	95,614
UC San Francisco			
CSB	CSB - Replace lighting w/more efficient T8 lamps and ballasts	273,917	0
Dentistry	Install and Commission New VFDs, Reduce Air and Temp Based on Demand	910,485	68,784
HSE	HSE - Replace lighting with T8 lamps and ballasts	493,959	0
HSE	HS East - Reset FH Exhaust Fan Static Pressure and Improve FH Ducting	179,071	0
HSW	HSW - Replace lighting with T8 lamps and ballasts	427,016	0
HSW	HS West - Install 3rd Floor Fan VFD/Reduce Air Flow and Temp Based on Demand	44,824	21,703
Kalmanovitz Library	Install and Commission New VFDs, Correct Start/Stop Controls	676,307	147,757
Kalmanovitz Library	Recommission Economizer Operation on AH-2	131,308	11,667
Kalmanovitz Library	Replace Energy Management Control System	224,524	18,295
Library	Library - Replace lighting w/more efficient T8 lamps and ballasts	216,332	0
Mission Center Building	Replace inlet guide vanes with VFDs on SFN & RFN 4-1 & 4-2	289,891	0
MSB	MSB - Replace lighting w/more efficient T8 lamps and ballasts	608,269	0
Mt. Zion Research Center	MBCx	1,681,968	100,554
MU	MU - Replace lighting w/more efficient T8 lamps and ballasts	120,029	0
Nursing	Reduce Supply Air and Exhaust Based on Demand	267,540	57,773
UC Santa Barbara			
Biology 2	Bi-level Stairwell Light Retrofit	5,515	0
Biology 2	Low pressure drop filters on AHUs	259,169	0
Biology 2	Retrofit V-belt drives to direct drive	260,975	0
Bren	Bren MBCx	262,000	7,339
Bren	Low pressure drop filters on AHUs	54,639	0

Table 2.6: 2006-08 UC/CSU/IOU Partnership Project History (Continued)

Campus/Building	Project Description	Electric Savings (kWh/yr)	Gas Savings (th/yr)
Chem	Low pressure drop filters on AHUs	188,368	0
Chem	Retrofit V-belt drives to direct drive	122,859	0
Davidson Library	T8 Lighting Retrofit	46,646	0
Engineering	Bi-level Stairwell Light Retrofit	5,515	0
Engineering 1	Retrofit two ventilation systems to dual duct VAV	290,000	13,770
Engineering 1	T8 Lighting Retrofit	175,353	0
Engineering 2	MBCx Measures	369,384	36,709
Engineering 2	T8 Lighting Retrofit	254,393	0
Engineering 2	Low pressure drop filters on AHUs	141,757	0
Engineering Science	Low pressure drop filters on AHUs	37,686	0
Davidson Library (Library 4)	Bi-level Stairwell Light Retrofit	5,515	0
Davidson Library (Library 2)	Low pressure drop filters on AHUs	65,974	0
Davidson Library (Library 3)	Low pressure drop filters on AHUs	17,087	0
Davidson Library (Library 4)	Low pressure drop filters on AHUs	58,616	0
Davidson Library (Library 4)	Retrofit V-belt drives to direct drive	45,472	0
Life Science	MBCx Measures	437,410	21,074
Life Science	Low pressure drop filters on AHUs	202,094	0
Marine Science	MBCx Measures	300,097	17,128
MRL Building	Retrofit V-belt drives to direct drive	53,533	0
MSRB Building	Low pressure drop filters on AHUs	109,116	0
North Hall	Bi-level Stairwell Light Retrofit	5,515	0
North Hall	T8 Lighting Retrofit	133,888	0
PSB North	Bi-level Stairwell Light Retrofit	5,515	0
PSB North	T8 Lighting Retrofit	209,350	0
PSB North	Low pressure drop filters on AHUs	165,278	0
PSB North	Retrofit V-belt drives to direct drive	199,157	0
Psychology	Low pressure drop filters on AHUs	27,507	0
South Hall	Bi-level Stairwell Light Retrofit	5,515	0
South Hall	T8 Lighting Retrofit	182,590	0
UC Santa Cruz			
Comm	Replace existing lighting fixtures with bi-levels	1,291	0
Earth/Marine Science	Replace T8-32W with T8-28W	64,824	0
Engineering 2	Engineering 2 MBCx	418,156	64,478
Jack Baskin Engineering	Relamping Phase II - Replace T8 32W lamps with T8 28W lamps in classrooms and 25W lamps in hallways & other areas	82,184	0
JBEB	Replace existing lighting fixtures with bi-levels	7,850	0
Kerr Hall	Replace existing lighting fixtures with bi-levels	13,016	0
Kerr Hall	Relamping Phase II - Replace T8 32W lamps with T8 28W lamps in classrooms and 25W lamps in hallways & other areas	24,749	0

Table 2.6: 2006-08 UC/CSU/IOU Partnership Project History (Continued)

Campus/Building	Project Description	Electric Savings (kWh/yr)	Gas Savings (th/yr)
Music Center	Relamping Phase II - Replace T8 32W lamps with T8 28W lamps in classrooms and 25W lamps in hallways & other areas	21,274	0
Music Center Recital Hall	Music Center Recital Hall	48,435	311
Nat Sci 2	Natural Sciences II - Replace T8 32W lamps with T8 28W lamps	47,701	0
Nat Sci 2	Replace existing lighting fixtures with bi-levels	5,761	0
Porter College Academic	Relamping Phase III - Replace T8 32W lamps with T8 28W lamps in classrooms and 25W lamps in hallways & other areas	7,295	0
Science Library	Science Library - Replace T8 32W lamps with T8 28W lamps	88,330	0
Social Sciences 1	Relamping - Replace T8 32W lamps in halls/stairs w/25W, room w/28W	40,889	0
Social Sciences 2	Relamping - Replace T8 32W lamps in halls/stairs w/25W, room w/28W	79,395	0
Social Sciences 2	MBCx - Social Sciences 2	76,506	13,188
Thimann	Replace existing lighting fixtures with bi-levels	6,841	0
Non-SEP Buildings			
UC Berkeley			
2000 Carleton Street	2000 Carleton Street - AHU-5, 8, 9 CAV to VAV System Conversion	24,195	2,279
2120 Berkeley Way	Ballast Replacement	18,000	0
6701 San Pablo	Install wireless lighting controls	8,100	0
Genetics and Plant Biology	Genetics and Plant Biology - Convert Fumehood to VAV System	140,192	2,557
Genetics and Plant Biology	Genetics and Plant Biology - Re-size Motors, Sheave an Balance	2,248	0
Genetics and Plant Biology	MBCx	101,690	4,094
Gilman Hall	Gilman Hall T8 LBF ballasts; Delamping	23,384	0
Glauque	Glauque Hall - Lighting retrofits and occupancy sensor controls	35,504	0
Hargrove Library	Hargrove Library - AHU 1 Static Pressure Reset Strategy	30,874	0
Hargrove Library	Install wireless lighting controls	4,050	0
Hertz Hall	Hertz Hall - AHU-1, 2 CAV to VAV System Conversion	221,427	20,859
Minor Hall	Minor Hall Addition - AHU 1, 2 and 3 Static Pressure Reset Strategy	67,104	0
Morrison Library	Photocell: Stairs lighting	788.4	0
Multi	Steam Trap - Survey and Replacement Campuswide	0	115,712
Parking Law	Ballast: T12-T8	8,234	0
Parking Structure C	Ballast: T12-T8	6,570	0
Parking Structure H	Ballast: T12-T8	45,640	0

Table 2.6: 2006-08 UC/CSU/IOU Partnership Project History (Continued)

Campus/Building	Project Description	Electric Savings (kWh/yr)	Gas Savings (th/yr)
Parking Structure H	Photocell	39858	0
Parking Structure U	Ballast: T12-T8	21,812	0
Parking Structure U	Photocell	6132	0
Pimentel	Pimentel Hall - Lighting retrofits	23,477	0
Richmond Field Station	Northern Regional Library Chiller Replacement	188,600	0
Silver Space Sciences Laboratory Addition	MBCx	215,833	1,800
Univ Art Museum	Occupancy Sensors	946.08	0
Various Bldgs	Convert Incandescent Fixtures to Fluorescent: Mech Rms	7,200	0
Various Bldgs	Install bi-level stairwell lighting	37,580	0
Various Bldgs	Ballast: T12-T8	24,960	0
Various Bldgs	Occupancy Sensors	9000	0
Various Bldgs	Photocell	15000	0
Various Bldgs	Install wireless lighting controls	7,500	0
UC Davis			
Central Plant	Central Plant - Install Trane centrifugal chillers in place	0	1,246,278
Central Plant	Central Plant - install HP steam traps for blocked or leak thru	0	105,390
Central Plant	Central Plant - install LP steam traps for blocked or leak thru	0	287,100
Chem/Chem Annex	Chemistry - Air supply and exhaust system revalance (TAB)	0	0
Chem/Chem Annex	Chemistry Annex - Air supply and exhaust system revalance (TAB)	0	0
Mrak	CV to VAV Conversion	272,617	69,848
Mrak	Time-of-day controls on HVAC via EMS	243,982	115,564
Physics Geology Building	Physics Geology Building MBCx Hybrid	25,600	69,602
Segundo Dining	Install VFDs and controls on kitchen hoods and supply fans	139,687	8,451
UC Irvine			
Rockwell Engineering Center	McDonnell Douglas - Implement Demand Control Ventilation	37,240	657
Mesa Arts	Mesa Arts AC 1&3 - Replace units, install full DDC, implement new sequences	106,923	6,843
Mesa Arts	Mesa Arts AC 2 - Install full DDC controls, new sequences	36,408	2,831
Mesa Arts	Mesa Arts HWP 1&2 - Install VSDs on hot water pumps	1,923	0
Mesa Arts	Mesa Office AC 4&5 - Replace units, install full DDC, implement new sequences	84,874	4,894
Mesa Arts	Mesa Office HWP 1&2 - Install VSDs on hot water pumps	1,923	0

Table 2.6: 2006-08 UC/CSU/IOU Partnership Project History (Continued)

Campus/Building	Project Description	Electric Savings (kWh/yr)	Gas Savings (th/yr)
Multi	Install Occupancy Controls on Restroom Exhaust Fans and Lighting	257,802	0
Krieger Hall	Replace existing stairwell lighting with bi-level technology	3,154	
Information and Computer Science	Replace existing stairwell lighting with bi-level technology	4,675	
Paul Merage School of Business	Replace existing stairwell lighting with bi-level technology	3,194	
MPAAB	Replace existing stairwell lighting with bi-level technology	3,411	
Rockwell Engineering Center	Replace existing stairwell lighting with bi-level technology	1,122	
Gateway Commons	Replace existing stairwell lighting with bi-level technology	2,035	
Humanities Hall	Replace existing stairwell lighting with bi-level technology	3,469	
Quereshey Lab	Replace existing stairwell lighting with bi-level technology	1,456	
EH&S Building	Replace existing stairwell lighting with bi-level technology	2,967	
Engineering Lab	Replace existing stairwell lighting with bi-level technology	2,802	
Multi	Upgrade to Low Pressure Drop/High Eff HVAC Filters	3,092,758	0
Multi	Multiple Bldgs - Replace 1,000 CRT Monitors with LCDs	343,715	0
Physical Science Lecture Hall	Physical Sciences - Implement Demand Control Ventilation	57,307	1,438
Schneiderman	Shneiderman - TOD controls, new sequences, DAT reset	3,727	1,679
Social Science Hall	Social Sciences #1 - Implement Demand Control Ventilation	23,740	634
UC Office of the President			
UC Kearney Research Center	New Refrigeration Rack	83,457	0
UC Kearney Research Center	Revise controls to operate lower wattage fan during periods when refrigerant is not flowing	74,738	0
UC Kearney Research Center	Replace MV fixtures with MH fixtures and install timeclocks	17,030	0
UCOP	MBCx	187,000	500
UC Riverside			
Central Steam Plant	Central Steam Plant - Add economizer to #4 boiler	0	78,073
UC San Diego			
Student Health	Chilled Water Valve Replacement; DP Sensors (for MBCx)	409,723	5,556
Multi	CO2 Ventilation Control; 76 Computer Labs & 35 Lecture Halls	738,722	44,246
UC San Francisco			

Table 2.6: 2006-08 UC/CSU/IOU Partnership Project History (Continued)

Campus/Building	Project Description	Electric Savings (kWh/yr)	Gas Savings (th/yr)
Koret Vision Center (Vision Rsch)	Koret Vision Center - Replace lighting w/more efficient T8 lamps and ballasts	95,073	0
UC Santa Barbara			
Aircraft Warning Lights	T8 Lighting Retrofit	34,834	0
Ellison Hall	T8 Lighting Retrofit	242,970	0
Girvetz Hall	T8 Lighting Retrofit	73,833	0
Kerr Hall	T8 Lighting Retrofit	53,683	0
Kerr Hall	Low pressure drop filters on AHUs	2,332	0
Kerr Hall	Retrofit V-belt drives to direct drive	27,773	0
Marine Biology Building	Bi-level Stairwell Light Retrofit	5,515	0
Noble Hall	Bi-level Stairwell Light Retrofit	5,515	0
Phelps Hall	T8 Lighting Retrofit	208,382	0
Phelps Hall	Retrofit V-belt drives to direct drive	54,225	0
Snidecor Hall	Bi-level Stairwell Light Retrofit	5,515	0
Student Health	Low pressure drop filters on AHUs	20,342	0
UC Santa Cruz			
2300 Delaware	Replace existing lighting fixtures with bi-levels	6,057	0
2300 Delaware	Relamping Phase III - Replace T8 32W lamps with T8 28W lamps in classrooms and 25W lamps in hallways & other areas	31,132	0
Central Plant	Campus VFD and HHW Retrofits	403,061	3,636
Central Plant	Plant HHW Piping Retrofit	23,177	3,960
Classroom Unit 1 &2	Classroom Unit 1 & 2	31,921	730
College Eight Academic	Relamping Phase III - Replace T8 32W lamps with T8 28W lamps in classrooms and 25W lamps in hallways & other areas	8,779	0
College Eight Academic	Replace existing lighting fixtures with bi-levels	2,985	0
Cowell Coll Acad	Relamping Phase IV - Replace T8 32W lamps with T8 28W lamps in classrooms and 25W lamps in hallways & other areas	17,881	0
Crown Coll Acad	Relamping Phase IV - Replace T8 32W lamps with T8 28W lamps in classrooms and 25W lamps in hallways & other areas	6,576	0
Data Center	Migration of 40 Physical Servers to 40 Virtual Servers on 8 units	57,584	0
East Field House	Relamping Phase III - Replace T8 32W lamps with T8 28W lamps in classrooms and 25W lamps in hallways & other areas	43,101	0
Elena Baskin Arts	Relamping Phase II - Replace T8 32W lamps with T8 28W lamps in classrooms and 25W lamps in hallways & other areas	11,491	0
Elena Baskin Building A Clay Sculpture	Baskin Arts Complex - Replace Std Thermostats with Windup Timers	0	135

Table 2.6: 2006-08 UC/CSU/IOU Partnership Project History (Continued)

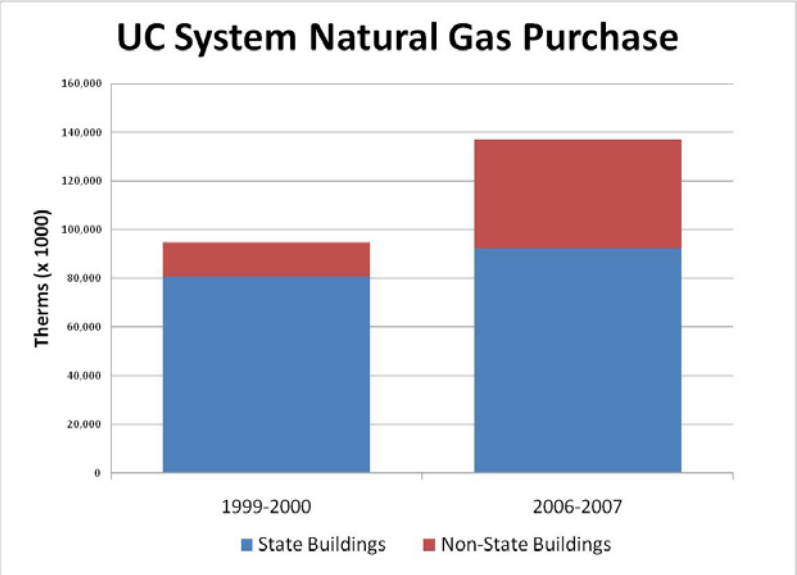
Campus/Building	Project Description	Electric Savings (kWh/yr)	Gas Savings (th/yr)
Elena Baskin Building B Storage	Baskin Arts Complex - Replace Std Thermostats with Windup Timers	0	135
Elena Baskin Building C Sculpture	Baskin Arts Complex - Replace Std Thermostats with Windup Timers	0	135
Elena Baskin Building D Multipurpose	Baskin Arts Complex - Replace Std Thermostats with Windup Timers	0	135
Elena Baskin Building E Painting	Baskin Arts Complex - Replace Std Thermostats with Windup Timers	0	135
Elena Baskin Building F Drawing	Baskin Arts Complex - Replace Std Thermostats with Windup Timers	0	135
Elena Baskin Building G Printmaking	Baskin Arts Complex - Replace Std Thermostats with Windup Timers	0	135
Elena Baskin Building H Plaster	Baskin Arts Complex - Replace Std Thermostats with Windup Timers	0	135
Elena Baskin Building I Photo	Baskin Arts Complex - Replace Std Thermostats with Windup Timers	0	135
Elena Baskin Building J Visual Arts	Baskin Arts Complex - Replace Std Thermostats with Windup Timers	0	135
Elena Baskin Building K Arts Storage 2	Baskin Arts Complex - Replace Std Thermostats with Windup Timers	0	135
Elena Baskin Building L Watercolor	Baskin Arts Complex - Replace Std Thermostats with Windup Timers	0	135
Elena Baskin Building M Oil Painting	Baskin Arts Complex - Replace Std Thermostats with Windup Timers	0	135
Elena Baskin Building N Custodial	Baskin Arts Complex - Replace Std Thermostats with Windup Timers	0	135
Elena Baskin Building P Sculpture 2	Baskin Arts Complex - Replace Std Thermostats with Windup Timers	0	135
Theater Arts L (Experimental Theater)	Experimental Theater	45,104	15
Hahn Student Services	Replace existing lighting fixtures with bi-levels	1,788	0
ISB	Interdisc Sci Bldg (ISB) - Replace T8 32W lamps with T8 28W lamps	23,261	0
Kresge College Academic	Replace existing lighting fixtures with bi-levels	1,578	0

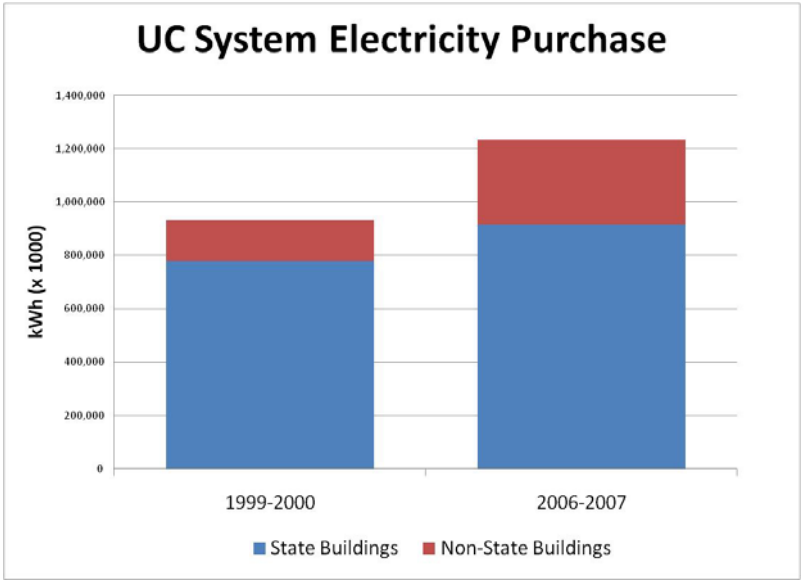
Table 2.6: 2006-08 UC/CSU/IOU Partnership Project History (Continued)

Campus/Building	Project Description	Electric Savings (kWh/yr)	Gas Savings (th/yr)
Lower Campus	Relamping Phase III - Replace T8 32W lamps with T8 28W lamps in classrooms and 25W lamps in hallways & other areas	8,392	0
Theater Arts M (Media Theater)	Media Theater	58,875	363
Merrill Coll Acad	Relamping Phase IV - Replace T8 32W lamps with T8 28W lamps in classrooms and 25W lamps in hallways & other areas	9,366	0
Music Annex	Replace existing lighting fixtures with bi-levels	1515	0
Oakes Coll Acad	Relamping Phase IV - Replace T8 32W lamps with T8 28W lamps in classrooms and 25W lamps in hallways & other areas	10,643	0
Stevenson Coll Acad	Relamping Phase IV - Replace T8 32W lamps with T8 28W lamps in classrooms and 25W lamps in hallways & other areas	14,727	0
Theater Arts	Relamping Phase II - Replace T8 32W lamps with T8 28W lamps in classrooms and 25W lamps in hallways & other areas	26,247	0

3. HISTORICAL CAMPUS ENERGY USE

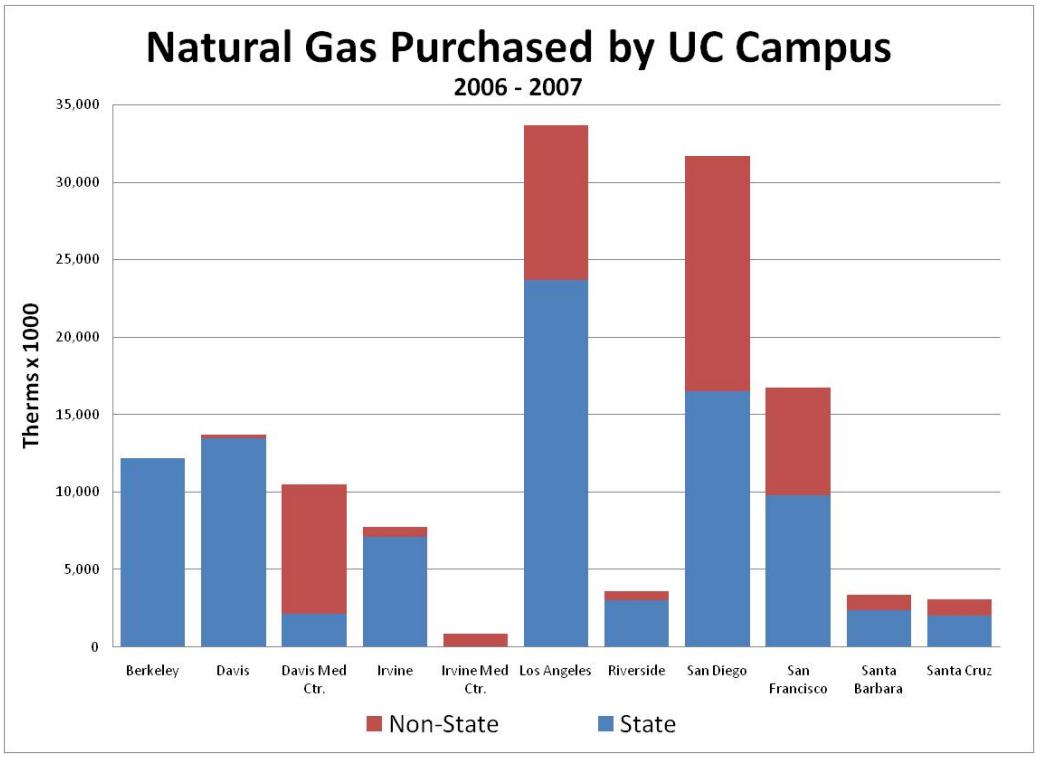
Purchased electricity and natural gas consumption for the University of California are provided in the graphs below. The University of California Office of the President has provided information on purchases for fiscal years 1999-2000, 2005-2006, and 2006-2007[1]. Reliable information is not currently available for the fiscal year 1989-1990. The information is divided between state-funded buildings (shown in blue) and non state-funded buildings (shown in red). Savings from energy efficiency projects will use the fiscal year 2006-2007 as the baseline for comparison.

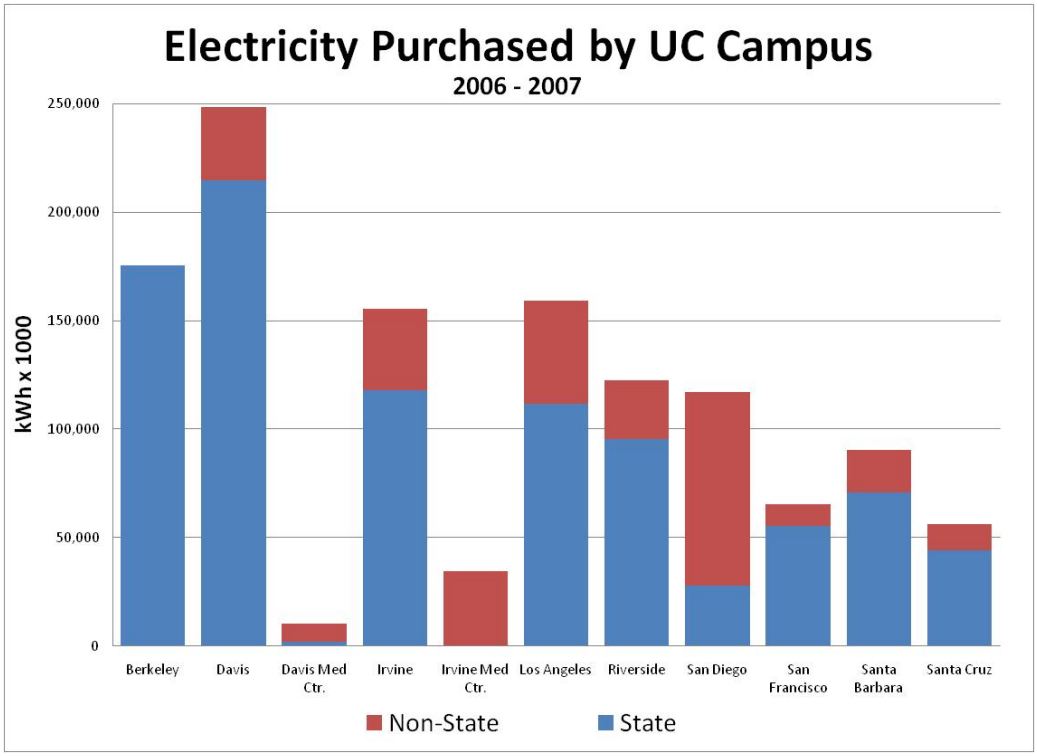




Note that usage of UC Merced has been excluded from the analysis. UCSF Medical Center and UCLA Medical Center are not included because energy purchases data was not available for these campuses. Data for all other campuses is shown in the following figures.

[1] Campus PU Costs & Usage State & NonSt.xls


Natural Gas Purchased by UC Campus
2006 - 2007
Therms x 1000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
Berkeley
Davis
Davis Med Ctr.
Irvine
Irvine Med Ctr.
Los Angeles
Riverside
San Diego
San Francisco
Santa Barbara
Santa Cruz
Non-State
State


Electricity Purchased by UC Campus
2006 - 2007
kWh x 1000
250,000
200,000
150,000
100,000
50,000
0
Berkeley
Davis
Davis Med Ctr.
Irvine
Irvine Med Ctr.
Los Angeles
Riverside
San Diego
San Francisco
Santa Barbara
Santa Cruz
Non-State
State

4. HISTORIC BUILDING ENERGY USE

4.1 Existing Metering Infrastructure

Three types of building-level, metered historical energy use data were requested from energy management personnel at the UC campuses – total annual, total monthly, and interval data for one summer and one winter week. An effort was made to obtain this data for each of the utilities present – electric, gas, chilled water, hot water, and/or steam. The availability of this data varied considerably by campus and utility. Generally, many buildings were equipped with electricity meters but few with gas or Btu meters.

The percentage of SEP buildings on each campus for which metered electricity and gas consumption was available is shown in Table 4.1. This table also shows estimates of the percentage of non-metered buildings, based on the assumption that if data was not provided it was because the building lacked a functioning meter. This may overestimate the number of buildings without meters, as other causes for missing data were occasionally reported by energy management personnel throughout the UC system.

Table 4.1: Building Electric and Gas Meters

Campus	SEP Buildings								SEP Bldgs w/ Local Gas	Total SEP Bldgs	Total Bldgs
	Metered				No Metered Data Available						
	Electric		Gas		Electric		Gas				
Berkeley	63	95%	1	10%	3	5%	9	90%	10	66	467
Davis	15	32%	0	-	32	68%	4	100%	4	47	590
Davis MC	3	19%	3	19%	13	81%	13	81%	16	16	84
Irvine	25	56%	4	50%	20	44%	4	50%	8	45	441
Irvine MC	2	22%	0	-	12	78%	9	100%	9	14	40
Los Angeles*	-	-	-	-	-	-	-	-	-	37	359
Los Angeles MC*	-	-	-	-	-	-	-	-	-	4	13
Riverside	3	9%	2	22%	29	91%	7	78%		32	223
San Diego	52	100%	0	-	0	-	13	100%	52	50	560
San Diego MC	5	83%	2	100%	1	17%	0	-	2	6	24
San Francisco	19	83%	7	54%	4	17%	6	46%	13	23	90
San Francisco MC	9	82%	3	50%	2	18%	3	50%	6	11	86
Santa Barbara	23	68%	18	55%	11	32%	15	45%	33	34	272
Santa Cruz	18	100%	9	100%	0	0%	0	-	9	18	379

*Campus did not provide utility data

The number of SEP buildings for which chilled water and hot water consumption was available is show in Table 4.2. Again, it is assumed that the SEP buildings with no metered data lacked a functioning meter.

Table 4.2: Building BTU Meters

Campus	SEP BUILDINGS								SEP Bldgs w/ Distr. Heat	Total SEP Bldgs	Total Bldgs
	Metered				No Metered Data Available						
	Heating		Cooling		Heating		Cooling				
Berkeley	26	48%	-	-	28	52%	-	-	54	66	467
Davis	6	15%	10	24%	35	85%	31	76%	41	47	590
Davis MC	-	-	-	-	-	-	-	-	-	16	84
Irvine	0	-	3	7%	37	100%	39	93%	37	45	441
Irvine MC	0	-	-	-	5	100%	-	-	5	14	40
Los Angeles*	-	-	-	-	-	-	-	-	-	37	359
Los Angeles MC*	-	-	-	-	-	-	-	-	-	4	13
Riverside	0	-	0	-	9	100%	9	100%	9	32	223
San Diego	0	-	0	-	38	100%	36	100%	38	50	560
San Diego MC	0	-	0	-	4	100%	3	100%	4	8	24
San Francisco	9	90%	0	-	1	10%	5	100%	10	23	90
San Francisco MC	3	38%	0	-	5	62%	1	100%	8	11	86
Santa Barbara	-	-	5	63%	0	-	3	37%	-	34	272
Santa Cruz	0	-	3	50%	9	100%	3	50%	9	18	379

*Campus did not provide utility data

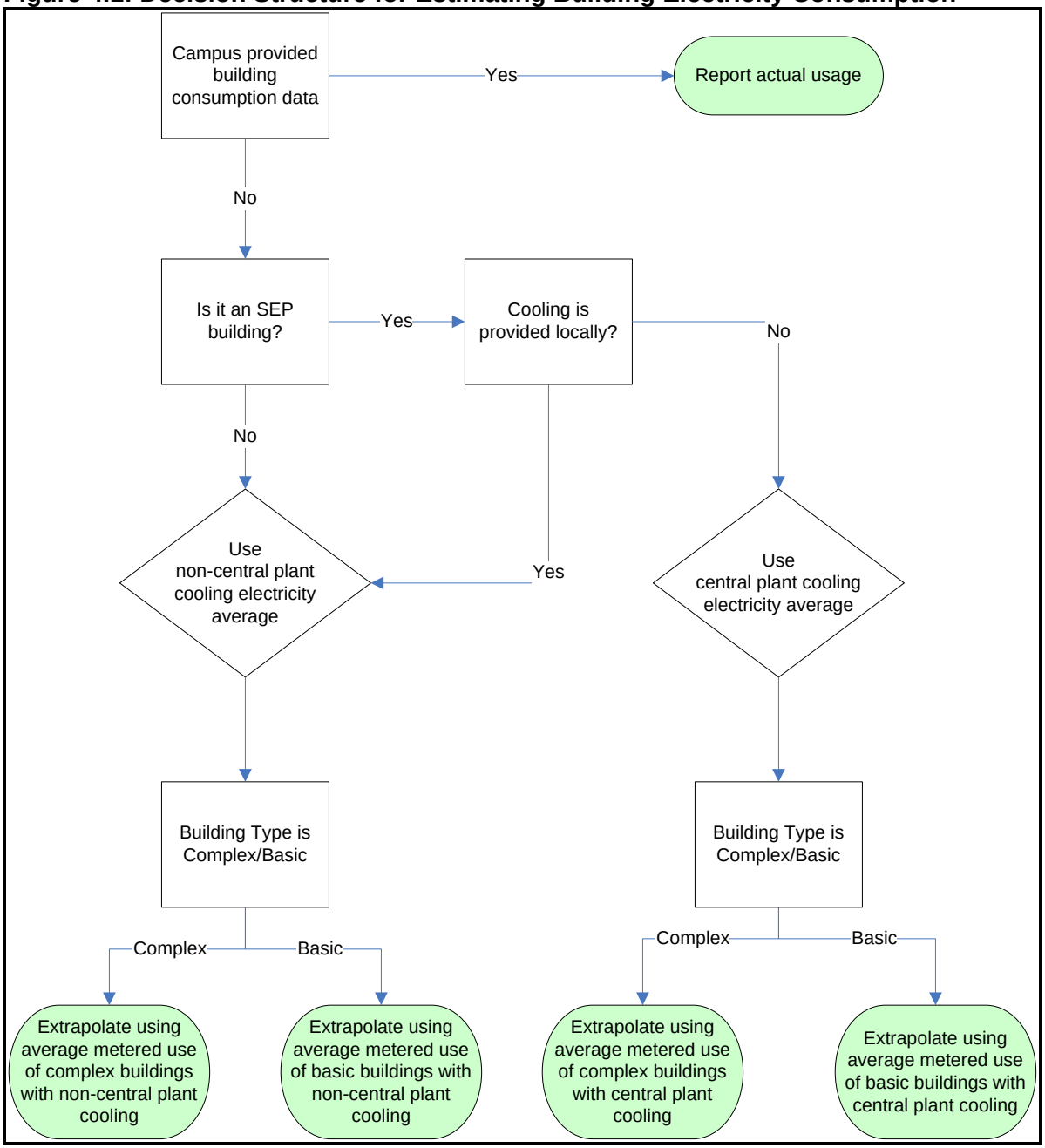
We recommend that all SEP buildings that currently lack metered data be outfitted with a meter for each utility. The Monitoring Based Commissioning (MBCx) measures that we have outlined in Section 8.3 should provide meters for all of the SEP buildings. However, additional meters are appropriate for buildings that are below the 50,000 SF threshold that are large energy consumers.

4.2 Individual Building Metering

Where available, the annual historical energy use for the SEP buildings has been incorporated in this study. Where no meter data was available, an estimate of building energy use was made based on campus average values. Generally, the campus average values were calculated for each utility using the sample of buildings with campus-supplied metered consumption. However, where the sample of buildings with metered data was too small to allow a reliable estimate of the campus average, a campus average was estimated based on total campus energy purchase data. The specific sources of building energy estimate data used for each campus are described in the campus-specific reports.

Using the meter data or purchase data, factors with units of energy use – kWh, therm, or MMBtu – per gross square foot were developed for electricity, gas, steam, hot water and chilled water. A procedure was required to apply appropriate factors to each building. For SEP buildings, this procedure relied on the building classification – "basic" or "complex" – as well as field data that described the types of utilities present at the building. A sample of the decision structure applied to each building to determine the appropriate energy use factors for electricity is shown in Figure 4.1. Similar structures were used to apply appropriate factors for gas, steam, hot water and chilled water.

Figure 4.1: Decision Structure for Estimating Building Electricity Consumption



The building energy consumption estimated by applying campus averages to building area provides a rough measure of the baseline building energy use for buildings that lacked metered data. When possible, the overall accuracy of this method has been evaluated based on the comparison of the resulting campus-wide energy consumption and the total reported campus energy purchase. Where there was a significant difference between these two sources, the extrapolated campus averages were adjusted to close the gap. In situations where the campus energy purchase was used to estimate the baseline energy consumption this reconciliation was not possible.

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4.3 Building Energy Use Targets

The metered annual electricity, heating energy (gas/steam/hot water), and cooling energy (chilled water) use is shown for the buildings where it is available in Figures 4.2 through 4.4, grouped according to whether the building is identified as Basic or Complex. Note that there is a broad range in electricity use intensities. In addition, some of the Basic buildings use more electricity per square foot than some of the Complex buildings. Although there are significant differences from one building to another, the performance of many buildings at a relatively low electricity use per square foot indicate that there is room to move many of the higher use buildings in that direction. The figures below reveal the range of energy uses in buildings, but because of the number of buildings involved, individual labels are not practical. Further details can be found in Appendix C.

Figure 4.2: Electricity Use Index for UC Buildings with Meter Data

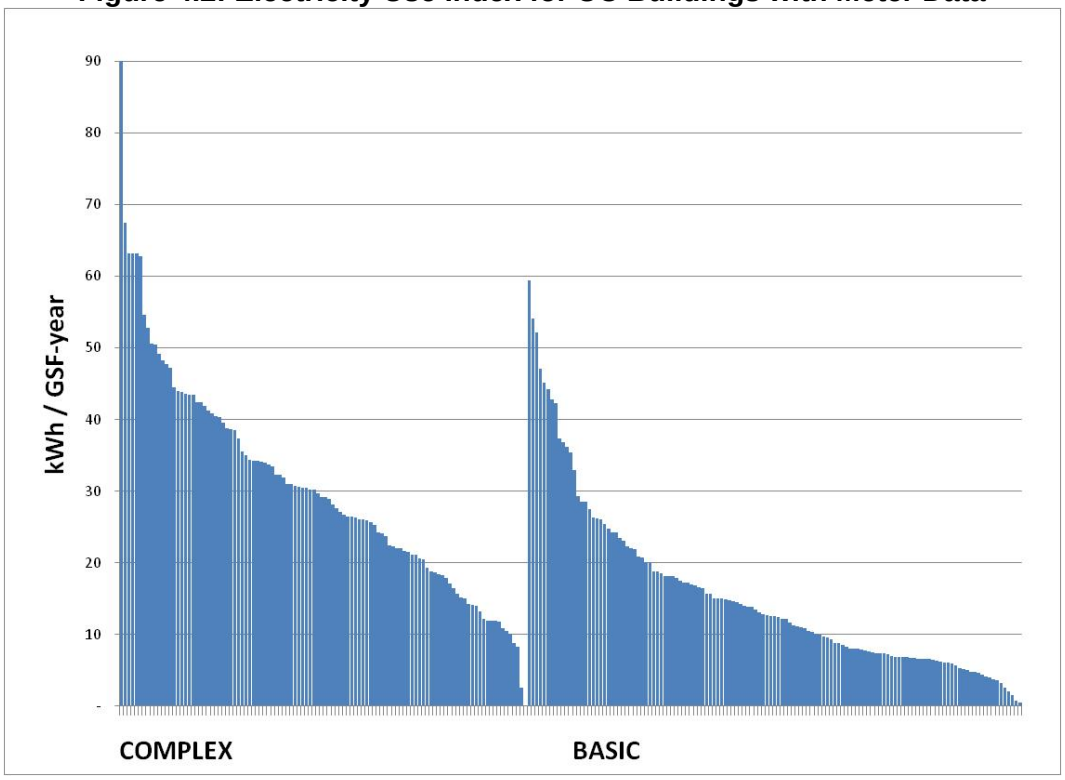


Figure 4.3: Heating Energy Use Index for UC Buildings with Meter Data

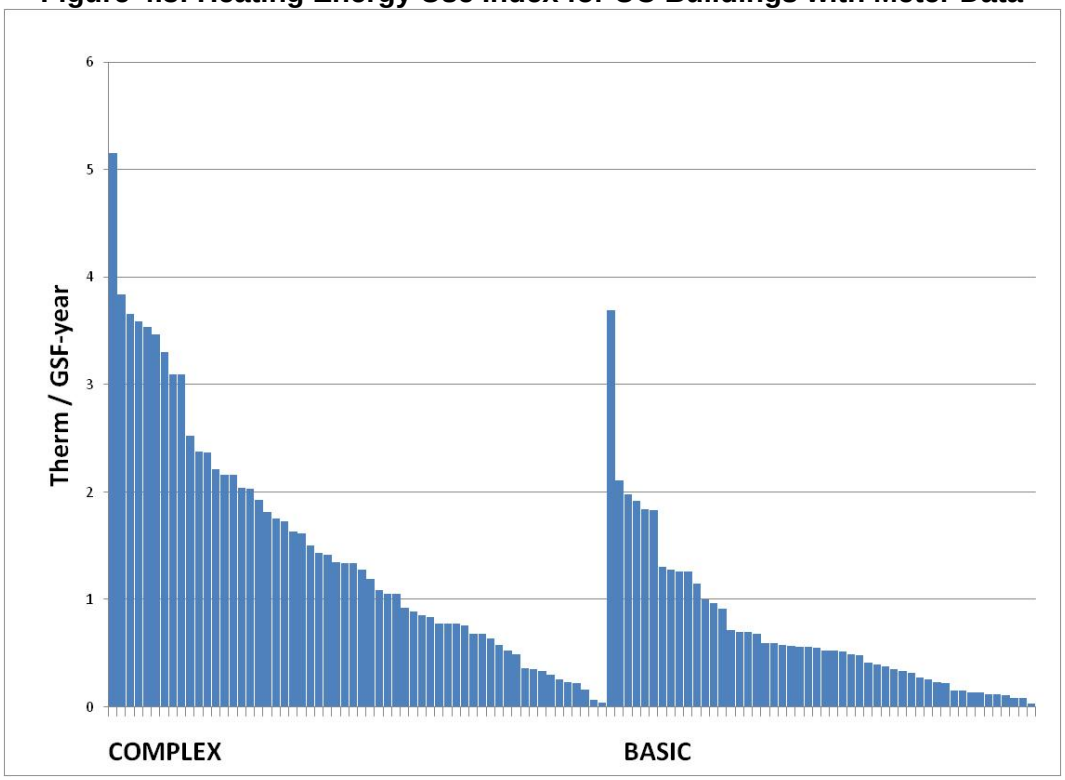
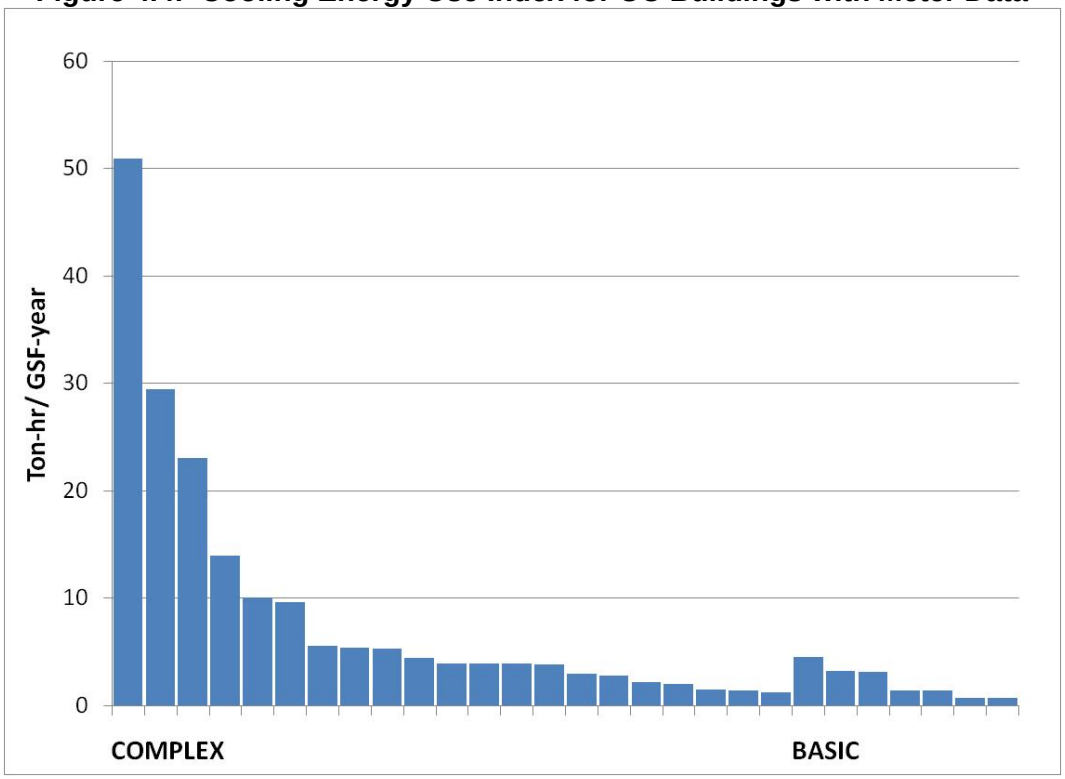


Figure 4.4: Cooling Energy Use Index for UC Buildings with Meter Data



5. UTILITIES

5.1 Providers & Tariffs

In the baseline 2006-07 Fiscal Year, utilities at UC campuses were provided by Investor Owned Utilities; Pacific Gas & Electric (PG&E), Southern California Edison (SCE), Southern California Gas (SCG) and San Diego Gas & Electric (SDG&E) or local Municipal Utilities; Sacramento Municipal Utility District (SMUD), Los Angeles Department of Water and Power (LADWP) and Riverside Public Utilities (RPU). Electricity was provided for all of the campuses under time of use rate schedules, with the exception of Riverside which has a flat rate schedule agreement. While nearly all the electricity consumed in the baseline year for the University of California systemwide was supplied by utilities, several campuses have cogeneration plants which provide a large portion of the individual campus' electricity. A summary of individual campus electric and gas service is provided in Table 5.1

Table 5.1: Campus Utility Summary

Campus	Electric Utility	Gas Utility	Cogeneration Capacity
UC Berkeley	PG&E	PG&E	3rd Party operated, provides steam only
UC Davis	PG&E	PG&E	
UC Davis MC	SMUD	PG&E	25 MW
UC Irvine	SCE	SCG	18.5 MW
UC Irvine MC	SCE	SCG	
UC Los Angeles	LADWP	SCG	40 MW
UC Riverside	RPU	SCG	
UC Santa Barbara	SCE	SCG	
UC Santa Cruz	PG&E	PG&E	2.7 MW (includes 290 kW in PE Complex)
UC San Diego and MC	SDG&E	SDG&E	31 MW
UC San Francisco and MC	PG&E	PG&E	13.75 MW

5.2 Procurement Options

There are limited procurement options for the campuses, but some campuses have recently opted for Direct Access in conjunction with the UCOP led effort to negotiate a Direct Access agreement for electric commodity. Additionally, several campuses are on a DGS rate schedule for natural gas commodity, which is generally advantageous, compared to the IOU rate schedules.

6. CAMPUS ELECTRIC INFRASTRUCTURE

Although the term “power quality” can be used to describe a variety of electrical generation and distribution system attributes, for the purposes of this study, issues that could result in additional energy charges from the utility were the focus. Primarily, these are conditions that cause a differential between campus and/or facility kW and kVA usage. When this differential is large enough, the utility will apply an additional charge, commonly referred to as a VAR charge. A review of the each campus’ utility charges and discussion with facilities personnel confirms that there are no power quality issues of this type on any of the campuses.

7. RENEWABLE ENERGY GENERATION

7.1 Technologies

Sustainable energy sources are available in many types and forms, including photovoltaics, fuel cells, and wind power. The use of direct solar heating as an alternative energy source is discussed under Section 8 of this report.

Fuel cell infrastructure and operational requirements typically give this type of generation project an unacceptably long payback, unless the cell was designed to be installed as part of curriculum or research requirements. As such, fuel cell use was discounted. Additionally, wind patterns in and around the buildings at the campus were not conducive to a reliable pattern that could sustain sufficient power generation to make a wind power project viable.

Photovoltaic sources were identified as the most cost-effective and readily available means of sustainable energy. The remaining evaluation of sustainable energy on campus is focused on this technology. The most efficient, least intrusive form of this technology is a relatively flat, non-penetrating array mounted on a rooftop or parking structure canopy. This resource is available from several sources around the globe, and is not considered proprietary. Available square footage for power production assumes maximum exposure at a low angle of incidence, along with regular access and maintenance of the equipment. Due to the potential for substantial variance in the availability of incentives and funding for installation due to existing public utility agreements, third-party power contracts, and the potential for existing renewable resources already in use at the campus, no incentives are included to offset construction costs.

7.2 Potential Projects

When the 1 MW of committed photovoltaic power is accounted for, there remains 3.293 MW of remaining potential rooftop photovoltaic available to be developed at the existing campus buildings. The University's cost of Power Purchase Agreement photovoltaic power used in this report is assumed to be $0.02/kWh above available retail power for investor owned utility customers for the first 1 MW of photovoltaic power, assuming the third party receives the utility incentives, tax credits and so on. The University's cost of PPA PV power for all capacity beyond the first 1 MW is assumed to be $0.04/kWh above available retail power for IOU customers. It is assumed that the campus will have access to the Renewable Energy Credits associated with this power, at least in time for the 2014 and 2020 target dates.

The study identified a total photovoltaic potential of 4.3 MW of system capacity at an estimated construction cost of $38.6M. System locations and details are listed in the table below. Based on the California Energy Commission's Clean Power Estimator tool, the annual output of the system is estimated at 5,881,843 kWh. After accounting for the 1 MW already constructed, the additional future potential renewable generation is estimated at 4,511,843 kWh/yr.

Table 7.1: Photovoltaic Project Potential

Campus	Available Roof Area (sf)	PV System Capacity (kW)	Estimated Annual Power Output (kW-h)*	Estimated PV System Construction Cost**
UC Berkeley	139,880	1,189	1,599,178	$ 10,929,394
UC Davis	709,499	6,031	8,038,978	$ 54,276,674
UC Davis MC	335,422	2,851	3,800,499	$ 25,659,783
UC Irvine	505,096	3,293	4,511,843	$ 29,639,844
UC Irvine MC	59,080	502	687,987	$ 4,519,620
UC Los Angeles	589,943	5,015	6,950,118	$ 47,323,057
UC Riverside	457,462	3,888	6,660,875	$ 35,061,187
UC Santa Barbara	293,125	2,492	3,645,156	$ 22,931,938
UC Santa Cruz	332,277	3,108	4,180,355	$ 27,972,635
UC San Diego and MC	662,596	5,633	7,918,685	$ 50,901,604
UC San Francisco and MC	266,700	2,267	3,049,048	$ 20,402,550
All Campus Total	**4,351,080**	**36,269**	**51,042,722**	**$ 329,618,286**

* Based upon equivalent full load sun-hours per year, calculated using Clean Power Estimator (http://www.consumerenergycenter.org/renewables/estimator/index.html) for a Simple Commercial PV System, 5 degree tilt, south facing system in local zip codes.

** Based upon $9.00 per watt for roof installation, or $9.50 per watt for parking structure installation, exclusive of tax credits, rebates, or incentives.

8. RECOMMENDED ENERGY EFFICIENCY PROJECT DESCRIPTIONS

The projects identified in this SEP are described below, and the project titles are referenced for each applicable project on the individual Project Summary pages later in this report. While there are often alternative technologies or approaches to projects that can be considered for a given retrofit, this report's recommendations focus on projects that can be implemented cost effectively with available technologies and methods. Where appropriate, alternate approaches and considerations are discussed for projects considered but not included as a recommendation of this SEP.

For ease of reference, all SEP projects have been assigned an SEP ID Number. The SEP ID number consists of one letter followed by four digits, and is a unique number that will help easily locate projects. The SEP ID number has been included on the Building Overview pages later in this report, and the Project Summary section of this report is organized by SEP ID number to allow easy location of a project.

8.1 Lighting Projects

The Strategic Energy Plan includes a projection of the magnitude of lighting energy efficiency projects in each SEP building, and, where the information was available, in smaller buildings as well. The plan addresses fluorescent building lighting in some detail. It also identifies potential energy savings in interior HID lighting, as well as parking garage lighting and some outdoor lighting.

8.1.1 Lighting Project 1. Interior Linear Fluorescent Lighting

The standard project for fluorescent light fixtures is to use a state of the art lamp and ballast combination to limit each pair of fluorescent lamps and ballast to approximately 42 watts. This can be achieved through different combinations of lamps and ballasts according to each individual campus's preference. Unless a campus expressed a specific preference, the default retrofit used for the analysis was to replace existing 32W T8 lamps and any remaining T12 lamps and their associated ballasts with 28W T8 lamps and premium efficiency ballasts with low ballast factors. The resulting fixtures typically operate at slightly lower light levels relative to the existing levels, but their improved color rendition has been shown to increase or maintain the perceived light level. Campuses can factor in color temperature, lamp life, lamp standardization, ballast standardization and a number of issues into their design.

UC Santa Barbara, has chosen to install dimming ballasts in many applications instead of basic ballasts. This involves extra expense and operating complexity, but the potential for greater energy savings as well. The higher cost and savings are documented in the analysis.

8.1.2 Lighting Project 2. Interior Lighting Controls

Another standard lighting project is to install occupancy control in rooms that do not currently have occupancy control. The analysis accounts for the fact that most campuses already have occupancy sensors in some buildings, primarily in offices and classrooms. Some campuses have early generation occupancy sensors in classrooms, many of which have been disabled at the request of faculty and staff. Newer "dual technology" occupancy

sensors, which detect both motion and heat, are much more reliable than the older technology, which was prone to turning off lights when occupants were not moving.

Occupancy sensors are recommended in this report for all classrooms, offices, meeting rooms, restrooms, lecture halls, auditoriums, storage areas, some library spaces, and a portion of residential areas. They are not recommended in this report for laboratories, animal quarters, greenhouses, food service areas, museums, or medical service areas. On average, occupancy sensors are assumed to reduce lighting energy use by 25%, per utility incentive standards.

The lighting recommendations also include daylight harvesting. Daylight harvesting should be applied to fixtures near skylights or windows, in areas that are overlit when sunlight is entering the building. Daylighting controls are assumed to apply to 10% of the fluorescent fixtures in classrooms, lecture halls, libraries, athletic areas, and common spaces, and 5% of fixtures in offices. For those fixtures, the daylighting controls are assumed to reduce energy use by 75% after occupancy sensor control.

8.1.3 Lighting Project 3. Stairwell Lighting

There is a significant energy savings potential from the lighting in stairwells. The standard project for these fixtures is to replace them with bi-level fluorescent fixtures. Bi-level fixtures are controlled by occupancy sensors that reduce lighting levels to a low standby mode when the space is unoccupied. The fixtures are specifically designed to meet fire code requirements for stairwells.

It is recommended that UC replace every stairwell fixture in the system with this technology.

8.1.4 Lighting Project 4. Interior High Bay Lighting

Interior high intensity discharge (HID) fixtures are identified for conversion to fluorescent sources, generally T8 or T5 lamps, with occupancy sensor control. These are typically located in gymnasiums, sports facilities, swimming pools, and other high ceiling areas. Fluorescent has become the standard design for efficient lighting in high bay applications because of the relatively efficient output of the fluorescent sources, the higher output capacity of the T5 lamps, better color rendition, and the instant-on capability that permits occupancy control.

8.1.5 Lighting Project 5. Parking Garage and Outdoor Pole Lighting

Fluorescent lighting is a common conversion for parking garage lighting as well. A number of garages are lit with high pressure sodium (HPS) fluorescent fixtures, so the conversion to two or three lamp T8 fluorescent fixtures provides a significant energy savings and much improved color rendition. The lumen level is not necessarily maintained in these conversions, but occupant satisfaction is maintained. Some campuses are experimenting with bi-level garage lighting, controlled by occupancy sensors. This can be applied to HID as well as fluorescent light sources. Others have chosen to replace HID lighting with induction lighting, which is a more expensive technology that has much longer lamp life than any other technology.

Campuses also have a significant amount of outdoor pole lighting, along sidewalks, in parking lots, and on the roofs of parking garages. Pole lighting is commonly LPS, HPS, or HID technology. LPS and HPS fixtures can be retrofitted with fluorescent technology, and metal halide fixtures with pulse start metal halide or fluorescent technology.

One campus, UC Santa Barbara, has chosen to replace existing HPS pole street lights with new LED technology. LED technology is currently quite expensive, but has great potential for energy savings.

8.1.6 Campus Specific Lighting Survey Details

A. UC Berkeley

The most common lighting types reported for the UC Berkeley campus are 1st generation T8 and T12 with *electronic* ballasts. A sample of lighting in 11 buildings was reviewed to estimate the W/sf and prevalence of these lighting types. The sample shows that there are roughly equal areas of these two main lighting types, and that they have similar W/sf. A smaller, but significant number of eight foot T12 with *electronic* ballasts was also found by the sampling.

The assignment of lighting types to the SEP buildings was accomplished by one of the following three ranked methods:

1. If the building was directly sampled, then that sample data was scaled up to the entire area of the building,
2. If a building was assigned to a "predominately 1st generation T8" or "predominately T12 EB" category by the lighting auditor, then 85% of the building's area was assigned the specified lighting type.
3. In other cases the building area was divided according to the overall sample results: 40% 1st generation T8, 40% T12 EB, and 5% 8 foot T12 EB.

Many partnership projects have already been planned for the Berkeley campus. To eliminate duplication, projects here were eliminated if they overlapped with a pre-existing partnership project.

The prevalence of existing occupancy sensors was assigned using one of the following two methods:

1. If the building was directly sampled, then that sample data was scaled up to the entire area of the building,
2. Otherwise, general estimates of 75% use of occupancy sensors in classrooms provided by campus facilities management were applied.

Occupancy sensors and daylighting were assigned to most buildings. However, they were not assigned where they would overlap with a pre-existing partnership project.

B. UC Davis

UC Davis campus facilities managers reported that nearly all lighting on campus had been upgraded from T12 to first generation T8. Some advanced lighting projects have also been completed, installing LED with occupancy sensors in some residence restrooms and dimmable, photosensing ballasts in some residence common areas.

Energy density of campus lighting was derived from a survey of previously completed retrofit projects. This survey describes the upgrading of many campus fixtures from T12 to first generation T8. However, the floor space affected by these retrofits is not specified, and therefore there is some uncertainty in the estimate of resulting W/sf. Estimating the resulting W/sf by dividing total fixture counts by total building area only produced a result within the expected range for a few buildings. In other buildings it appears the retrofit only impacted a fraction of the fixtures in the building. In the end, a value of 1.3 W/sf was selected from the subset of buildings that were determined to represent comprehensive fixture data.

Some lab buildings were reported to use higher lighting density to facilitate tasks. Therefore, roughly 1/3 of lab building areas were assigned a higher existing lighting density of 1.6 W/sf. To account for the advanced ballasts installed in certain residence halls, 1/3 of the area in those buildings was assumed to have a very low existing W/sf that would not be retrofit. These buildings are also excluded from new daylighting projects.

C. UC Davis MC

Nearly all linear fluorescent fixtures on the UCD Medical Center campus have T8 lamps and electronic instant start ballasts, with T5 lamps in a couple of the newest buildings. A few fixtures with T12 lamps and magnetic ballasts can be found in the main hospital and in the Fleet Services bus bay, but they are few.

A few areas on campus such as the central plant, the parking structures, and the Facilities Support vehicle bays are lit by high intensity discharge (HID) fixtures. Some of the parking structures have Globalight power regulators installed on the lighting control panels, which reduce the voltage to a set level. According to campus staff, metered results have shown a 30% reduction in energy use at these locations. This power regulation has been taken into account in the project analysis.

In general, buildings built in 1998 or later have occupancy sensors in the offices and conference rooms, the majority of which were installed in 2003.

In April 2008, Amtech performed a lighting survey of ten newer campus facilities. In general, Amtech recommended de-lamping many of the T8 fixtures and installing reflectors to maintain perceived light levels. The savings from de-lamping have not been quantified in this report, but it is certainly a viable option that UCD Medical Center should consider, in concert with the recommendations made herein.

For the purpose of the SEP analysis, the energy density of the lighting was estimated based on sampling done by SEP lighting auditors at other UC campuses. Areas with T8 lighting were estimated to have 1.29 watts per square foot, and areas with T12 lighting were estimated at 1.75 watts per square foot. The difference in energy density between T8 and T12 lighting is partially accounted for by the differing efficiencies of the fixtures, but also by the layouts of the design. It is assumed based on sampling results that areas with T12 lighting have a higher fixture density because they are in older buildings. Analysis of the HID projects was based on actual lighting counts done by the SEP lighting auditors.

D. UC Irvine

Sampling data of the SEP buildings at UC Irvine shows that the majority of fluorescent fixtures on campus have 32W T8 lamps with standard, normal ballast factor ballasts. UC Irvine recently retrofitted the last 44 campus buildings that had T12 lighting with 32W T8 lamps and low ballast factor ballasts.

It is now a campus standard to replace linear fluorescent lamps with 25W lamps, regardless of the ballast factor. This was therefore used as the general campus recommendation. By the end of 2008, the campus will have re-lamped five buildings with 25W T8 lamps throughout. In the remaining buildings, the campus energy manager estimated that 5% of the fluorescent fixtures have 25W T8 lamps. This was consistent with the findings of the SEP lighting auditors.

Sampling data shows that approximately 20% of campus buildings have some occupancy sensor control, typically in offices or classrooms.

The energy density of the campus was estimated based on the results of the SEP lighting auditors, with 1.2 W/sf in areas with 32W T8 lamps and normal light output ballasts.

E. UC Irvine Medical Center

Sampling data for the UCI Medical Center showed that nearly all fixtures are first generation T8s. Energy density of the lighting was generally high, averaging 1.6 W/sf in most areas and reaching 2.6 W/sf in exam and treatment areas. No occupancy sensors were found during sampling.

F. UCLA

UCLA campus buildings currently have 32W T8 lamps and standard electronic ballasts in nearly all linear fluorescent fixtures. The campus recently began using 28W T8 lamps as a standard replacement lamp. This report includes an analysis of retrofitting all 32W T8 fixtures in campus buildings with 28W T8 lamps and premium efficiency ballasts with low ballast factors. The analysis is based on the campus's estimate that there are 600,000 T8 lamps on the campus. Of these, it is estimated that 10% have already been replaced with 28W T8 lamps.

An alternative to replacing both the lamps and ballasts is to replace only the lamps. This will achieve a higher light level than the recommended project, but fewer energy savings. A savings and cost analysis of replacing only the lamps is included in the appendix.

UCLA has installed bi-level stairwell fixtures in two buildings, and plans to replace 600 fixtures with the bi-level technology. A savings and cost analysis of this project is included.

UCLA has occupancy control in most offices, classrooms, and restrooms on campus. It is recommended that additional occupancy sensors be installed to cover all offices, classrooms, and restrooms, in addition to meeting rooms, auditoriums, storage areas, and some library spaces. Based on a small sampling of campus buildings, it is estimated that 25% of UCLA buildings do not yet have occupancy sensors. The analysis assumes that occupancy control is installed on the remaining 25% of the lighting.

According to the UCLA Housing staff, approximately 95% of lighting fixtures in Housing buildings have 32W T8 fluorescent lamps and standard electronic ballasts. In renovations, occupancy sensor controls are included in offices, but not in residential rooms. Renovations also include bi-level stairwell fixtures. Because the campus did not request an analysis, a lighting retrofit was not analyzed for Housing areas.

There are a few interior areas on campus that are lit with HID fixtures, such as the Wooden Center and SAC/Men's Gym, Pauley Pavilion, and the Ackerman Bookstore. Alternatives have been analyzed and recommended.

All of the parking structures are lit with high pressure sodium (HPS) fixtures, with the exception of one floor of the Parking Structure 5, which has induction lighting. At the request of the campus, induction lighting was analyzed as a retrofit for the parking structures.

G. UCLA Medical Center

At the direction of the campus, the lighting analysis of the Medical Center was not included.

H. UC Riverside

Campus staff reported that nearly all linear fluorescent lighting in campus buildings has been upgraded from T12 to first generation T8. A few buildings still have T12 lighting throughout, along with a few scattered classrooms. One notable exception to the linear fluorescent lighting standard is Bournes, which is lit by HID fixtures throughout. Occupancy sensors have been installed in approximately 25% of campus buildings, most commonly in offices, but not in classrooms.

Many residential halls have a significant amount of T12 and incandescent light fixtures. There are no occupancy sensors in any residential buildings, with the exception of the stairwells in Lothian and Aberdeen, which have bi-level stairwell fixtures.

The energy density of the lighting was estimated based on sampling done by SEP lighting auditors. Areas with T8 lighting were estimated to have 1.27 watts per square foot, and areas with T12 lighting were estimated at 1.75 watts per square foot. Energy densities in this range were found to be typical of most UC campuses. The difference in energy density between T8 and T12 lighting is partially accounted for by the differing efficiencies of the fixtures, but also by the layouts of the design. It is assumed based on sampling results that areas with T12 lighting have a higher fixture density because they are in older buildings.

All gyms are lit by HID fixtures.

I. UC San Diego

Kuhn and Kuhn did a study in 2003 of five buildings on campus, which included lighting recommendations that have not yet been implemented. For these buildings, projects were taken directly from the Kuhn & Kuhn study list for the purposes of the SEP.

AESC also did a lighting survey in 2008 of a few buildings; these recommendations are also included in the SEP project list.

In general, the campus has 32W T8 lamps with normal light output ballasts. According to the campus energy manager, approximately 30% of campus buildings have occupancy sensors in the offices, and there are zero occupancy sensors in classrooms.

The energy density of campus was estimated based on the results of the SEP lighting auditor samples of spaces on the UC San Diego and UC San Diego Medical Center campuses, with 1.2 W/sf in areas with 32W T8 lamps and normal light output ballasts, and 1.7 W/sf in areas with T12 lighting.

J. UC San Diego Medical Center

SDREO did a study in 2006 with recommendations for most buildings at the Hillcrest campus. The campus has not implemented any of the recommendations. Projects were taken directly from the SDREO list for the purposes of the SEP.

The campus currently has 32W T8 lamps with normal light output ballasts throughout, with the exception of the Shiley Eye Center, which has a number of T12 lamps with magnetic ballasts.

There are almost no occupancy sensors in UCSD Medical Center buildings.

K. UC San Francisco

ARUP did a study in 2007 of a number of campus buildings. The campus is pursuing some of their recommended projects, but some were canceled due to insufficient funding. Projects that have not yet been implemented were taken directly from the ARUP list for the purposes of the SEP.

In general, the campus's fluorescent fixtures have 32W T8 lamps with normal light out ballasts, with a few T12 lamps and magnetic ballasts. A number of offices on campus have occupancy sensors.

The campus provided Title 24 documentation for newer campus buildings. The energy density for these buildings was based on the Title 24 documentation; although these buildings have the same lighting technology, they are assumed to have a lower W/sf than older buildings due to more efficient lighting layout design.

L. UC San Francisco Medical Center

UCSF Medical Center buildings on the Parnassus campus primarily have 32W T8 lamps and normal light output ballasts, with some occupancy sensors in offices and restrooms, but not most. The Mt. Zion campus has a significant number of T12 lamps and magnetic ballasts, as well as 32W T8 lamps and normal light output ballasts. Offices in some buildings at Mt. Zion have occupancy sensors.

The energy density of campus was estimated based on the results of the SEP lighting auditor samples of spaces on the UC San Francisco Medical Center buildings, with 1.4 W/sf

in areas with 32W T8 lamps and normal light output ballasts, and 1.8 W/sf in areas with T12 lighting.

M. UC Santa Barbara

The analysis of lighting retrofit opportunities for the UC Santa Barbara campus was engineered to correspond as nearly as possible to the campus's existing 2009-13 lighting projects grant proposal. The only addition made in this analysis is to recommend occupancy sensors in many areas.

In addition to the grants proposal summary, we obtained data on the existing lighting types found in campus buildings. In our building-level analysis, these existing lighting types are replaced by the proposed types from the campus' grant proposal, using the same W/sf and cost figures from the proposal.

The overall project cost and savings in this analysis are slightly lower than those in the campus' grant proposal because the total area of buildings considered in this building-level analysis is similarly lower than the total building area in the grant proposal.

N. UC Santa Cruz

An extensive lighting audit was obtained from campus management. This audit showed that first generation T8 lamps dominated all but residential spaces. Residential spaces showed a very different mix of lighting, including T12, incandescent, and Circlelite.

Except where a specific building lamp count was available, non-residential buildings were assigned 85% first generation T8 lamps as the existing condition. Residential areas were assigned a mix of the three lighting types mentioned above.

Many lighting retrofit projects have already been proposed for the SEP buildings. To avoid duplication, no new lighting projects are proposed for buildings with existing Partnership projects.

Lighting auditors and campus staff report that very few occupancy sensors are currently used. The retrofit proposes widespread implementation of occupancy sensors, and a more limited implementation of daylighting controls.

8.1.7 Other Projects & Technologies to Consider

Potential Lighting Alternate 1. Integrated Classroom Lighting System

The Integrated Classroom Lighting System (ICLS) has been developed and promoted by the California Energy Commission's PIER Program. ICLS combines direct-indirect fluorescent fixtures with occupancy and daylight sensors, and plug-and-play interconnection cables, to provide a highly energy-efficient system that offers teachers more control and flexibility than conventional systems. ICLS has been demonstrated to demand an average of 0.6 to 0.85 watts per square foot, compared to more conventional systems, which typically draw between 0.8 and 1.4 watts per square foot.

PIER has found that the cost of installing ICLS in new construction projects is often equal to or lower than for conventional systems, because the system is available as an integrated package. New construction or renovation costs have been in the range of $3,000 to $4,000 per classroom. Installing ICLS as a retrofit is less cost-effective at current prices. UC Berkeley installed a few ICLS systems with an added dimming feature, at a cost of approximately $9,000 per classroom. Although the cost of ICLS can be high relative to conventional systems, it is expected to drop to competitive levels within the next six years.

Potential Lighting Alternate 2. LED Exterior and Interior Lights

LED lighting is a technology with significant energy-saving potential. Although the current cost of LEDs is significantly higher than more conventional systems, costs are expected to drop significantly within the next few years. With their anticipated drop in cost and extremely high efficiency, LEDs should be seriously considered for applications at the UC campuses within the next six years.

Historically, LEDs have been used for specialized lighting applications that required bright point sources of light, but products are quickly emerging to address more standard commercial and residential lighting needs. Every UC campus is now using LED exit signs in their buildings, and LED stop lights have also become standard. UC Santa Barbara is currently planning to replace nearly 400 high pressure sodium (HPS) pole fixtures with LED pole fixtures, a project that will save an estimated 40% of the lights' energy use. UC Davis has installed bathroom vanity lights in two residence halls that use LED technology. The vanity light combines a one watt LED nightlight with an occupancy sensor controlling the overhead light.

Other emerging LED technologies applicable to the UC system include exterior pathway lights, exterior wall packs, office and classroom task lighting, and cabinet undermount fixtures.

Potential Lighting Alternate 3. Wireless Lighting Controls

A promising technology for lighting control is the wireless mesh network fixture controller being developed by Adura Technologies of San Francisco. This is a technology which was developed at the UC Berkeley Center for the Built Environment. Several test sites have been installed in UC Berkeley buildings.

The controller under development is a device to be installed in every light fixture in a ceiling grid. It can turn one or two ballasts in a fixture on or off. The controller measures power use by the fixture so it can report back on actual operations. Wireless sensors are installed in the building in appropriate locations to measure occupancy, ambient light, and so on.

The wireless mesh network allows the controllers and sensors to communicate with each other. An internet portal in the building gives access to web based software which is used to configure the system. A variety of logic applications can be used to control fixtures individually or in groups. One set of ambient light sensors might be used to turn off or reduce output from all fixtures on a west face. Occupancy sensors can be programmed to control any set of fixtures. The controllers themselves are programmed to respond to certain sensors as well as time control settings. Once programmed the mesh network can

operate itself optimally with no external input. Or it can be used to control fixtures according to a web based signal, such as a demand response incident.

Wireless mesh network lighting controllers promise extensive lighting control (time scheduling, occupancy sensor, daylight harvesting, and demand response) with power measurement and a relatively low first price. No wiring outside of the fixture is required, saving time and complexity.

One feature not likely to be offered is dimming control, but with relatively low power fixtures, as well as individual ballast switching, this offers diminishing returns. This product is expected to be commercially available in one to two years.

8.2 HVAC Projects

8.2.1 Air Handler Project 1. Convert Constant Volume Air Handlers and Terminal Boxes to Variable Air Volume

This project converts constant volume air handlers with terminal boxes to variable air volume. This project concentrates on larger air handlers which may be dual duct, multizone, reheat, or other constant volume configuration. These air handlers serve the zones through terminal boxes which may be mixing boxes or reheat boxes, often including pressure independent devices and sound attenuators.

The project involves installing VFDs on the supply and return fans to allow the air flow to vary according to the load. In addition, a retrofit kit (damper, actuator, flow measuring station) is installed on each of the terminal boxes to convert it into a pressure independent variable volume device. This kit includes direct digital controls, which increases the cost but greatly increases the functionality. A large multizone air handler could fit in this category as well, with a retrofit kit installed in each zone duct and a two position actuator applied to the existing mixing dampers.
The retrofit allows the zone temperatures to be properly controlled with less simultaneous heating and cooling energy use. In addition, reduced air flow requirements and lower operating static pressures will result in fan energy savings.

In some cases, the air handlers have existing variable volume devices such as variable inlet vanes (VIV) or varicone flow devices, which are generally less efficient than modern VFDs, and may not be working optimally. In these cases, the project would replace the existing flow control device with a variable frequency drive, and the existing flow control is reflected in the project costs and savings.

The savings are calculated for this project through a bin simulation adjusted for local weather, operating hours, building load characteristics, air handler flows and configuration, and temperature control strategies.

The cost for implementing this project includes variable frequency drives for the supply and return fans, retrofit kits with DDC for each zone terminal box, and a control strategy to optimize the air flow and static pressure from the supply fan.

This project does not apply to air handlers that serve patient areas in the medical centers, as they are required by OSHPD to operate at constant volume all of the time. It does not apply to laboratory air handlers, where more elaborate air flow control devices are needed.

8.2.2 Air Handler Project 2. Convert Constant Volume Air Handlers to Variable Air Volume

This project converts constant volume air handlers that do not use terminal boxes to variable air volume. This project concentrates on medium size air handlers which may be single zone, dual duct, multizone, reheat or other constant volume configuration. These air handlers do not serve zones through terminal boxes but through simpler reheat coils or mixing devices that do not have pressure independent controls. Large single zone air handlers without specific zone temperature control will fall into this category as well.

The project involves installing VFDs on the supply and return fans to allow the air flow to vary according to the load. A retrofit kit is not installed at each zone temperature controller because there are not standardized boxes, the zones tend to be smaller and more numerous. Older construction tends to include plaster ceilings and other access constraints.

In the case of a single zone air handler the VFD controls will be integrated into the current temperature controls to reduce the air flow to a minimum flow rate when the thermostat is not calling for full heating or cooling. For the other air handlers with zone temperature controls the retrofit includes DART wireless supply air temperature sensors or equivalent. This wireless control system allows the fan speed to be slowed to a minimum flow rate whenever the zone temperatures are satisfied.

The retrofit allows the zone temperatures to be properly controlled with less simultaneous heating and cooling energy use. In addition, reduced air flow requirements and lower operating static pressures will result in fan energy savings.

In some cases, the air handlers have existing variable volume devices such as variable inlet vanes (VIV) or varicone flow devices, which are generally less efficient than modern VFDs, and may not be working optimally. In these cases, the project would replace the existing flow control device with a variable frequency drive, and the existing flow control is reflected in the project costs and savings.

The savings are calculated for this project through a bin simulation adjusted for local weather, operating hours, building load characteristics, air handler flows and configuration, and temperature control strategies.

The cost for implementing this project includes variable frequency drives for the supply and return fans, wireless remote supply air temperature sensors for representative zone supply registers and a control strategy to optimize the air flow and static pressure from the supply fan.

This project does not apply to air handlers that serve patient areas in the medical centers, as they are required by OSHPD to operate at constant volume all of the time. It does not apply to laboratory air handlers, where more elaborate air flow control devices are needed.

8.2.3 Air Handler Project 3. Demand Control Ventilation

This project adds a carbon dioxide sensor to air handlers that serve areas with highly variable occupancies, such as lecture halls, theaters, gymnasiums. Measurement of the carbon dioxide level is used to reset the minimum outside air flow function of the outside air economizer according to occupancy requirements. The project includes a carbon dioxide sensor which is usually located inside the lecture hall or building space. This will result in the heating and cooling of less outside air when it is not needed for ventilation.

The minimum flow of outside air into the air handler has typically been designed according to full occupancy of the space. For example, if there are 200 seats in a lecture hall the minimum outside air flow may have been determined by multiplying 15 cfm per person (or seat) times 200 seats, or 3,000 cfm. The outside air economizer would be adjusted never to drop below this level.

In the modified case the minimum outside air flow will be allowed to drop to lower levels as long as adequate ventilation is maintained for the number of people in the room, as indicated by the carbon dioxide levels. This is a standard control sequence required by Title 24 for new construction in high density spaces. Title 24 requires a minimum outside air flow rate of at least 0.15 cfm/sf, regardless of occupancy. This level of ventilation removes contaminants not related to human occupants. This level of outside air supply is typically found in office areas, so carbon dioxide sensors do not offer significant energy savings potential for offices and other areas that are never densely occupied.

The savings are calculated for this project through a bin simulation adjusted for local weather, operating hours, building load characteristics, air handler flows and configuration, and temperature control strategies.

The cost for implementing this project includes a carbon dioxide sensor, which can be factory calibrated with no need for additional calibration during its service life, and integration into the economizer control sequence. The campus can choose to monitor and log the carbon dioxide levels.

This project does not apply to air handlers serving office areas or other relatively low density areas. It does not apply to patient handling or laboratory air handlers where other outside air requirements exist.

8.2.4 Air Handler Project 4. Static Pressure Reset on Variable Air Volume Air Handlers

This project adds a static pressure reset capability to existing VAV air handlers that do not have direct digital zone controls. The current design static pressure setpoint may be the appropriate pressure to operate at during hours of high air conditioning load, but it is not necessarily needed during other hours of operation. This project automatically resets the static pressure to a level that maintains comfort conditions but is typically lower than the original setpoint.

There are two technologies commonly used to apply this control strategy. If the VAV system has direct digital controls at the room thermostats it is possible to use information from these thermostats to automatically reset the supply static pressure. It can be continuously reset so that a small portion of the VAV boxes are calling for full cooling. This would be an indicator

that the pressure is operating at as low a point possible. For air handlers with DDC at the zones, this is a control sequence change which could be addressed in the commissioning project. The cost for reprogramming is relatively minor and so is not included in this section as a project.

Other VAV air handlers do not have DDC at the zone level, and so do not provide this type of feedback. An alternative control strategy will be used to address this situation, SAV with InCITe offered by Federspiel Controls. This system uses air flow measurement at the air handler to quantify the building load and resets the supply air pressure accordingly. This control sequence has been installed in several UC buildings over the last several years. The cost and savings for applying SAV with InCITe to air handlers without DDC zone controls are included in this project.

This approach to resetting supply pressure setpoints reduces fan energy use during part load conditions, while continuously meeting comfort requirements. The savings are calculated through a bin simulation adjusted for local weather, operating hours, building load characteristics, air handler flows and configurations and temperature control strategies.

The cost of implementing this control involves either reprogramming the DDC system or installing the SAV with InCITe system. Either process requires fine tuning for optimal performance.

This measure should apply to all existing VAV air handlers except in laboratories or other areas where static pressure control of the spaces is critical. It also applies to air handlers

8.2.5 Air Handler Project 5. Reduce Air Handler Operating Hours

This project shuts down air handlers during nights and weekends, when the areas they serve are not in use. This applies to classroom buildings, offices, lounges, gyms and libraries. These air handlers may operate continuously now in order to cool a server or telecom closet. Or they may operate to condition the building in case someone comes in to work during non-business hours.

The building needs can typically be met by means other than running the air handlers continuously. In the case of the cooling needs of servers, the first choice would be to locate these servers in data centers where they receive cooling as needed, conditioned power, UPS backup, and continuous staffing. If there are servers or telecom equipment which cannot be relocated outside the building, they should be conditioned during nights and weekends by either split heat pumps, or dedicated chilled water coils where chilled water is continuously available.

In the case where the comfort of faculty, staff or students is critical during non-standard hours, these requirements can be met in several ways with existing control systems. For example, the space temperature of the buildings can be monitored during the nights and weekends so when it drifts outside a given comfort zone (perhaps 65° to 80°F) the air handler can operate as long as necessary to reestablish temperature control. The air handler would then shut off again until the building drifts outside of the setback temperature control points again. Some faculty or staff could also be given phone in access to the building control system to allow them to request air handler operation for several hours at a time when they find the temperature unacceptable.

The intention of this project is to provide a similar level of service to the University occupants that they currently enjoy, but at a lower energy use. The cost of this modification will be based on the number of spot cooling devices which may be necessary to serve specific building hot spots. The programming portion for the DDC system is not particularly expensive, as this is a standard control sequence. Temperature monitoring may be needed in older air handlers without direct digital control. Specific application notes are listed below.

8.2.6 Air Handler Project 6. Convert Air Handlers to Direct Digital Control

This measure involves replacing pneumatic controls on larger air handlers with direct digital controls. The intention is that no air handlers with supply fans of 10 hp or larger be left operating with pneumatic controls. The continued use of pneumatic controls creates problems in terms of calibration and drift, inadequate control sequences, inability to monitor and verify proper operation, incompatibility with demand response and inability to commission with lasting effect.

8.2.7 Air Handler Project 7. Outside Air Ventilation Heat Recovery

An energy recovery system is recommended in some facilities to capture heat or cooling from exhaust air and reuse some of it to precondition the make-up air before supplying it to the building. The type of heat exchangers or HVAC coils used to transfer this energy from the exhaust flow to the supply air can vary according to building design. Installation of a heat exchanger can result in significant energy savings in buildings that require a supply of 100% outside air. This was recommended for specific buildings in locations that experience significant variances in outdoor air temperature over the course of a year.

8.2.8 Air Handler Project 8. Kitchen Hood VFD

Demand ventilation controls are recommended for the university's larger dining facilities' commercial kitchen hood exhaust fans (typically 3 hp and up). Standard exhaust hoods consume a significant amount of energy because they constantly run at maximum flow and require make-up air that must be heated or cooled. By installing VAV hoods controlled by infrared smoke sensors and temperature sensors, supply and exhaust fan speeds can be adjusted to match actual cooking activity under the hood, reducing the excess energy consumed in between meal preparation times. These controls have already been installed in several UC campus dining facilities with positive results that have led to further installation requests.

8.2.9 Air Handler Project 9. Add Air Side Economizer

This project adds air side economizer on air handlers. This project concentrates on larger air handlers which use minimum fresh air for ventilation and do not take advantages of outside air conditions for cooling (or for heating). During cooling mode, in the absence of an economizer return air that is generally warm is mixed with the minimum outside air and then cooled with the help of mechanical cooling to meet the supply air temperature requirements. The amount of fresh or outside air brought into space through air handlers is fixed and not varied.

In the economizer mode, whenever outside conditions favor, outside air cooler than return air is brought into the space and, instead of being supplied back to the space, return air is exhausted. This is also known as free cooling, and significantly reduces cooling energy cost and system load. The same applies to heating mode where outside air warmer than return air is brought into the space to meet heating demand.

The project involves installing DDC dampers on outside air intake, return air and exhaust air to control percentage of outside air and return air in supply air to vary according to the load and outside conditions. In addition, a retrofit kit (damper actuator, flow measuring station, outside air temperature and humidity monitoring station, mixed air temperature sensor) is installed on each of the air handler. This kit includes direct digital controls, which increases the cost but greatly increases the functionality. Enthalpy changeover control strategy will be adapted to use outside air in the most economical way without use of energy required to dehumidify additional outside air. Enthalpy is a measure of the total heat in the air, which is calculated by measuring both the dry bulb temperature and the relative humidity. Outside air will be used for cooling when the enthalpy of outside air is lower than the enthalpy of return air. Outside air and return air dampers are modulated to admit enough outside air to minimize cooling energy use. When outside air enthalpy is greater than the return air enthalpy, minimum outside air required for ventilation is brought into the space.

8.2.10 Laboratory Air Handler Project 1. Convert Laboratory Air Handlers and Fume Hoods to Variable Air Volume

The intention of this project is to convert laboratories to variable air volume systems and reduce the large outside air heating, cooling and fan power loads. Many existing labs are constant volume reheat systems, with a fixed air flow coming from the air handlers being reheated at the laboratory and exhausted through the constant volume hoods or room general exhaust. Most new laboratories utilize VAV air handlers and fume hoods. The intention of this project is to update the configuration of the existing labs so that they can operate as efficiently as the new labs. The UC EH&S Laboratory Safety Design Guide Second Edition September 2007 states “All laboratories should contain a fully integrated laboratory variable air volume (VAV) airflow/pressure control system to control room temperature, ventilation rate and room pressurization.”

This project starts with a review of the air balance requirements of the facility. The air flow needs of each room are determined according to the function of the room, the number of hoods and the internal and external heat loads. This air balance may be significantly reduced from the existing design because of better understanding of actual loads or better design parameters. The minimum air changes typically needed in a laboratory are 6 air changes per hour for a room with a 10 foot ceiling, per the EH&S Design Guide. A given lab may need higher minimums, depending upon the density of hoods.

The mechanical work includes converting the air handlers to VAV with the addition of VFDs to the supply fans. This may be appropriate for the exhaust fans as well, depending upon how they are ducted together. The hoods are converted to variable flow through the addition of an exhaust flow control valve and the sealing off of the sash bypass. If there are a small number of hoods in a larger room, these do not need to be converted to VAV, where the general exhaust requirements for the room are great enough that it makes no difference whether the air leaves through the hood or the general exhaust duct. The room supply air and general exhaust typically require new flow control valves or dampers as well to allow

pressure control of each room. The exhaust fans may need stepping control and/or VFDs to maintain proper exhaust pressure in the duct and proper discharge velocity on the roof. The control systems should include supply temperature reset, utilizing either a DDC sequence or a controller such as DART, described above.

8.2.11 Laboratory Air Handler Project 2. Rebalance Variable Air Volume Laboratory (or Vivarium) Air Handlers

A number of newer laboratories at the campuses were designed and built with VAV fume hoods and air handlers. Some of these have presented opportunity for efficiency improvement through rebalance of their systems to provide desired minimum air change rates (6 ACH). The current air change rate may be higher if the labs were designed for standard heat loads that did not end up being installed in most places. In some buildings air changes were provided for future hoods that were not installed.

This project will readjust the air balance in the existing labs to meet the air flow requirements as the buildings are currently operating. Should the operations of a given laboratory change in the future, the air change rate can be adjusted just for that room through a similar process.

The work involved in implementing this project is the recalculation of air change minimum air flows for each lab, based on the current building loads and 6 ACH minimum. Where the building has a DDC system, the new minimum air flows are set for the boxes and the operation is observed for stability and temperature control. Where there is no DDC system a more involved air balance will be necessary, probably manually setting the minimum flows on the zone supply boxes. The existing static pressure controllers should provide the reduced air flow and fan savings when the minimum air flows occur. The control systems should include supply temperature reset, utilizing either a DDC sequence or a controller such as DART, described above.

8.2.12 Laboratory Air Handler Project 3. Reduce Minimum Air Change Requirements through Continuous Monitoring

The first two Laboratory Air Handler Projects will reduce air change rates according to the needs of the individual rooms, with minimum flows set for 6 air changes per hour. This project will further reduce the minimum air flow setpoints in laboratory areas, with monitoring provided to raise the air change rate should a chemical spill be detected. The plan from the UC Irvine campus is to drop minimum air flow setpoints to 4 ACH during hours when the laboratories are normally occupied and to 2 ACH during other hours. This will further reduce the use of electricity to circulate the air, as well as heating and cooling requirements for the 100% outside air flow.

The approach at UC Irvine is comprised of a chemical monitoring system that monitors the concentration of a number of common gases. The currently proposed system is an Aircuity system which uses a central monitoring station physically connected by sampling tubing to perhaps 20 rooms. The air quality in each laboratory is sampled periodically, typically once every 15 minutes. Detection of high gas concentrations caused by a spill would automatically increase the air change rate in the affected lab. A push button in each lab could be manually activated to do the same.

Implementation of this measure requires approval of the campus Environmental and Health Safety department, which exists at UC Irvine. This may be considered by other campuses in the future, and has not been included as a project except at UC Irvine and UC Los Angeles.

8.2.13 Medical Center Air Handler Project 1. Optimization of Constant Volume Air Handlers

In patient handling areas of medical centers, OSHPD typically requires constant volume air handlers to allow a precise air balance and maintenance of static pressure differences between rooms and hallways. This does not permit the use of VAV systems and their associated savings. Many of these systems are required to be 100% outside air as well. The most that can be done in a constant volume air handler is to ensure that the supply air temperature is set as high as possible while maintaining comfort, and ensuring that, if there is an outside air economizer, it is controlled according to the supply air temperature.

This is a relatively easy programming effort in a DDC system. If a DDC system is not present some other optimizing approach is required. This could be a reset schedule based on outside air or other load indicator. It could also be done through a sampling of the supply air temperature in typical zones through a wireless mesh network of temperature sensors, as recommended in Air Handler Project 2, using the DART technology. It is not clear in which parts of a medical center this wireless technology could be employed.

8.3 Monitoring Based Commissioning Projects

8.3.1 Monitoring Based Commission for All SEP Buildings

Monitoring Based Commissioning (MBCx) is recommended for all campus buildings of 50,000 sf and greater over the course of the next two utility funding cycles (six years). This process includes installing networked whole building meters on the buildings to automatically track electricity, steam, hot water, chilled water and/or natural gas use. It also includes a commissioning effort to review building operations, the functionality of controls, the appropriateness of sequences of operations, time scheduling, and numerous other building operation parameters. The process of identifying the SEP projects was a building survey, as opposed to an investment grade energy audit. The operational changes which would normally be identified in a detailed audit should be identified and resolved through the commissioning process.

Where capital projects have been identified for buildings, for example, convert to variable air volume or install variable flow fume hoods, it is recommended that the commissioning process be integrated with the retrofit process, even though it is included separately in the project list. This is a hybrid MBCx process which will result in the most expedient change in building operations. In the case where no retrofit projects have been identified the commissioning process can be implemented at any time. It is possible that the commissioning process will result in the identification of additional retrofit measures which can be funded and installed in a later process.

No commissioning project is recommended for buildings which received monitoring based commissioning in the 2004-2005 or 2006-2008 UC CSU IOU Partnership Program.

The budgets for the MBCx projects were projected based on the 20060-2008 Partnership Program applications. The average cost for MBCx in Basic buildings was $0.61 per square foot. For Complex buildings the average cost is $1.22 per square foot.

The projected MBCx energy savings for the SEP buildings are determined relative to the 2006-2008 Partnership Program applications. There is a 70% multiplier applied to all savings projections because the buildings already in the MBCx program were selected specifically for their potential, while the proposed SEP buildings are only selected based on size.

Basic building applications average electricity savings of 10% or 1.1 kWh/sf-yr, and gas savings of 15% or 0.15 th/sf-yr. Energy savings are projected to SEP buildings according to historical energy use of the building, if it is known. If historical energy use is not known, savings are projected on the basis of the building area. In both cases a 70% savings scaling factor is applied.

Complex building applications average electricity savings of 9% or 2.7 kWh/sf-yr, and gas savings of 21% or 0.29 th/sf-yr. Energy savings are projected to SEP buildings according to historical energy use of the building, if it is known. If historical energy use is not known, savings are projected on the basis of the building area. In both cases a 70% savings scaling factor is applied.

In addition, MBCx was recommended for all central plants which have not previously been commissioned through the Partnership program.

8.4 Capital Program Projects

8.4.1 New Construction and Renovation from Capital Program

There is a significant opportunity to integrate energy efficiency with new construction and renovation of campus facilities. This is currently implemented through the Savings By Design process administered by the statewide investor owned utilities, as well as SMUD. It is anticipated that this program will be continued in the 2009-2014 utility portfolio. It is hoped that it can be integrated with the UC CSU IOU Partnership Program to become more effective.

The anticipated program modifications include the following: encourage energy savings of greater than 25% relative to Title 24 to earn the maximum incentive levels of $0.25 per kWh and $1.00 per therm; use the Partnership minimum required campus contribution of 20% rather than the Savings By Design requirement of 50%; remove the $150,000 or $450,000 cap per project; consider some up front engineering funding.

On the UC side the current process is hampered by severe competition for construction funds to implement the efficiency measures. Even when funds are set aside in the design budgets to meet the current UC goal of 20% below Title 24, efficiency measures are sometimes lost in “value engineering” during the construction process. There are typically not enough funds available to allow construction of buildings with the energy efficiency measures justified by life cycle costing.

The opportunity to use the energy efficiency bond money in new construction and renovation projects would create significantly more opportunities for the installation of energy efficiency in these projects. The potential cost and savings is projected for this analysis, assuming each project could reduce energy use by approximately 30% below Title 24 and assuming that the total investment to achieve this performance would result in a simple payback period of 7 years. It is possible that this performance level can be achieved with a shorter payback, or that higher percentage savings can be achieved with this payback period.

The potential cost and savings for this measure is based on the planned construction for the campuses, as detailed in the *2007-08 to 2011-12 Capital Program* document from the UCOP website. This includes construction and renovation projects on all campuses, independent of building funding source. The total project cost and savings were projected for individual projects, based on average performance numbers from existing UC buildings. A projected 30% savings in Basic buildings is 3.3 kWh/sf-yr and 0.3 th/sf-yr. A projected 30% savings in Complex buildings is 8.9 kWh/sf-yr and 0.4 th/sf-yr.

These savings were projected to the building areas identified in the Capital Program document. Where building area was not directly identified, it was estimated from the project budget based on a projected construction cost of $611 per gross square foot. This is based on the average construction cost of the projects where stated ($917 per assignable square foot) and the observed ratio of gross square feet to assignable square feet from the UCOP comprehensive building list (1.5).

The *2007-08 to 2011-12 Capital Program* identifies hundreds of planned projects. Savings By Design projects for the Strategic Energy Plan were not calculated for projects which are currently on the UCOP list of Savings By Design projects underway through the current program. It was assumed that these projects are too advanced in the design process to switch to a deeper savings investment based on the proposed SEP process. In addition projects were not included on the SEP list if they are shown with an occupancy date of 2007-08 or 2008-09. It is assumed that these projects are too far along in design to allow significant changes. Once the new SEP program is underway, there may be an opportunity to include some of these projects, or to replace recommended measures that could not be supported in the original budget.

Also excluded from the SEP project list are buildings listed for occupancy in 2014-15 or later, parking structures, and general infrastructure projects. Several buildings were added to the list by request of a campus.

The projects listed include new buildings and renovation of existing buildings. In some cases the projects are not defined, but fall under general budgets, such as Campus Approved Projects Under $5 Million. The total list assumes that energy efficiency is an integral part of each of these projects.

8.5 Deferred Maintenance and Capital Renewal Projects

There is a significant budget spent on deferred maintenance and capital renewal projects each year. This is an investment in returning buildings and equipment to proper operating condition. This often includes roof replacement, window replacement and chiller or boiler replacement. This project comes from a different source than the capital project funding.

Each campus produces a list based on a combination of priorities, although energy savings are typically not a factor. Although projects typically may save a nominal amount of energy, the replacement of this type of equipment typically has a long simple payback if calculated on energy savings only. Certainly some capital investment could be used to increase the efficiency of a project by improving the U value of a roof, increasing the performance of glazing or improving the efficiency of a chiller or boiler.

The budget that each campus has to spend on these projects is highly variable. It can be in the range of $10 million per year in a good year.

It has been estimated that about 12% of these projects have an energy savings component. An increment of $0.25 to $0.5 million per year of deferred maintenance and capital renewal projects is used in the SEP project list. The campuses could elect to include one or more of these projects per year in their SEP commitment.

8.6 Campus Wide Projects

8.6.1 Campus Wide Project 1. Refrigerators

It is recommended that all pre-2001 refrigerator units be replaced by Energy Star units. Old refrigerators can consume twice the electricity of a current Energy Star unit. Refrigerators are especially prevalent in universities where they are widely used in both academic and residential settings. Electricity and cost savings were calculated using the Energy Star calculator adapted for replacement of pre-2001 residential-type refrigerators on campuses.

Refrigerators in Housing – The number of refrigerators in housing per campus were estimated based on the total number of apartment-type housing and suite-type housing available on each campus. Where available, we used the numbers of housing refrigerators to be replaced, as specified by the campus.

Refrigerators on Campus – The number of refrigerators on campus was estimated based data provided by the UCB BETS database and prorated by the number of enrolled students at each campus. The BETS database provides an inventory of refrigerators that were purchased before 2001.

8.6.2 Campus Wide Project 2. Lab Freezers

It is recommended that all pre-2001 lab freezers be replaced by energy efficient units. According to New Brunswick Science (NBS), current energy efficient units consume half the amount of electricity of the industry average. Due to this significant waste of energy, Energy Star is currently developing standards for the industry. These units are especially prevalent in universities where they are widely used in research settings. Electricity and cost savings are calculated using data for ultra-low temperature (-86°F) upright lab freezers provided by NBS. While the Energy Star standards are currently being developed, this calculation can serve as an estimate for -20° to -30°F lab freezers as well by using an average industry installed cost of $7,000. The number of ultra-low temperature lab freezers on each campus was estimated based on data provided by the UCB BETS database and prorated by the number of enrolled students at each campus.

8.6.3 Campus Wide Project 3. Server Virtualization

Server Virtualization maximizes the utilization of servers by installing virtualization software on existing servers and allows the elimination of idling or under-utilized physical servers. Energy savings potential was calculated based on deemed values provided by the SCE "Virtual Machine" calculator, version 6. The baseline server assumed the default values provided by the SCE calculator, whereas the proposed VM server used an average of two servers' specifications, "HP DL 585" and "Dell Blade 1955", servers that UC Berkeley are considering for future VM projects. The number of "virtualizable servers" per campus was estimated using data provided by the UC Berkeley IT Department and then prorated by the number of enrolled students per campus in Fall 2006. This includes both the decentralized servers across campus and servers that are in the data center servers. A ratio of ten baseline servers consolidated onto one virtual machine was used based on a conservative estimate from past partnership projects.

Note that this project is based on the reduction in the number of servers operating and their local air conditioning load. Where a large air handler was operating continuously to cool a server, this measure was included in the HVAC projects.

8.6.4 Campus Wide Project 4. Network Computer Power Management Software/CRT

Network computer power management software is recommended to power down computers that are on the network when they are not being used. Network PC power management software energy savings potential was calculated based on deemed values provided by the Verdiem PG&E work paper. Installed cost was estimated by the retail price of the software with installation, and with additional maintenance and support costs. For each campus, the number of computers on campus was estimated based on data provided by UC Berkeley's BETS database and prorated by the number of enrolled students per campus in Fall 2006. The BETS database showed the number of computers on campus older than 5 years. To be conservative, we estimated that half of these computers represented the number of managed, networked-computers on which power management software could be installed. However, we recommend that power management software be installed on all managed, networked-computers.

CRT monitor to LCD monitor conversions were also recommended for each campus. Both the energy savings potential and cost were based on the Energy Star calculator for LCDs, adapted to represent conventional 17" CRT monitors to be replaced by Energy Star 17" LCDs. We recommend, however, that all CRTs be replaced with Energy Star LCDs to maximize energy savings.

8.6.5 Campus Wide Project 5. Install Controllers on Vending Machines

Vending machines and sliding-door coolers can easily be retrofit to use approximately 40 percent less energy using inexpensive controllers. To examine the potential for this efficiency measure, counts of sliding door coolers and two types of vending machines, refrigerated and non-refrigerated, were collected from the UC campuses. Information about existing measures to reduce the energy consumption of these machines (e.g. requiring service providers to use Energy Star machines) was also gathered to avoid duplication of those efforts. For campuses that were not able to provide vending machine data, typical values determined for the rest of the UC system were applied.

Based on the reported or estimated number of vending machines on each campus and the estimated annual energy usage of a machine, the existing energy consumption of all vending machines was calculated for each campus. For campuses that had not implemented controls or had done so only to a limited extent, full use of controllers on all campus vending machines and sliding-door coolers is recommended. The energy and cost savings associated with implementing this measure are calculated based on typical energy savings listed in the Database for Energy Efficient Resources (2005) and reported by equipment manufacturers.

8.7 Other Projects

8.7.1 Swimming Pools

The Strategic Energy Plan includes energy savings and cost estimates for a number of energy efficiency measures for swimming pools. Four potential measures have been identified for campus pools and information is provided for each individual pool when appropriate.

8.7.2 Pool Project 1. Variable Speed Drives and High Efficiency Motors for Filter Pumps

Pool filter pumps are often continuously run at a constant flow rate regardless of usage and cleanliness standards. Codes typically require certain circulation rates when the pool is occupied. This measure includes installing a variable speed drive with control system and, when appropriate, replacing the motor with a premium efficiency motor. The energy savings calculations for this project assume that the pump will be slowed down to 50% of its normal speed during unoccupied hours (8 hours per day for most pools).

8.7.3 Pool Project 2. Pool Covers

Heated pools and spas lose approximately 70% of their energy to evaporation. Since evaporation is the major source of heat loss for pools, covering the pool when it is not in use is an effective manner of minimizing water and heat loss. This project includes standard insulating pool blankets, storage reels, and a power winder. Energy savings are modeled using the RETScreen4 software. The calculations assume that pool covers will be used eight hours per day.

8.7.4 Pool Project 3. Solar Water Heating

Solar water heating can significantly reduce pool operating cost by decreasing heating requirements. This measure is for a solar pool heating system of unglazed collectors with a total collecting area equal to 60% of the size of the area of the pool. Energy savings are modeled using RETScreen4 software. The calculations assume that pool covers are installed and used to minimize heat loss.

8.7.5 Pool Project 4. Boiler Replacement

This project replaces standard boilers for pool heating with dedicated high efficiency condensing boilers. The energy savings calculations for this measure assume 80% thermal efficiency for the currently installed boiler. Although some condensing boilers for pool

heating claim up to 98% thermal efficiency, a conservative estimate of 90% thermal efficiency was used for the replacement boiler. The baseline energy consumption for this measure assumes that both pool covers and solar water heating are used. Information is not provided for pools that are heated using the central loop or a non-dedicated boiler.

8.7.6 Domestic Solar Hot Water

The use of solar hot water heating was explored as a possible measure to reduce energy use in campus residences. Total domestic hot water consumption was estimated for large residence halls and apartment buildings based on occupancy data collected from the campuses. Then, using data on the solar resource available on each campus and an assumed fraction of total water use to be provided, a solar hot water system was sized to meet demand. The cost of an appropriate system – active, closed-loop, with glazed flat-plate collectors – was then estimated to determine the cost effectiveness of this measure.

Paybacks for domestic solar hot water were close to 80 years and therefore this measure was not recommended. However, in certain circumstances domestic solar hot water may prove more attractive. For example, where a solar hot water system has already been in use, adding or upgrading panels while preserving existing storage and pipes may offer a cost-effective measure. Also, access to state or federal tax credits and/or utility incentives – currently in pilot phase – could greatly increase the attractiveness of this measure.

8.8 Custom Projects

Although an effort was made to standardize projects to the extent possible for common systems, each campus has unique equipment and energy efficiency opportunities. These projects were analyzed using individual engineering calculations to account for the uniqueness of each project. The project descriptions from individual campuses are aggregated here for ease of reference.

8.8.1 UCB Custom Project 1. Install VSD on Centrifugal Chiller

Install a VSD on the 310-ton centrifugal water cooled chiller in Gardnerstack. Convert constant volume secondary chilled water pumping system to a variable volume pumping system. This project includes installing a VFD for the chilled water pump, converting the three-way chilled water valves to two-way valves, making piping modifications, and adding controls and modifications to programming.

8.8.2 UCB Custom Project 2. Replace Chiller, Convert to Variable Volume Chilled Water Pumping

Replace the 45-ton reciprocating packaged air-cooled chiller in I House with a high efficiency unit. Convert the constant volume chilled water pumping system to a variable volume pumping system. This project includes installing a VFD for the chilled water pump, converting the three-way chilled water valves to two-way valves, making piping modifications, and adding controls and programming.

8.8.3 UCB Custom Project 3. Convert Constant Volume Chilled Water Pumping to Variable Volume

Convert the two 3 HP constant volume chilled water pumps and one 15 HP condenser water pump to a variable volume pumping system in Minor Addition. This project includes installing a VFD for the chilled water pump, converting the three-way chilled water valves to two-way valves, making piping modifications, and adding controls and modification to programming.

8.8.4 UCB Custom Project 4. Convert Constant Volume Condenser Water Pumping (for electric chillers) to Variable Volume

Convert the three 30 HP constant volume condenser water pumps in Stanley to variable volume pumps. This project includes installing VFD's for the condenser water pumps, making necessary valves and piping modifications, and adding controls and modification to programming.

8.8.5 UCB Custom Project 5. Replace Existing Absorber with VFD Driven Centrifugal Chiller; Convert Constant Volume Chilled & Condenser Water Pumping to Variable Flow

Replace the 300-ton water cooled single-stage absorption chiller in UCB Art Museum with a 300-ton water cooled centrifugal chiller. Convert the constant volume chilled (20 HP) and condenser (20 HP) water pumping system to a variable volume pumping system. This project includes installing VFD's for the chilled and condenser water pumps, converting the three-way chilled water valves to two-way valves, making piping modifications, and adding controls and modification to programming.

8.8.6 UCB Custom Project 6. Convert Constant Volume Chilled Water and Condenser Pumping to Variable Volume; Install VSD Control on Cooling Tower Fan Motor

Convert the 5 HP chilled water and 7.5 HP condenser water pumps in Dwinelle to variable volume pumps. Install VFD on the 2 HP cooling tower fan motor. This project includes installing VFD's for the chilled and condenser water pumps, installing VFD on the cooling tower fan, making piping modifications, and adding controls and modification to programming.

8.8.7 UCB Custom Project 7. Replace Existing Absorber with VFD Driven Centrifugal Chiller; Convert Constant Volume Chilled & Condenser Water Pumping to Variable Volume

Replace the 130-ton water-cooled single stage absorption chiller in Evans with a 130-ton water-cooled centrifugal chiller. Convert the 25 HP constant volume chilled water and the 50 HP condenser water pumps to variable volume pumps. This project includes installing VFD's for the chilled and condenser water pumps, making piping modifications, and adding controls and modification to programming.

8.8.8 UC Custom Project 8. Install VFD's on Existing Centrifugal Chillers and VFD Control on Cooling Tower Fans; Convert Constant Volume Condenser Water Pumping to Variable Volume

Install VFD's on the two 215-ton centrifugal water cooled chillers in Soda Hall. Install VFD's on the two 30 HP cooling tower fan motors. Convert the two 15 HP constant volume condenser water pumps to a variable volume pumping system. This project includes installing VFD's for the condenser water pumps, making piping modifications, and adding controls and modification to programming.

8.8.9 UCB Custom Project 9. Convert Constant Volume Condenser Water Pumping to Variable Volume

In Residential Student Services Building, convert the two 20 HP constant volume condenser water pumps to variable volume pumps. This project includes installing VFD's for the condenser water pumps, making piping modifications, and adding controls and modification to programming.

8.8.10 UCB Custom Project 10. Convert Constant Volume Primary Chilled Water Pumping to Variable Volume Pumping

Convert the two 7.5 HP constant volume chilled water pumps in Le Conte to variable volume pumps. This project includes installing VFD's for the chilled water pumps, converting the three-way chilled water valves to two-way valves, making piping modifications, and adding controls and modification to programming.

8.8.11 UCB Custom Project 11. Install VFD's on Existing Centrifugal Chiller and VFD Control on Cooling Tower Fans; Convert Constant Volume Chilled & Condenser Water Pumping to Variable Volume

Install a VFD on the 1340-ton centrifugal water cooled chiller in Valley LSB. Install VFD's on the two 25 HP cooling tower fan motors. Convert the two 60 HP constant volume chilled water and the two 50 HP condenser water pumps to a variable volume pumping system. This project includes installing VFD's for the chilled and condenser water pumps, converting the three-way chilled water valves to two-way valves, making piping modifications, and adding controls and modification to programming.

8.8.12 UCB Custom Project 12. Install VFD's on Existing Centrifugal Chillers and VFD Control on Cooling Tower Fans; Convert Constant Volume Chilled & Condenser Water Pumping to Variable Volume

Install VFD's on the two 600-ton centrifugal water cooled chillers in Life Sciences Addition. Install VFD's on the two 40 HP cooling tower fan motors. Convert the two 30 HP chilled water and two 75 HP constant volume condenser water pumps to a variable volume pumping system. This project includes installing VFD's for the chilled water and condenser water pumps, converting the three-way chilled water valves to two-way valves, making piping modifications, and adding controls and modification to programming.

8.8.13 UCB Custom Project 13. Install VFD Control on Cooling Tower Fans; Convert Constant Volume Chilled & Condenser Water Pumping to Variable Volume

Install a VFD on the 10 HP cooling tower fan motor in Etcheverry. Convert the 3 HP chilled water and 15 HP constant volume condenser water pumps to a variable volume pumping system. This project includes installing VFD's for the chilled water and condenser water pumps, converting the three-way chilled water valves to two-way valves, making piping modifications, and adding controls and modification programming.

8.8.14 UCB Custom Project 14. Install VFD's on Existing Centrifugal Chillers and VFD Control on Cooling Tower Fans; Convert Constant Volume Chilled & Condenser Water Pumping to Variable Volume

Install VFD's on Koshland's 350-ton centrifugal water cooled twin compressor chiller. Install VFD's on the four 15 HP cooling tower fan motors. Convert the two 20 HP chilled water and two 25 HP constant volume condenser water pumps to a variable volume pumping system. This project includes installing VFD's for the chilled water and condenser water pumps, converting the three-way chilled water valves to two-way valves, making piping modifications, and adding controls and modification to programming.

8.8.15 UCB Custom Project 15. Install VFD Control on Cooling Tower Fan

Install VFD's on the two 40 HP cooling tower fan motors in Hearst Mining. This project includes installing VFD's for the cooling tower fan motors, adding controls and modifications to programming.

8.8.16 UCB Custom Project 16. Replace Absorption Chiller & Laser-lab Reciprocating Chiller with 450 TR VFD Driven Centrifugal Chiller; Add VFD Control on Cooling Tower Fans; Convert Constant Volume Chilled & Condenser Water Pumping to Variable Volume

In Hildebrand, replace the 350-ton water-cooled single-stage absorption chiller and the 82-ton reciprocating water cooled chiller with a VFD driven 450-ton centrifugal chiller. Install VFD's on the four 20 HP cooling tower fan motors. Convert the 20 HP chilled water and the 50 HP condenser water pumps for the 350-ton absorption chiller to a variable water pumping system. Convert the 10 HP chilled water and the 10 HP condenser water pumps for the 82-ton reciprocating chiller to a variable water pumping system. This project includes installing VFD's for the chilled water and condenser water pumps, converting the three-way chilled water valves to two-way valves, making piping modifications, and adding controls and modification to programming.

8.8.17 UCB Custom Project 17: Install VFD's on Existing Centrifugal Chiller; Convert Constant Volume Chilled & Condenser Water Pumping to Variable Volume

Install a VFD on the 475-ton centrifugal water cooled chiller in Tan Hall. Convert the two 20 HP chilled water and two 30 HP constant volume condenser water pumps to a variable volume pumping system. This project includes installing VFD's for the chilled water and condenser water pumps, converting the three-way chilled water valves to two-way valves, making piping modifications, and adding controls and modification to programming.

8.8.18 UCB Custom Project 18. Install VFD Control on Cooling Tower Fan Motor; Convert Constant Volume Chilled Water & Condenser Water Pumping to Variable Volume

In Barker, install a VFD on the 30 HP cooling tower fan motor. Convert the two 20 HP chilled water and two 25 HP constant volume condenser water pumps for the 400-ton water-cooled screw chiller to a variable volume pumping system. Convert the two 7.5 HP constant volume chilled water pumps for the 80-ton water cooled screw chiller to a variable volume pumping system. This project includes installing VFD's for the chilled water and condenser water pumps, converting the three-way chilled water valves to two-way valves, making piping modifications, and adding controls and modification to programming.

8.8.19 UCB Custom Project 19. Repair Steam Line Insulation

The 25 MW Cogeneration plant produces steam which is distributed throughout the campus via pipes located in tunnels or directly buried. This project analyzed the insulation of the pipes that are in the tunnel. The walk able tunnel is 1800 feet long and approximately houses the following pipes:

1. 10" steam at 2200 feet,
2. 8" steam at 1400 feet,
3. 5" condensate at 1800 feet,
4. 3" condensate at 400 feet.

There are 100 man holes which are basically the access points to the tunnel; however they house steam isolation valves. These valves are usually 4", 6" or 8".
It was assumed that around 1000 feet of the tunnel is presently insulated (with Asbestos) and around 80% of the manholes have insulations as well. It was also assumed that the pipes are Steel pipes.

For the analysis, there were two scenarios that were evaluated. The first project was a complete retrofit of all the insulation on the pipes. The proposed insulation is Calcium Silicate. The assumption for this project is that the insulation performance of Asbestos is similar to that of Calcium Silicate. Hence, the Btu/yr savings realized in this scenario would be the same as that for the second scenario. The second project was cutting/patching of the damaged and missing insulation on the pipes. For the analysis of this project, 800 feet of the tunnel and 20% of the valves were assumed to be un-insulated. The project costs reflected in the project list assume this second scenario.

For both the projects, the number of elbows on the pipes was approximated at 1 elbow per 100 feet of piping. The elbows are assumed to be 2 feet long each, while the valves are assumed to be 3 feet long each. A canvas protective jacket is added over the insulation

8.8.20 UCD Custom Project 1. Greenhouse Retrofit.

This project retrofits greenhouses temperature controls according to the recommendations of a study conducted by Taylor Engineering. The savings and scope are reflected in the study titled "Greenhouse Temperature Control Upgrade Report", dated August 11, 2007.

8.8.21 UCD Custom Project 2. Fume Hood RCx

A study conducted by Cogent Energy identified and prioritized fume hood opportunities. This project captures the remaining recommendations of the study, titled "Campus-Wide Fume Hood Prioritization Study Report" dated March 14, 2007.

8.8.22 UCD Custom Project 3. Replace Absorption Chiller at Primate Center

Remove one 400-ton water cooled single-stage Trane absorption chiller at Primate building and install a 450-ton VSD driven centrifugal chiller (as the peak design load of primate center is higher than available cooling capacity, suggesting 450-ton chiller instead of 400-ton). Add VFDs on existing chilled water pumps of 25HP, 10 HP, 7.5 HP and 1 HP to convert the constant volume pumping to variable volume. Retrofit all three-way valves on the cooling coils to two-way modulating valves. The project includes necessary piping modification, electrical works, adding controls and modifications in the programming.

8.8.23 UCD Custom Project 4. Install VFDs on Cooling Tower

Install twelve VFDs on 40 HP fans at cooling tower 1/2/3/4 (of TES plant). The energy savings are realized by improved part load performance of the fans. The project includes necessary electrical works, adding controls and modifications in the programming.

8.8.24 UCD Custom Project 5. Install VFDs on Condenser Water Pumps

Install VFDs on two 150 HP and on two 100 HP condenser pumps of TES plant. The energy savings are realized by improved part load performance of the fans. The project includes necessary piping modification, electrical works, adding controls and modifications in the programming.

8.8.25 UCD Custom Project 6. Add O2 trim and B-1/B-2 VFDs

Boilers at central plant have older mechanical controls modulating the fuel-to-air ratios. This measure proposes installing a computerized boiler combustion control system to operate the boilers at optimum excess oxygen, which would also control emissions, and adjust the fuel-to-air ratio with a variable frequency drive applied to the combustion fan. The valves and controls would be replaced and fuel efficiency maintained throughout the entire operating range of each boiler. Boiler turn-down ratios would be improved and maintenance expenses should be reduced.
Add VFDs on the two Boilers. While the boilers are currently maintained at high efficiencies (based on air quality flue gas readings), we have assumed that an average 2% increase in boiler efficiency is achievable. Operating the combustion fan with a variable frequency drive will reduce fan energy consumption and providing continuous boiler operation at lower loads will reduce boiler cycling losses in the summer. (Source: P2S and Taylor Study).

8.8.26 UCD Custom Project 7. Add DA Condenser

The deaerator (DA) must be vented, to let the air and other non-condensable gases be removed from the steam. Much of this continuously vented constant steam output could be used to preheat boiler make-up water. Add a vent-to- hot water heat exchanger to recover heat. (Source: Syska Hennessy MBCx report)

8.8.27 UCD Custom Project 8. Install Condensing Stack Economizer

Install one condensing stack economizer to handle the boiler flue gas from a total of 100,000 pounds per hour of steam production by either or both Boilers 1 and 2. This unit would be installed after the existing boiler stack economizer to reduce the stack temperature to below the condensing temperature, as low as possible, usually approximately 125° F. This system would use 100% of the flue gas from one of the stacks to preheat make-up water from 65° F to 210° F. The preheated make-up water would then flow to the de-aerator tank. Exhaust gas from this system would be vented through exhaust stack. (Source: Verle Williams Study)

8.8.28 UCD Custom Project 9. Install VFDs on Cooling Tower Fans

Install nine VFDs on one 75 HP and two 60 HP fans at cooling tower 3/4/5 (of CHCP-B plant), three 50 HP fans at cooling tower (of CHCP C plant) and three 50 HP fans at cooling tower D. As these fans are all 75HP or smaller, soft-start controls are not recommended. (Source: Verle Williams Study)

8.8.29 UCD Custom Project 10. Free Cooling HX

"Free Cooling "or "Condenser Cycle Cooling" refers to the use of cooling tower water to directly cool process chilled water (CHW) without using a mechanical chiller. A free cooling system takes advantage of the fact that as the ambient wet bulb temperature drops cooling towers can produce much lower condenser water (CW) temperatures. When the CW temperature approaches the CHW supply temperature a heat exchanger can be used to transfer the CHW heat directly to the cooling towers without using a chiller. Eliminating the chiller operating energy from the system greatly reduces the total amount of energy required to produce a given amount of chilled water.
In the application at the TES plant, a Plate and Frame Heat Exchanger (PFHX) is installed to intercept the warm return CHW from the either the campus or the TES tank and extract some or all of the heat and transfer it directly to the cooling towers. Due to the ambient wet bulb conditions in Davis, the cooling towers are not capable of producing CWS temperatures low enough to meet the campus CHWS requirements for many hours per year (approximately 30). By installing the PFHX in series with the new chillers the number of available operating hours of the free cooling system is greatly extended (to approximately 3,000).

In the project at the CHCP plant, a free cooling system is used to take advantage of the fact that as the ambient wet bulb temperature drops cooling towers can produce much lower condenser water (CW) temperatures. When the CW temperature approaches the CHW supply temperature a heat exchanger can be used to transfer the CHW heat directly to the cooling towers without using a chiller. Thus it eliminates the chiller operating energy from the system by greatly reducing the total amount of energy required to produce a given amount of chilled water. Add a Plate and Frame Heat Exchanger (PFHX) to intercept the warm return CHW from either the campus or the TES tank and extract some or all of the heat and transfer it directly to the cooling towers. By installing the PFHX in series with the new chillers the number of available operating hours of the free cooling system will be greatly extended. (Source: ESI Study)

8.8.30 UCD Custom Project 11. Recommission Heat Recovery Wheels

All the heat recovery wheels in Briggs Hall appear to be in good physical condition, but only a handful are operational. Installed chiller and heating plant capacities have been reduced with the wheels in operation by as much as 50 percent, saving both money and space. These new heat wheels reduce chiller and heating plant capacities significantly and hence immediate recommissioning is suggested. They have a tremendous impact on the peak demand. Peak load reduction of 110-ton is realized when only 1/4th of the wheels are operational. It is likely that 2/3rd of the wheels can be repaired and put back into operation. (Source: P2S and Taylor Study)

8.8.31 UCD Custom Project 12. HVAC and Fume Hood Retrofit

This project includes four recommendations from the study "HVAC and Fume Hood Retrofit Study" by Cogent Energy dated January 24, 2007. The projects include determining air flow requirements for individual spaces and re-balance the supply and exhaust air systems, converting non-laboratory spaces to VAV, converting non-laboratory spaces to re-circulated air and converting lab spaces from constant volume to variable air volume with air flow controls, which are described in more detail below for each building affected.

Chemistry

Original Installation: Constant volume air handling units supplying 100% outside air to the laboratory spaces on all floors, and returning air from the South office locations on floor 1,2 and 3. Air supplied to the laboratories is ducted from these spaces by two separate exhaust systems, a fume exhaust system connected to the individual laboratory fume hoods, and a general exhaust system which terminates in the respective rooms. The ductwork for these two systems is routed through shafts to the roof where the individual exhaust fans are located.

Proposed Changes: The intent of the proposed modifications is to create a variable flow laboratory exhaust and make up air system which will correct the building's negative pressure condition, take advantage of diversity in the fume hood use by providing exhaust and make up air systems that will allow for the installation of more fume hoods without compromising building pressurization and maintenance of space temperature conditions. This ECM includes removal and replacement of the existing air handling equipment capable of supplying and heating or cooling nominally 35,000 cfm of outside make up air each. Air handlers are to be capable of varying the quantity of supply air in response to individual laboratory fume hood exhaust air plus building positive pressurization demands.

Modify supply air ducting from the air handlers to each space served by the individual air handlers to accommodate the additional make up airflow. Install new variable volume flow control devices with heating coils, which will enable variable, make up air flow to each laboratory while maintaining space temperature and building pressurization conditions.

Modify roof fume ductwork into a common exhaust manifold, and connect fume exhaust fans to this manifold in order to enable variable fume hood exhaust flow by only operating the number of exhaust fans required to meet the instantaneous fume hood exhaust requirements.

Install new fume exhaust duct risers in existing duct shafts. New risers to route from the new roof exhaust manifold and each riser will terminate on a single floor only resolving the between floor fire protection issues currently created by the existing multi-floor fume exhaust duct branch configuration.

New fume exhaust ductwork on each floor from the above fume exhaust risers to the laboratory space and the individual fume exhaust hoods.

New exhaust volume control device, sash position sensor, and occupancy sensor for each laboratory fume hood to vary the exhaust flow as a function of sash position, as well as varying the flow in response to the proximity of people to the hood itself. This will provide the exhaust flow variation required for this system and the ability to install additional exhaust hoods.

New exhaust volume control devices for each fume exhaust duct stub out in each laboratory. This working conjunction with the make up air flow control device will allow control of individual laboratory pressurization while the amount of air being exhausted from the space by the fume hoods vary.

Chemistry Annex

Original Installations: Constant volume air handling units supplying 100% outside air to the laboratory spaces on all floors. Air supplied to the laboratories is ducted from these spaces by thirteen (13) separate exhaust systems; there does not appear to be separate fume and general exhaust systems. The ductwork for these thirteen (13) systems is routed to the roof through exterior duct enclosures to where the individual exhaust fans are located.

Proposed Changes: The intent of the proposed modifications is to create a variable flow laboratory exhaust and make up air system which will correct the building's negative pressure condition, take advantage of diversity in the fume hood use by providing exhaust and make up air systems that will allow for the installation of more fume hoods without compromising building pressurization and maintenance of space temperature conditions. This ECM includes removal and replacement of the existing air handling equipment capable of supplying and heating or cooling nominally 35,000 cfm of outside make up air each. Air handlers are to be capable of varying the quantity of supply air in response to individual laboratory fume hood exhaust air plus building positive pressurization demands.

Modify supply air ducting from the air handlers to each space served by the individual air handlers to accommodate the additional make up airflow. Install new variable volume flow control devices with heating coils, which will enable variable, make up air flow to each laboratory while maintaining space temperature and building pressurization conditions.

Modify roof fume ductwork into a common exhaust manifold, and connect fume exhaust fans to this manifold in order to enable variable fume hood exhaust flow by only operating the number of exhaust fans required to meet the instantaneous fume hood exhaust requirements.

Install new fume exhaust duct risers in existing duct shafts. New risers to route from the new roof exhaust manifold and each riser will terminate on a single floor only resolving the

between floor fire protection issues currently created by the existing multi-floor fume exhaust duct branch configuration.

New fume exhaust ductwork on each floor from the above fume exhaust risers to the laboratory space and the individual fume exhaust hoods.

New exhaust volume control device, sash position sensor, and occupancy sensor for each laboratory fume hood to vary the exhaust flow as a function of sash position, as well as varying the flow in response to the proximity of people to the hood itself. This will provide the exhaust flow variation required for this system and the ability to install additional exhaust hoods.

New exhaust volume control devices for each fume exhaust duct stub out in each laboratory. This working conjunction with the make up air flow control device will allow control of individual laboratory pressurization while the amount of air being exhausted from the space by the fume hoods vary.

8.8.32 UCI Custom Project 1. Install Air Curtains

This project considers installing air curtains for conditioned spaces at strategic locations such as loading dock, building entrance, and entrance for swimming pools having comparatively large openings or doors. Basically air curtain is creating an invisible air barrier between an unconditioned space (such as outdoor) and conditioned space (indoor) whenever the opening to the indicated spaces is opened or kept open. Air barrier is created by forcing or blowing pressurized air to separate and block infiltration of outside air into conditioned space and prevent escape of conditioned air to outside. Air curtain prevent energy transfer across unconditioned space and conditioned space therefore saving energy required to condition space. In absence of an air curtain such as in summer, outside air that is hot and unfiltered is brought into condition space thereby adding cooling load on the system. Same applies in winter, cold outside air is brought into space creating additional heating load on the system. In addition, outside air that is brought directly into the space is not filtered and can cause discomfort to the occupants. Depending on the frequency of use of opening and its size, outside air brought or unfiltered into space can cause higher air conditioning cost and costs associated with changing filters on HVAC system. Air curtains help to maintain controlled environment and prevents dust, bugs, and insects from entering the occupied area. Since air curtains are invisible and do not block vision, they help to achieve and maintain space at comfort level without compromising occupant health. Fan energy required to run the blower is negligible in comparison to the energy required for additional cooling or heating of the space. Air curtains will be in operation only when the opening is open.

This project involves installing Air Curtain at Loading Dock. This will require some electrical work for electrical connection to the air curtain unit and structural work for supporting air curtain unit to the ceiling above the opening.

8.8.33 UCI Custom Project 2. Variable Speed Drives on Pumps

This project considers installing Variable Frequency drives (VFD) on HVAC centrifugal pumps to vary pump speed by varying electrical frequency input to pump motor in relation to system heating and cooling load. This project concentrates on pumps which run at fixed

speed and do not alter flow of water in accordance with the HVAC system load requirements. In other words these pumps run at design speed (100%) independent of system characteristics wasting pumping energy and imposing electric demand charges on the campus. Generally pumps are designed to run at rated speed to meet the peak HVAC system demand which occurs only few hours per year. Rest of the time, due to the diversity in the system, the system does not require pump to deliver design flow (since the peak for each zone does not occur at the same time). Therefore system requires less flow than the design flow providing an opportunity to save pump energy by reducing pump speed to meet reduced system flow requirements. Speed reduction results in a more significant energy reduction. The larger the flow reduction from the designed operating point, the larger the energy savings. Since flow rate is directly proportional to pump speed and the differential pressure is directly proportional to the square of the pump speed, power usage is directly proportional to the cube of the pump speed. For example, reducing speed by 50% requires only 12.5% of the power needed at full speed.

The project involves installing Variable Speed Drives on pumps and differential pressure transmitter in HVAC loop to control and monitor pump speed. Pump VFD and differential pressure transmitter will be connected to existing building energy management system.

Also existing bypass valves in loop will be disabled for successful implementation of this ECM. This ECM assumes that existing pump motors are inverter duty type.

8.8.34 UCI Custom Project 3. Condenser Water Reset

This project considers implementing condenser water reset control strategy for water cooled chillers through use of existing building direct digital controls (DDC). In condenser water reset control, water supplied to chiller condenser is varied according to outside air wet bulb temperature. With condenser water reset methodology, variable set point is used to control condenser water entering temperature. Every cooling tower can cool water up to certain limits depending on tower design and ambient wet bulb temperature. Since tower size is fixed, only driving factor is ambient wet bulb temperature. Cooling tower can cool water to temperatures equal to "*wet bulb temperature + cooling tower approach*". Approach is defined as the difference between cooling tower leaving water temperature and ambient wet bulb temperature. In other words if ambient wet bulb temperature is 50°F with cooling tower design approach of 14°F, cooling tower can cool water to temperature of 64°F. Most of the Chiller Manufacturer's literature indicates that a one-degree drop in condenser entering water temperature will reduce chiller energy consumption by two percent. Due to location of the building, ambient conditions favor use of condenser water reset and fan power usage due to condenser water reset will be comparatively less than the energy used for the chiller. An algorithm will set upper and lower limits on condenser water temperature to protect chiller from damage and by restricting set point to minimum approach, fan speed will not be increased in vain to achieve impossibly low temperatures. Without condenser water reset strategy, Cooling tower will run at fixed low temperature wasting fan energy during conditions when cooling tower cannot achieve the set-point due to higher outside air wet-bulb temperature/ or due to high cooling loads on chiller. Condenser water reset strategy calculates overall system load, chiller characteristics (kW/ton), outside air wet bulb (enthalpy) and determines the best possible condenser water set-point under given circumstances for an efficient plant operation.

To implement condenser water reset strategy, a wet bulb temperature sensor and humidity sensor will be installed in cooling tower yard. The existing DDC panel will be programmed to add an algorithm to reset (lower) condenser water entering temperature based on ambient wet bulb temperature. This algorithm will be used to control cooling tower fan VFD to maintain pre-set temperature at existing temperature sensors.

8.8.35 UCI Custom Project 4. Replace Old CRAC units with New CRAC units, Separate Hot and Cold Aisles and Add Air Side Economizer

This project considers replacing old Computer Room Air Conditioning Units (CRAC) with new efficient CRAC units. Existing CRAC units are old and do not vary supply fan speed in accordance with the data center loads. Often fan is run at full speed. Energy used to run fan at high speed is comparatively higher than running fan at lower speed. Heat dissipated into space due to fan running at full speed causes extra cooling load on the system and thereby extra energy costs. Since load in the data center is not constant and there is redundancy in the system, it is not required to run fan at full speed at all times. CRAC units run 8760 hrs and heat from the fan motor is constantly added to space. In addition Data Center does not require design air flow ay all times and it is possible to supply lower airflows during low cooling demands. In conventional data center design CRAC is controlled based on return air temperature sensor in return air duct of the unit and there is no separation between hot and cold aisles. This is inefficient and results in excessive air flow requirements. With the separation of hot and cold aisle, cold air supplied to the rack and hot air returned from the back of rack do not mix together thus allowing to tap energy savings both from fan and cooling. It is thus possible to supply air comparatively at higher temperatures of about 65F (adjustable) instead of 60F allowing savings in chilled water use and realizing significant energy savings. By adding air side economizer outside air or free cooling will be used whenever outside air is below (55F- Adjustable). With air side economizer, significant amount of energy savings are possible and requirements for fresh air (ventilation air) will be also be met with no air required from the housing. Addition of economizer gives extra redundancy to the system.

This project involves replacing existing old CRAC units with new CRAC units, separating hot and cold aisles, enthalpy sensor for economizer, humidity sensor in data center, adding air side economizer, duct work for economizer, return air duct for CRAC. Since location of Data Center is site specific, the scope and work requirement for Mechanical, Electrical, Plumbing and Structural will also vary according to site. The operation of economizer and CRAC will be monitored and controlled by existing building direct digital controls.

8.8.36 UCI Custom Project 5. Elevator Upgrade to VVVF

This project considers upgrading existing motor generator elevator systems to new solid state drives. Motor generators draw approximately 35% to 40% of the full load power during idle mode, and are relatively inefficient, typically operating with a range of 72% to 81% efficiency. Newer technologies are available to drive elevators with a variable voltage variable frequency drive (VVVF) coupled with an AC motor. With a VVWF, the elevator drive draws less power during idle mode, and the operating efficiency approaches 97%. An alternate retrofit is to replace the motor generator with a silicon controlled rectifier (SCR) coupled with a DC drive. This retrofit is less expensive, but produces less savings; approximately 26% savings for a SCR retrofit, compared to approximately 57% savings with VVWF.

8.8.37 UCI Custom Project 6. Campus Generated Projects

Throughout the SEP effort, the campus has contributed numerous projects for consideration and analysis, and even in some cases included projects already analyzed by the campus. These projects have been reviewed and incorporated in the project list. Where available, the energy calculations have been included in the appendix.

8.8.38 UCI MC Custom Project 1. Replace Chillers, Replace Cooling Tower, Convert to Variable Volume Pumping

Several projects were identified and analyzed for the chiller plant in Building 1A. The first project is to replace the two old 129 ton reciprocating units with new high efficiency chillers. Another project is to replace the cooling tower, which is in disrepair and in poor condition, with one equipped with a VFD on its 7.5 HP fan motor. The campus should also consider converting the constant volume chilled water loop to a variable volume system. This would require installing VFDs, making piping changes, and adding controls.

8.8.39 UCI MC Custom Project 2: Replace Chiller, Convert to Variable Volume Chilled Water Pumping

Projects have been identified for the chiller plant equipment in Building 3. During the site visit, the 250 ton water cooled screw chiller was operating such that it would cycle on and off instead of turning down. Savings can be realized by fixing the low turn down problem on the chiller. It is recommended that the chiller be replaced with a high efficiency unit.

Adding a VFD to the single speed 10 HP motor on the cooling tower and converting to a variable volume chilled water loop were also analyzed. This project would require installing VFDs, making piping changes, converting three-way valves to two-way valves, and adding controls.

8.8.40 UCI MC Custom Project 3. Replace Chiller, Add VFD to cooling tower, Convert to Variable Volume Chilled Water Pumping

The central plant projects in Building 23 that were analyzed include replacing the 191 ton air cooled reciprocating chiller with a high efficiency unit and converting the system to a secondary variable volume pumping system. This project includes converting the three-way chilled water valves to two-way valves, and installing controls and programming.

8.8.41 UCI MC Custom Project 4. Replace Chiller, Convert to Variable Volume Chilled Water Pumping

This report also includes an analysis of replacing the 300 ton centrifugal water cooled chiller in Building 63 and the 150 ton reciprocating air cooled chiller with high efficiency units. Another potential project is to convert the constant volume chilled water pumping system to a variable volume pumping system. This project includes installing a VFD for the chilled water pump, converting the three-way chilled water valves to two-way valves, making piping modifications, and installing controls and programming.

8.8.42 UCI MC Custom Project 5. Replace Chiller, Convert to Variable Volume Chilled Water Pumping

This report also includes an analysis of replacing the two 71 ton chillers in Building 70 with high efficiency chillers, as well as converting the constant volume chilled water pumping system to a variable volume pumping system. This project includes installing a VFD for the chilled water pump, converting the three-way chilled water valves to two-way valves, making piping modifications, and installing controls and programming.

8.8.43 UCI MC Custom Project 6. Boiler Plant-Steam Trap Maintenance, VFD on Boiler Fans

The campus should develop a stream trap maintenance program, along with a condensate monitoring and management program. This project is recommended since only fifty percent of the available condensate is returned to the central plant. Another potential project is to add VFDs to the forced draft boilers. However, the facilities department has expressed concern over the safety issues of this project due to the history of explosions.

8.8.44 UCLA Custom Project 1. Boiler Replacement

This project considers replacing existing old inefficient boilers with new energy efficient boilers. Existing boilers are old non-condensing boilers. Existing boilers do not capture latent heat from flue gases resulting in lower combustion efficiency. With condensing boilers 90-98% thermal efficiency is possible allowing significant natural gas savings. Conventional non condensing boilers are 70-80% efficient and require return water temperatures at comparatively higher temperatures. Condensing boilers have a specially designed heat exchanger which allows boiler to operate at lower return water temperatures and comparatively at higher delta T (difference between return water temperature and supply water temperature). Operating boiler at lower temperature reduces heat loss and standby losses.

8.8.45 UCLA Custom Project 2. Chiller Replacement (SRLF, UNEX, Willshire Center)

This project considers replacing existing old inefficient chillers with new energy efficient and environmental friendly chillers. Existing chillers are old and often require costly maintenance and downtime. Old chillers do not have good full load and part load efficiencies. In other words power (KW) used per cooling tons (ton) is comparatively high and therefore provides an opportunity for electric energy and demand savings. Chillers efficiencies are typically higher or are often designed for full load which occurs only for few hours per year. Rest of the time chillers see fewer loads or run at part load. Since cooling load is significantly driven by outside air and humidity, cooling needs also vary.

Old chillers also use refrigerants containing Ozone-destroying Chlorofluorocarbons (CFC) which are no longer used in new chillers. New chillers use more environmental friendly Hydrochlroflurocarbon (HFC) refrigerants. Continuing use of old chillers with outdated technology and banned refrigerant causes wastage of energy and higher operating costs. Old chillers require refrigerants which are costly to obtain from a dwindling reclaimed supply. Also it becomes difficult, costlier and requires longer downtime to obtain parts for old chillers.

Since building depends on local chillers for cooling needs and does not use chilled water from campus central plant, it is important to have efficient chillers to avoid hefty demand charges. New efficient chillers provides an opportunity to implement energy conservation measures such as chilled water supply reset, variable flow, condenser water reset etc without chiller penalty. With advanced chiller controls it is possible to limit demand and optimize chiller plant energy use. New chillers with advanced controls provide flexibility in plant operation and effectively use of plant equipment.

8.8.46 UCLA Custom Project 3. TOD Controls on Exhaust Fans

This project considers installing Time of Day Controls (TOD) on Toilet Exhaust Fans. Existing toilet fans run continuously and are not controlled through building energy management system. Fan with higher horsepower impose significant operating costs, both electric energy use and demand charges. Therefore with the time of day controls, fan operating hours will be matched with building occupancy schedule and controlled through building energy management system. This will allow fan to run only when building is occupied and turn off automatically when building is unoccupied.

If required occupancy sensors can be also integrated with fan so that whenever occupancy detected, fan will be turn on. Time of day control on fan will significantly reduce electric energy usage charges.

8.8.47 UCLA Custom Project 4. Condenser Water Reset

This project considers implementing condenser water reset control strategy for water cooled chillers through use of existing building direct digital controls (DDC). In condenser water reset control, water supplied to chiller condenser is varied according to outside air wet bulb temperature. With condenser water reset methodology, variable set point is used to control condenser water entering temperature. Every cooling tower can cool water up to certain limits depending on tower design and ambient wet bulb temperature. Since tower size is fixed, only driving factor is ambient wet bulb temperature. Cooling tower can cool water to temperatures equal to "*wet bulb temperature + cooling tower approach*". Approach is defined as the difference between cooling tower leaving water temperature and ambient wet bulb temperature. In other words if ambient wet bulb temperature is 50°F with cooling tower design approach of 14°F, cooling tower can cool water to temperature of 64°F. Most of the Chiller Manufacturer's literature indicates that a one-degree drop in condenser entering water temperature will reduce chiller energy consumption by two percent. Due to location of the building, ambient conditions favor use of condenser water reset and fan power usage due to condenser water reset will be comparatively less than the energy used for the chiller. An algorithm will set upper and lower limits on condenser water temperature to protect chiller from damage and by restricting set point to minimum approach, fan speed will not be increased in vain to achieve impossibly low temperatures. Without condenser water reset strategy, Cooling tower will run at fixed low temperature wasting fan energy during conditions when cooling tower cannot achieve the set-point due to higher outside air wet-bulb temperature/ or due to high cooling loads on chiller. Condenser water reset strategy calculates overall system load, chiller characteristics (kW/ton), outside air wet bulb (enthalpy) and determines the best possible condenser water set-point under given circumstances for an efficient plant operation.

To implement condenser water reset strategy, a wet bulb temperature sensor and humidity sensor will be installed in cooling tower yard. The existing DDC panel will be programmed to add an algorithm to reset (lower) condenser water entering temperature based on ambient wet bulb temperature. This algorithm will be used to control cooling tower fan VFD to maintain pre-set temperature at existing temperature sensors.

8.8.48 UCLA Custom Project 5. Install VFDs on Cooling Towers

This project considers installing Variable Frequency drives (VFD) on Cooling Tower Fan. With VFD, fan speed is regulated to meet the required cooling needs. Since cooling tower is designed based on outside air wet bulb temperature, variation in wet bulb temperature affects tower performance. Highest wet bulb temperature for a particular location occurs only few hours per year; and it is not required to run tower fan at design speed (100%) for remaining hours. Fan speed can be reduced to meet cooling needs and therefore allowing significant electric energy and demand savings. VFD allows soft start and reduces wear and tear of fan belts, bearings.
The power requirement of cooling tower fan varies as a cube of its speed. The VFD allows the cooling tower fan to operate at whatever speed is required to meet the cooing needs. Typically the fan runs at only 40 - 70% of design speed, thus saving 50% or more of the energy consumed by fixed speed system. Every time the actual wet bulb temperature is lower than the design wet bulb, an energy saving potential exists. Changes in the ambient wet bulb temperatures allow the fan speed to be regulated. Running fan at lower speed reduces energy consumed by the fan's motor. The magnitude of this saving potential depends upon wet bulb temperature fluctuations. In addition to fan energy savings, running fan at lower speed reduces evaporation rate of treated water.

8.8.49 UCLA Custom Project 6. Variable Speed Drives on Pumps

This project considers installing Variable Frequency drives (VFD) on HVAC centrifugal pumps to vary pump speed by varying electrical frequency input to pump motor in relation to system heating and cooling load. This project focuses on pumps which run at fixed speed and do not alter flow of water in accordance with the HVAC system load requirements. In other words these pumps run at design speed (100%) independent of system characteristics wasting pumping energy and imposing electric demand charges on the campus. Generally pumps are designed to run at rated speed to meet the peak HVAC system demand which occurs only few hours per year. Rest of the time, due to the diversity in the system, the system does not require pump to deliver design flow (since the peak for each zone does not occur at the same time). Therefore system requires less flow than the design flow providing an opportunity to save pump energy by reducing pump speed to meet reduced system flow requirements. Speed reduction results in a more significant energy reduction. The larger the flow reduction from the designed operating point, the larger the energy savings. Since flow rate is directly proportional to pump speed and the differential pressure is directly proportional to the square of the pump speed, power usage is directly proportional to the cube of the pump speed. For example, reducing speed by 50% requires only 12.5% of the power needed at full speed.

The project involves installing Variable Speed Drives on pumps and differential pressure transmitter in HVAC loop to control and monitor pump speed. Pump VFD and differential pressure transmitter will be connected to existing building energy management system.

Also existing bypass valves in loop will be disabled for successful implementation of this ECM. This ECM assumes that existing pump motors are inverter duty type.

8.8.50 UCSD Custom Project 1. Sea Water Air Conditioning

The campus has identified the opportunity to utilize sea water to offset its year round air conditioning load. Makai Ocean Engineering has performed a Feasibility Analysis of the project and has identified significant energy and water savings.

The concept involves a one mile long 3 foot diameter underwater pipe that would collect 49 to 50ºF sea water at a depth of 750 feet in La Jolla Canyon. The seawater would be heat exchanged with cooling water at the Scripps Institute of Oceanography campus and returned to the ocean at a depth of 70 feet, where the ambient temperature matches the discharge seawater temperature. The 51ºF cooling water would be distributed to SIO and to the UCSD chilled water plant where it would cool chilled water return through a heat exchanger and then be used in the condensers of the centrifugal chillers to significantly improve their efficiency. The cooled water would be returned to the SIO heat exchanger at 82ºF. This is expected to deliver roughly 4,240 tons of cooling directly and 3,760 tons of cooling with an improved COP. The net electric savings is projected to be 2,718 kW, basically year round.

In this report the value of these energy savings is based on the recharge rate of $0.0777/kWh, which may be lower than the actual value of the electricity, depending upon the amount of electricity which needs to be imported. The project also proposes a significant reduction in the 100 million gallons of water that is used in the cooling tower makeup each year. The value of this savings is not included in the payback analysis in this report either.

In this initial analysis the project has a fairly long payback but offers many potential benefits beyond energy and water savings as a model for many other sites in California and other states. The project faces environmental impact hurdles that must be addressed. The fact that SIO currently collects and distributes seawater through its aquariums, although on a much smaller level, is a good indicator for the project.

8.8.51 UCSD Custom Project 2. Fuel Cell Heat Recovery Chiller

The campus is in the process of installing a fuel cell at the East Campus Central Plant to be operated with digester gas trucked in in high pressure cylinders from a sewage treatment plant. The fuel cell in use is a Fuel Cell Energy DFC1500MA with an electric output of 1,200 kW. It is expected to operate at full load, continuously, reducing the load of the main campus meter.

There is currently no provision for heat recovery from the exhaust of the fuel cell, which is rated at 15,800 lb/hr at 700ºF. This is adequate heat to generate low pressure steam and use it in an absorption chiller to generate approximately 92 tons of cooling. This cooling can be used to offset the operation of the existing electric chillers in the plant.

A higher output may be possible by using a chiller that is designed to operate from direct exhaust heat. This may be available from Carrier or an international absorption chiller manufacturer.

8.8.52 UCSD Custom Project 3. Install Low Pressure drop Filters

This project replaces the existing pre-filter and 12" bag filters with low pressure drop filters a various buildings campus wide, as proposed by Burke Environmental. Savings are the average of the year one and year two savings.

8.8.53 UCSD Custom Project 4. SIO Campus Virtual Chilled Water System

This project implements two recommendations of a SDREO report: Combine South Plants (Sverdrup, Vaughn, Ritter and Scholander Hall) and Combine North Plant (Hubbs Hall, SIO Library and IGPP). The campus may consider incorporation of the Hartman Loop recommendation during design, but costs and savings are based on the recommendations of combining the plants without addition of the Hartman Loop.

8.8.54 UCSD MC Custom Project 1. Central Chiller Plant, Install New Chiller, Pump VFDs

This project addresses the energy efficiency of several measures for the Hillcrest Medical Center central chilled water plant. These measures include optimizing the condenser water pumping, converting the primary chilled water to variable volume, optimizing the chiller sequencing, installing VFDs on tw0 750 ton chillers, installing VFDs on heating hot water pumps, and replacing the single stage absorption chiller with an electric centrifugal chiller.

The absorption chiller is said to run during the winter to load up the second boiler and during the summer to contribute to peak cooling loads. Old absorption chillers, however, are notoriously inefficient. These projects were identified by a combination of Siemens, San Diego Regional Energy Office and Newcomb Anderson McCormick.

8.8.55 UCSF Custom Project 1. Install VFD Driven Centrifugal Chiller (150 Ton)

Install VSD driven, 150-ton centrifugal water-cooled chiller replacing the existing 400-ton single stage absorber unit in the Library to cater around 125 ton peak cooling demand of the building. Provide a 5 HP primary CHW pump and a VFD driven 5 HP secondary CHW pump in place of existing pumps besides converting chilled water loop to handle variable volume flow. The chilled water loop variable volume project includes replacing 3-way valves with 2-way valves, making piping changes and adding controls and programming. Provide a 7.5 HP condenser pump and add a VFD to the existing 30 HP motor on the cooling tower.

8.8.56 UCSF Custom Project 2. Remove Multiple Air-cooled Chillers and Interconnect Clinical Sciences to CUP

Remove one 30-ton, two 20-ton packaged air-cooled Trane chillers and one 30-ton packaged air-cooled Carrier chiller. Interconnect the building to the Parnassus campus central chilled water piping. The chilled water loop interconnection project includes replacing 3-way valves with 2-way valves, making piping changes and adding necessary controls. This ECM assumes the CHW piping can be run through the existing tunnel used for supplying central plant steam.

8.8.57 UCSF Custom Project 3. Remove Multiple Air-cooled Chillers and Interconnect Medical Sciences to CUP

Remove one 40-ton approx (Technical Systems), one 40-ton (McQuay), one 20-ton (Carrier) and one 30-ton (Trane) packaged air cooled chillers. Interconnect the building to the Parnassus campus central chilled water piping. The chilled water loop interconnection project includes replacing 3-way valves with 2-way valves, making piping changes and adding necessary controls. This ECM assumes the CHW piping can be run through the existing tunnel used for supplying central plant steam.

8.8.58 UCSF Custom Project 4. Convert Cooling Tower Fans from 2-speed to VFD

Add a VFD to the existing 2-speed 50 HP motor of the cooling tower fan at Rock Hall. The project includes adding controls and necessary modifications in the programming.

8.8.59 UCSF Custom Project 5. Replace 2 Speed Control with VFD Control on Cooling Tower Fan

Add a VFD to the existing 2-speed 50 HP motor of the cooling tower fan at the Community Center. The project includes adding controls and necessary modifications in the programming.

8.8.60 UCSF Custom Project 6. Install VFDs on Existing Centrifugal Chillers & Provide Tower Free Cooling

Add VFDs on two 335-ton Trane centrifugal water cooled chillers in Byers Hall. Electric energy savings are realized by improved part-load performance of the chiller. Due to the low ambient wet bulb conditions in San Francisco climate, when the CW temperature is below the CHW supply temperature a heat exchanger can be used to transfer the CHW heat directly to the cooling towers without using a chiller. Thus tower free cooling eliminates the chiller operating energy by greatly reducing the total amount of energy required to produce a given amount of chilled water. Add a Plate and Frame Heat Exchanger (PFHX) of 800 GPM capacity to intercept the warm return CHW from the building and extract some or all of the heat and transfer it directly to the cooling towers. The project includes necessary piping modification, adding controls and modifications in the programming.

8.8.61 UCSF Custom Project 7. Install VSD on Existing Centrifugal Chiller

Install VSD on the 1200-ton electric centrifugal chiller on the Parnassus Campus. Electric energy savings are realized by improved part-load performance of the chiller.

8.8.62 UCSF Custom Project 8. Hooper Pad Chiller Replacement and Interconnect.

Replace three 200-ton packaged air cooled Carrier chillers at Hooper Pad with a new VFD driven 600-ton water cooled centrifugal chiller located at the Central Plant. The project includes necessary piping modification on primary & secondary chilled water and condenser water loops of existing central plant equipment. Add controls and make suitable modifications in the programming.

8.8.63 UCSF Custom Project 9. Chiller System Replacement 500 ton

This project would replace an existing electric centrifugal chiller at the UCSF Mission Center Building with a new 525 ton electric centrifugal chiller with a VFD. The use of Turbocor compressors is one option being considered. The project also includes new chilled water pumps, condenser water pumps and a cooling tower. The project was originally identified by Arup.

8.8.64 UCSF Custom Project 10. Chiller Unit Condensing Coil Replacement

This project would replace a degraded existing condensing coil on air conditioning equipment in the Mission Center Building.

8.8.65 UCSF Custom Project 11. Condensate Return System Bypass Renewal

This project would modify the existing condensate return system at the Parnassus campus to collect a greater portion of the available condensate.

8.8.66 UCSF Custom Project 12. Hartman Loop Control Logic for the Parnassus CHW System

The Hartman loop is a sophisticated control logic which control chiller plants to produce the lowest possible energy usage available. VFDs are provided on all major components, and controlled to provide stable operation of all chillers. It also selects the most efficient combination of chiller, and pumping distribution scenario. Being that this plant is served by electricity, and an co-generation system, this system control is analyzed in conjunction with the co-generation system, in order to produce the lowest possible (entire system) energy usage, cooling plant and co generation system. These analyses are on-going. The exact energy saving possible are a rough estimate at this time, and not included in this report. As analyses proceed, a more accurate estimate of energy savings will be developed.

8.8.67 UCSF MC Custom Project 1. Convert to Variable Volume Chilled Water Pumping

Currently, a constant volume chilled water pumping system is intact. Two primary-only 5 HP chilled water pumps in MTZ Building J supply chilled water to the chillers in addition to the air handler cooling coils. In this ECM add VFD to the primary pumps and retrofit all three-way valves on the cooling coils to two-way modulating valves. Necessary electrical and control programming changes will be incorporated. This measure is also recommended for the central plant.

8.8.68 UCSF MC Custom Project 2. Replace Chillers at Moffitt & Long Hospital & Interconnect

Remove two 200 ton water-cooled single-stage Trane absorption chillers at Long Hospital and two 385-ton water cooled single-stage Trane absorption chillers at Moffitt Hospital. Install a 1200-ton VSD driven centrifugal chiller at the Central Plant Room complete with a 100 HP Primary pump, 150 HP Condenser pump and 1400 ton cooling tower with VFD driven fan. One of the existing VFD driven secondary pump of central plant will be used to supply chilled water to the buildings. Interconnect the system to the CUP piping and make the necessary chilled water piping modifications. The CHW piping will be run through the

existing trench used for supplying central plant steam. Retrofit all three-way valves on the cooling coils to two-way modulating valves.

8.8.69 UCSF MC Custom Project 3. ACC Chiller and Chilled Water Project

Remove the ACC-RAC-14 chiller supplying cooling to AC-05. Connect the cooling coil of AC-05 system to the roof-top ACC-CHR3 chiller piping. The chilled water interconnection project includes piping modifications. Two 15 HP primary-only constant volume pumps supply chilled water to the chillers in addition to the air handler cooling coils. Add VFD to the primary pumps and retrofit all three-way valves on the cooling coils to two-way modulating valves. Convert to a variable volume chilled water loop. The chilled water loop variable volume project includes installing VFDs, making piping changes and adding controls and programming.

8.8.70 UCSB Custom Project 1. Chilled Water Loop Extension

This project considers extending the chilled water loop so that it will be connected to the eight (8) additional buildings: Events Center, North Hall, Kerr Hall, Ellison Hall, Phelps Hall, Campbell Hall, Student Health, and HSSB. These buildings currently have air cooled chillers that will need replacement soon, or require additional air cooled capacity that is scheduled to be added. The chilled loop connection will have a higher first cost than installing new air cooled chillers, but the water cooled loop chillers are more efficient. The Events Center has been included separately from the remaining buildings to facilitate the campus' desired implementation timeline.

8.8.71 UCSB Custom Project 2. Carillo Center Pool Cogen

Carillo Commons is a heating plant with two 6695 MBH Kewaunee Steam Boilers. Steam is supplied to the kitchen, but primarily this project is interested in the heating water production which includes a 4500 MBH of design heating water including: 1900 MBH of 120 deg.F to the dorms, 2400 MBH of 180 deg.F to the dining commons and 230 MBH of 140 deg.F water to the dish machine. These loads are primarily during the day. Thus, a SEP Grant project is being proposed that will have one 60KW Tecogen Cogen unit that will serve the dorm, dining, and nearby outside 105,000 gal pool . Room for another 60KW cogen will be designed in and thermal storage tank will be utilized to even out the load.

8.8.72 UCSB Custom Project 3. Install Low Pressure Drop Air Filters

This project proposes replacing traditional throw-away filters with low pressure drop air filters. The campus has identified 25 buildings were low pressure drop air filters could be installed and has estimated the pressure drop savings to be .52" over the traditional filters.

8.8.73 UCSB Custom Project 4. Boiler and Heat Reclaim Projects

The campus has identified three boilers that are in need of replacement and can be replaced with high efficiency boilers. Additionally, the campus has identified fifteen boilers that could utilize stack economizer retrofits to increase their efficiency through heat reclamation. The calculation assumes that there will be an 8% increase in efficiency with the boiler replacements and a 5% increase in efficiency with the heat reclamation projects.

8.8.74 UCSB Custom Project 5. Biology 2 Heating System Upgrade

The Biology 2 Heating Water System currently uses two older, oversized, 12.5 million BTUH steam boilers with heat exchangers. This upgrade will install (2) 4 million BTUH (84% efficient) heating water boilers, replace steam to heating water heat exchangers, upgrade heating system controls, and allow most of the steam system to be shut down. With additional commissioning, a 20% reduction of natural gas use is easily expected. Records of baseline natural gas usage were available through Itron.

8.8.75 UCSB Custom Project 6. Chemistry 4th Floor Fume Hood Exhaust – Add VFD

Three Chemistry building fume hood exhaust fans (1.5, 1.5, & 5 HP) do not yet have VFDs. All three are on the fourth floor. The project involves the installation of VFDs on these 3 remaining 4th floor exhaust fans, and the installation of auto-sash closures for the fume hoods.

8.8.76 UCSB Custom Project 7. North Hall – Data Center Ventilation

North Hall has a raised floor data center that is cooled by a 20,000 CFM underfloor air handler and 60 tons of air cooled chillers with an efficiency of 1.25 KW/ton. Currently, no economizer cycle is used because of marine air quality (salt nuclei) concerns. This project would replace the 20+ year old air handler with a 50% larger AHU with economizer cycle. Merv 15 low pressure drop filters would be used to remove salt nuclei from the outside air.

This project is expected to follow a previous SEP upgrade which will connect the campus chilled water loop at 0.75KW/ton. Therefore energy savings calculations assume only 0.75KW/ton. Calculations are also based on the UCSB Outside Air Temperature Distribution Scan, which shows approximately 6088 hours of free cooling.

The economizer will allow the underfloor distribution system to use free cooling instead of relying exclusively on the chilled water cooling.

8.8.77 UCSB Custom Project 8. Francisco Torres – Refrigeration Compressors

Francisco Torres (Santa Catalina) has five refrigeration compressors for kitchen reach-ins, estimated at 2kW each. This project involves multiplexing the compressors together and using head pressure reset to save energy.

8.8.78 UCSB Custom Project 9. New Gas Cabinet Exhaust System

The Engineering Science Building toxic exhaust system is currently overloaded. The project involves installing an 8000 CFM gas cabinet exhaust system (duct & fans). This will unload the 21,000 CFM @ 4.3" toxic exhaust system down to its design 13,000 @ 2.15", since the flow will not exceed the exhaust duct requirements anymore. This reduction in static pressure will reduce the required fan power.

8.8.79 UCSB Custom Project 10. Housing Boiler Replacements and Lockout

This project involves replacement of old gas boilers with high-efficiency gas boilers at Santa Cruz dorm, Santa Rosa dorm, Carrillo dining (these boilers also serve the San Rafael dorm),

and Santa Catalina (Francisco Torres) dorm (these boilers also serve the kitchen & pool). The oldest of the housing boilers, some as old as 1960s, were selected for this project. The boiler efficiency was estimated to increase from 80% to 90%.

At Santa Catalina, three smaller steam boilers would be installed to be used for staging. Savings were also included for turning off all boilers during the 3-week winter break and the 1-week spring break.

8.8.80 UCSB Custom Project 11. Clean Room Humidity Control Separation

The Elings Hall (CNSI) clean room (Bio-Nanofabrication Core Facility) is about 1/3 of the third floor. It is served by air handlers CAH-1, CAH-2, and PAH-1 (PAH-1 is outside air for both CAH-1 & CAH-2). The entire clean room currently receives moisture control. However, part of the clean room (CAH-2) does not require moisture control. This should be separated from the primary air system control (PAH-1). A new dehumidifier will be added to treat the PAH-1 air that serves CAH-1 only. It should also have some excess capacity in case any of the ~10 labs served by CAH-2 change and begin to require humidity control. The existing PAH-1 humidity controls will no longer be used, but will be kept in place for possible future use. Energy is saved because the 30,000 cfm of outside air serving CAH-2 will no longer receive dehumidification or humidification.

8.8.81 UCSB Custom Project 12. VFD on Exhaust Fans – MAC

Apply VFD to EF-5 (1.5 HP exhaust fan serving toilet & shower), EF-6 (1.5 HP exhaust fan serving toilet & shower), and EF-13 (2 HP exhaust fan serving climbing wall) at MAC (RecCen 2).

8.8.82 UCSB Custom Project 13. VFD on Exhaust Fans – Psychology

In the Psychology building, EF-2 (5 HP, fume hood and other exhaust) and EF-3 (2 HP, general exhaust) are currently both constant volume. This project will apply VFDs to these exhaust fans.

8.8.83 UCSB Custom Project 14. VSDs on Pumps

Throughout campus, there are (55) Chilled Water, Hot Water, or Condenser Water Pumps that do not yet have VFDs. This project involves the installation of VFDs on these pumps, which range from 1.5 HP to 75 HP. Calculated savings are based on DEER estimates.

8.8.84 UCSB Custom Project 15. V-Velt to Direct Drive Fans

Many fans throughout campus are driven by v-belts instead of the more efficient direct drives. This project involves fans in PSB North, MRL, Library 4, Kerr Hall, Engr 2, and Chemistry. Existing fan efficiency is estimated at 50%, based on typical data from PSB North. Hunt Air Fan Walls, with an efficiency of 72%, will be installed.

8.8.85 UCSB Custom Project 16. EE Motors

In many air handlers where standard retrofits were identified, standard efficiency motors were found. Proposed VFD retrofits on these motors require inverter grade motors, and the

existing standard efficiency motors should be replaced with premium efficiency motors. Savings and costs were calculated for these separately, but should be integral to the other HVAC projects in the building.

8.8.86 UCSB Custom Project 17. Fume Hood Exhaust Fan Consolidation

The Chemistry building currently has 11 fume hood exhaust fans. This, campus identified project proposes consolidating the fans so that only five or six fans are required to meet the ventilation needs of the buildings. It is anticipated that this will result in approximately 10% energy savings due to increased efficiency of the fans.

8.8.87 UCSB Custom Project 18. Auto Sash Closers

This project, that was identified by the campus, proposes installing auto sash closers on 76 six foot hoods and 37 eight foot hoods. The energy savings from reduced ventilation requirements were modeled using Lawrence Berkeley's Fume Hood Calculator.

8.8.88 UCSC Custom Project 1. Turbocor Compressor Retrofit

This measure involves retrofitting the existing chillers with a frictionless Turbocor compressor. The Turbocor compressor features a centrifugal compressor with an oil less, frictionless magnetic bearing and a variable speed drive. The magnetic bearing on the Turbocor compressor levitates the rotor shaft with a digitally controlled magnetic field thus eliminating frictional losses. Efficiency is further improved by varying the speed of the compressor with a variable speed drive during part load condition. Chillers with screw, scroll, or reciprocating compressors are good candidate for this retrofit and usually have a lower first cost compared to a full chiller replacement with a significant energy efficiency improvement.

Energy savings for this measure is calculated using bin simulation and adjusted DOE-2 chiller curves, local weather data, and operating schedules. The cost of this measure includes an eddy current test, removing the old compressor and refrigerant and installing a Turbocor with new refrigerant and its associated controls.

8.8.89 UCSC Custom Project 2. Variable Speed Pumping

This project is to retrofit the constant volume pumps to variable volume. Constant volume pumping usually involves 3-way valves at the chilled or hot water coils. During part load condition the 3-way valve bypass water from the coil and thus the flow is kept constant through out the entire system. To reduce pumping energy, constant volume pumps can be converted to variable flow with a VFD on the pump motor. Valves will need to be replaced with 2-way valves. Typically not all valves need to be replace, some 3-way valves can remain in system. This is to insure that there is minimum flow through a chiller or boiler. In some cases 3-way valves can be converted to 2-way by valving off the bypass line. Differential pressure sensor will need to be installed to control the pumps VFDs.
The savings are calculated for this project using bin simulation adjusted for local weather, operating hours, building load and control strategies.
The cost of this project consists of VFDs for the pumps, 2-way valves, differential pressure sensors and BAS programming.

In 2006, UCSC implemented the requirement for vendors to calculate and show compliance with IEEE 519-1992 for all VFD new installations and retrofit installations. These calculations have often resulted in the need for input line reactors and harmonic filters to assure compliance.

8.8.90 UCSC Custom Project 3. Over Sized Pumps

Condenser pumps, primary chilled water pumps or any pumps that are serving equipment that require constant flow are typically balanced with a triple duty valve. Pumps are typically over sized and the balancer will balance the hydronic system to achieve the required design flow rate. This is accomplished by closing off the balancing valve until the desire flow rate is achieved. This balance valve is essentially creating head onto the system and chewing up additional energy produced by the pump. The problem with this is that sometimes the pumps are very much over sized such that the balance valve is more than 50% closed (very inefficient). In this case it is recommended that the valves be fully open and the balancing can be done by installing a VFD on the pumps. The pumps will be constant volume but operating at reduced speed. Depending on the pump selection and the system curve the energy saving can be significant. An alternative to this measure is to trim the pump impellers.

The savings for this project are calculated using current operating hours, pump name plate data and an estimated load factor. A more detail analysis can be done, however a pump test is necessary. This pump test involves taking DP measurements at the current condition and when the valve is fully open. A dead head test can be perform to verify pump impeller diameter. The data from this test will be used along with the associated pump curve to determine BHP reduction and new pump impeller diameter if the pump impellers are to be trimmed. This pump test is a requirement if the impellers are to be trim.
The cost of this project assumed the VFD method which usually has a higher first cost. The implementation cost consists of installation of a VFD and labor for hydronic balancing.

8.8.91 UCSC Custom Project 4. Optimize Pumping Controls

The chiller plant in Earth and Marine Science Building consist of (2) water cooled chillers. The chilled water distribution is a constant volume primary and a variable volume secondary loop configuration. Both the primary and secondary pumps are piped in parallel. The variable speed drives on the secondary pumps modulates to maintain a differential pressure set point. The pumps operate in a lead/lag sequence; the lag pump will enable when the lead pump is at full speed and can not maintain set point. This measure involves changing the sequence of operation on the secondary pumps to operate both pumps simultaneously. During low load condition, instead of running one pump to meet demand, it is recommended that both pumps operate at a lower speed. Because pumping power is proportional to the cube of pump speed, it is usually more efficient to operate both pumps together at reduce speed.
The savings are calculated for this project using bin simulation adjusted for local weather, operating hours, building load and control strategies.
The project cost involves changing the programming on the BAS.

8.8.92 UCSC Custom Project 5. Install Cog Belts on Fan Drives

The project replaces standard V-belts on AHU fans with Cog type belts, which reduce slippage and increase the overall efficiency of the fan. Savings are calculated based on fan motor nameplate data, operating hours and an improvement in drive efficiency.

8.8.93 UCSC Custom Project 6. Install Premium Efficiency Motors

In many air handlers where standard retrofits were identified, standard efficiency motors were found. Proposed VFD retrofits on these motors require inverter grade motors, and the existing standard efficiency motors should be replaced with premium efficiency motors. Savings and costs were calculated for these separately, but should be integral to the other HVAC projects in the building.

8.8.94 UCSC Custom Project 7. Campus Heating & Boiler Loop Upgrades

This project includes recommendations identified in a previous study conducted by Cogent Energy. Refer to study titled *Retrofit Project Planning Report* dated May 8, 2007, which can be found in Appendix B.

9. BUILDING OVERVIEW & PROJECTS

Building overviews were provided with each campus report to provide an overview of the recommended projects and summary of information for the associated buildings. The sections in each respective report are organized sequentially according to the Building Key, and each contains the following information for each SEP Building. Since there are no SEP buildings outside of the individual campuses, no building overview pages are applicable for this systemwide report. Due to the sheer volume of resources required to reprint these sections for all of the campuses, they are only provided in soft copy in the appendix of this report. Hard copies may be found in individual campus reports.

- Basic information about the building is contained in the header.
- Annual historical energy use by utility for the FY 06/07 baseline, whether metered or extrapolated.
- Monthly historical energy use by utility, where data is available.
- Hourly load profiles by utility for one summer week and one winter week, where data is available.
- Currently planned energy projects being implemented as part of the 2006-08 UC/CSU/IOU Partnership cycle, and their associated savings as approved for the incentive application.
- Projects identified by the Strategic Energy Plan, and the projected savings and economics. The SEP ID Number is a key reference to find the applicable Project Summary.
- Benchmarking information, calculating the baseline and projected energy uses after implementation of currently planned energy projects and after implementation of the projects identified in this SEP.

10. PROJECT SUMMARIES

Similar to the sections provided for each individual campus, the following pages provide a concise project summary for each SEP project in UCOP buildings. The section, organized by SEP ID Number, includes the following summary information, and additional information for each project can be found in the Appendices. Due to the sheer volume of resources required to reprint these sections for all of the campuses, they are only provided in soft copy in the appendix of this report. Hard copies may be found in individual campus reports.

- Basic information including the project SEP ID Number, name, and project location.
- Project prioritization, as committed to by the campus upon review of the preliminary project list. Tier 1 projects formed a committed energy savings level to the Investor Owned Utilities. Tier 2 projects reflect the campus' planned projects to achieve approximately 150% of the committed energy savings. Backup projects serve as potential projects the campus may consider or substitute for other projects at any time. It should be noted that energy savings for select projects may have been refined since the preliminary project list, as discussed in Section 2 of this report.
- The Calculation File Name provides a reference for the file name, and path if applicable, of the energy calculation which is included as a soft copy in the appendix of this report.
- The Project Description Reference provides the titles of the projects (Air Handler Project 1, Lighting Project 3, etc) as defined in the Energy Efficiency Project Description section earlier in this report.
- Building Energy Savings. The project energy savings are summarized at the building level, which include chilled water and heating hot water or steam, if supplied from a central plant, as well as the direct gas or electric savings. The total cost savings are estimated based on the purchased utility savings (including central plant and cogeneration impacts) and campus recharge rates.
- Incentive Calculation Basis. The projected utility incentive is provided using the equivalent electric and gas savings, which convert chilled water and heating hot water or steam savings to electric or gas savings using the central plant efficiencies. The incentive shown in this section is the gross potential incentive, without consideration of a project cost cap.
- Project Cost Summary. Details are displayed for the cost buildup, including appropriate multipliers and soft costs. If the source of a cost is the construction cost, contingency, engineering, construction management and project management is added. If the bare costs are known, the applicable city multipliers, tax, and O&P included obtaining the estimated construction cost, to which the soft costs are added.
- Project Economics Summary. The project costs, savings and resulting simple payback are calculated. The utility incentive stated here takes into consideration the project cost cap, and is highlighted if it is capped by the project cost. The monetary savings is based on the purchased utility savings and campus recharge rate.

PROJECT DETAIL REPORT

SEP Project ID Number: T3001

Project: Monitoring Based Commissioning

Campus: SYSTEMWIDE

Location: SYSTEMWIDE

Building: FRANKLIN

Building Key: 20S9300

Basic Gross Area (sf): 342,978

Calculation File: SEP MBCx Analysis MZ 080326 Final.Checked by LCK.xls

Project Description Reference(s): Monitoring Based Commission for All SEP Buildings.

Campus Prioritization and Schedule

Project Tier: Backup

Start Preliminary Engineering:

Scheduled Completion:

Project Energy Savings Summary

Building Energy Savings

Electric (kWh/yr):	194,392
Peak Demand (kW):	22.0
Gas (th/yr):	26,508
Chilled Water (ton-hr/yr):	0
HW/Steam (MMBTu/yr):	0

Incentive Calculation Basis

Assumed Incentive Rates:
Electricity $0.24 per annual kWh
Natural Gas $1 per annual therm

Central Plant Efficiencies:
th/MMBTU: 12.5
kWh/ton-hr: 0.8
th/ton-hr: 0.0

Equivalent Electric Savings (kWh/yr): 194,392

Equivalent Gas Savings (th/yr): 26,508

Anticipated Gross Incentive: $73,162

Note: Where the anticipated gross incentive exceeds 80% of the total project cost, the incentive is capped. The net incentive amount is shown below in the Project Cost Summary.

Project Cost Summary

Equipment Description	Qty	Bare Material Cost per Unit ($)	Extended Bare Material Cost ($)	Bare Labor Cost per Unit ($)	Extended Bare Labor Cost ($)
Estimated Construction Cost	1				
		Raw Costs:			
City: Oakland		Sales Tax: 8.25%			N/A
City Index Material Multiplier: 110.7%		Contractor O&P: 12.00%			
City Index Labor Multiplier: 127.1%		Subtotals:	$38,500		$115,499
		Contingency: 10.00%	$3,850		$11,550
		Totals:	$42,350		$127,049
		Engineering: 15.00%	$25,410		
		Construction Phase: 5.00%	$8,470		
		Project Management: 6.00%	$10,164		
		Total Project Cost:	$213,442		

Project Economic Summary, Including Cogeneration and Purchased Utility Impacts

Total Project Cost:	$213,442	**Total Purchased Electricity Savings (kWh/yr):**	194,392
Rebate/Incentive*:	$73,162	**Total Purchased Gas Savings (th/yr):**	26,508
Net Project Cost:	$140,280	**Total Purchased Annual Cost Savings ($/yr):**	$40,628
Net Simple Payback Period (yrs):	3.5		

*Highlighted incentives have been capped at 80% of the total project cost. It is recommended that these projects be bundled together with other projects to maximize incenti funding.

PROJECT DETAIL REPORT

SEP Project ID Number: T3002

Project: Monitoring Based Commissioning

Campus: SYSTEMWIDE

Location: SYSTEMWIDE

Building: LAKESIDE 300

Building Key: 20S9401

Basic Gross Area (sf): 121,998

Calculation File: SEP MBCx Analysis MZ 080326 Final.Checked by LCK.xls

Project Description Reference(s): Monitoring Based Commission for All SEP Buildings.

Campus Prioritization and Schedule

Project Tier: Backup

Start Preliminary Engineering:

Scheduled Completion:

Project Energy Savings Summary

Building Energy Savings

Electric (kWh/yr):	93,938
Peak Demand (kW):	11.0
Gas (th/yr):	12,810
Chilled Water (ton-hr/yr):	0
HW/Steam (MMBTu/yr):	0

Incentive Calculation Basis

Assumed Incentive Rates:
Electricity $0.24 per annual kWh
Natural Gas $1 per annual therm

Central Plant Efficiencies:
th/MMBTU: 12.5
kWh/ton-hr: 0.8
th/ton-hr: 0.0

Equivalent Electric Savings (kWh/yr): 93,938

Equivalent Gas Savings (th/yr): 12,810

Anticipated Gross Incentive: $35,355

Note: Where the anticipated gross incentive exceeds 80% of the total project cost, the incentive is capped. The net incentive amount is shown below in the Project Cost Summary.

Project Cost Summary

Equipment Description	Qty	Bare Material Cost per Unit ($)	Extended Bare Material Cost ($)	Bare Labor Cost per Unit ($)	Extended Bare Labor Cost ($)
Estimated Construction Cost	1				
		Raw Costs:			
City: Oakland		Sales Tax: 8.25%			N/A
City Index Material Multiplier: 110.7%		Contractor O&P: 12.00%			
City Index Labor Multiplier: 127.1%		Subtotals:	$18,605		$55,814
		Contingency: 10.00%	$1,860		$5,581
		Totals:	$20,465		$61,395
		Engineering: 15.00%	$12,279		
		Construction Phase: 5.00%	$4,093		
		Project Management: 6.00%	$4,912		
		Total Project Cost:	$103,144		

Project Economic Summary, Including Cogeneration and Purchased Utility Impacts

Total Project Cost:	$103,144	**Total Purchased Electricity Savings (kWh/yr):**	93,938
Rebate/Incentive*:	$35,355	**Total Purchased Gas Savings (th/yr):**	12,810
Net Project Cost:	$67,789	**Total Purchased Annual Cost Savings ($/yr):**	$19,633
Net Simple Payback Period (yrs):	3.5		

*Highlighted incentives have been capped at 80% of the total project cost. It is recommended that these projects be bundled together with other projects to maximize incenti funding.

11. PROJECT LISTS & SUMMARY OF PROJECTS

Table 11.1 is a complete list of all projects identified through the SEP effort, organized by funding source and project types. Subtotals are provided for savings and costs by project type and fund source. It is anticipated that the campus may wish to sort and view the list in a number of different manners. A complete project list is also provided electronically with this report for this purpose. See Appendix C.

Table 11.2 is a project list based on the commitments and prioritization made by the campus upon review of the preliminary project list, and is organized by IOU program cycle and the campus designated Tier. The energy savings for the projects accepted by the campus as Tier 1 projects became the basis for the level of energy savings commitments to the Investor Owned Utilities, although the campuses are free to substitute projects as desired to achieve the level of committed energy savings. Tier 2 projects are the planned projects projected by the campus to achieve savings approximately 50% above the committed levels. The savings shown in Table 11.2 are based on the preliminary project list, which may have been refined in the course of the Strategic Energy Plan development.

Table 11.1: SEP Projects by Funding Source and Project Type

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
State Funded Buildings												
MBCx Projects												
A3010	BERKELEY	01C1095	HEARST2195 (SRB1)	Monitoring Based Commissioning	392,521	45.0	17,516	$ 46,189	$ 116,728	$ 108,218	$ 23,346	0.5
A3025	BERKELEY	01C1210	SPROUL	Monitoring Based Commissioning	85,614	10.0	14,594	$ 18,445	$ 94,010	$ 32,222	$ 61,788	3.3
A3027	BERKELEY	01C1220	BIRGE	Monitoring Based Commissioning	160,703	18.0	24,809	$ 32,615	$ 165,318	$ 58,416	$ 106,902	3.3
A3030	BERKELEY	01C1225	LS ADDITION	Monitoring Based Commissioning	599,589	68.0	51,213	$ 89,558	$ 341,268	$ 184,871	$ 156,397	1.7
A3032	BERKELEY	01C1229	NW AN FACIL	Monitoring Based Commissioning	114,385	13.0	10,250	$ 17,458	$ 89,357	$ 35,652	$ 53,705	3.1
A3036	BERKELEY	01C1231	LAW	Monitoring Based Commissioning	116,416	13.0	28,414	$ 31,740	$ 183,034	$ 50,671	$ 132,363	4.2
A3039	BERKELEY	01C1234	HAAS STU BLD	Monitoring Based Commissioning	110,836	13.0	12,563	$ 18,960	$ 80,920	$ 36,651	$ 44,269	2.3
A3041	BERKELEY	01C1236	HAAS FAC BLD	Monitoring Based Commissioning	111,895	13.0	13,951	$ 20,127	$ 89,868	$ 38,016	$ 51,852	2.6
A3044	BERKELEY	01C1270	CALIFORNIA	Monitoring Based Commissioning	26,000	3.0	7,395	$ 7,904	$ 47,635	$ 12,156	$ 35,479	4.5
A3048	BERKELEY	01C1286	TANG CENTER	Monitoring Based Commissioning	105,908	12.0	19,089	$ 23,622	$ 127,206	$ 40,689	$ 86,517	3.7
A3050	BERKELEY	01C1292	LEWIS	Monitoring Based Commissioning	67,233	8.0	17,293	$ 19,017	$ 115,231	$ 29,970	$ 85,261	4.5
A3052	BERKELEY	01C1295	DWINELLE	Monitoring Based Commissioning	34,110	4.0	40,066	$ 33,963	$ 258,091	$ 40,239	$ 217,852	6.4
A3054	BERKELEY	01C1297	GARDNERSTACK	Monitoring Based Commissioning	91,279	10.0	24,863	$ 26,894	$ 160,151	$ 41,797	$ 118,354	4.4
A3056	BERKELEY	01C1298	DOE ANNEX	Monitoring Based Commissioning	77,676	9.0	21,158	$ 22,886	$ 136,287	$ 35,568	$ 100,719	4.4
A3058	BERKELEY	01C1299	MOFFITT	Monitoring Based Commissioning	135,559	16.0	17,139	$ 24,568	$ 110,402	$ 46,245	$ 64,157	2.6
A3060	BERKELEY	01C1301	DOE LIBRARY	Monitoring Based Commissioning	85,487	10.0	21,588	$ 23,869	$ 139,059	$ 37,787	$ 101,272	4.2
A3062	BERKELEY	01C1302	MINOR ADDITN	Monitoring Based Commissioning	85,060	10.0	7,286	$ 12,721	$ 46,937	$ 26,243	$ 20,694	1.6
A3064	BERKELEY	01C1318	EDWARDS FLD	Monitoring Based Commissioning	2,285	-	7,786	$ 6,240	$ 50,158	$ 6,777	$ 43,381	7.0
A3066	BERKELEY	01C1323	DAVIS	Monitoring Based Commissioning	97,347	11.0	18,088	$ 22,134	$ 116,509	$ 37,833	$ 78,676	3.6
A3069	BERKELEY	01C1346	MULFORD	Monitoring Based Commissioning	39,610	4.0	12,261	$ 12,815	$ 78,984	$ 19,315	$ 59,669	4.7
A3071	BERKELEY	01C1355	GIANNINI	Monitoring Based Commissioning	225,465	26.0	8,979	$ 25,690	$ 57,839	$ 61,295	$ 11,568	0.5
A3073	BERKELEY	01C1360	HAAS PAVIL	Monitoring Based Commissioning	247,921	28.0	31,218	$ 44,833	$ 201,088	$ 84,475	$ 116,613	2.6
A3075	BERKELEY	01C1365	REC SPRT FAC	Monitoring Based Commissioning	99,876	11.0	45,399	$ 43,565	$ 302,526	$ 60,289	$ 242,237	5.6
A3077	BERKELEY	01C1371	HAVILAND	Monitoring Based Commissioning	14,111	2.0	6,696	$ 6,374	$ 43,136	$ 8,744	$ 34,392	5.4
A3079	BERKELEY	01C1372	HEARST GYM	Monitoring Based Commissioning	53,750	6.0	16,301	$ 17,127	$ 105,003	$ 25,941	$ 79,062	4.6
A3081	BERKELEY	01C1373	HEARST MIN	Monitoring Based Commissioning	326,790	37.0	18,566	$ 41,550	$ 119,599	$ 93,283	$ 26,316	0.6
A3083	BERKELEY	01C1376	HILGARD	Monitoring Based Commissioning	59,191	7.0	19,574	$ 20,122	$ 130,432	$ 29,865	$ 100,567	5.0
A3085	BERKELEY	01C1382	MORGAN	Monitoring Based Commissioning	61,954	7.0	7,434	$ 10,918	$ 47,884	$ 20,816	$ 27,068	2.5
A3089	BERKELEY	01C1405	LE CONTE	Monitoring Based Commissioning	83,550	10.0	19,429	$ 22,031	$ 125,156	$ 35,595	$ 89,561	4.1
A3091	BERKELEY	01C1406	VALLEY LSB	Monitoring Based Commissioning	315,205	36.0	106,248	$ 108,716	$ 708,001	$ 160,647	$ 547,354	5.0
A3093	BERKELEY	01C1419	DONNER LAB	Monitoring Based Commissioning	100,612	12.0	13,509	$ 18,847	$ 90,014	$ 34,954	$ 55,060	2.9
A3095	BERKELEY	01C1486	KROEBER	Monitoring Based Commissioning	54,678	6.0	15,463	$ 16,553	$ 99,608	$ 25,493	$ 74,115	4.5
A3097	BERKELEY	01C1488	STEPHENS	Monitoring Based Commissioning	35,980	4.0	7,709	$ 8,976	$ 49,656	$ 14,802	$ 34,854	3.9
A3101	BERKELEY	01C1520	UCB ART MUSE	Monitoring Based Commissioning	130,108	15.0	13,491	$ 21,282	$ 86,908	$ 42,019	$ 44,889	2.1
A3103	BERKELEY	01C1552	WHEELER	Monitoring Based Commissioning	52,073	6.0	18,275	$ 18,522	$ 117,721	$ 27,118	$ 90,603	4.9
A3105	BERKELEY	01C1594	UNIVERSITY	Monitoring Based Commissioning	115,926	13.0	19,985	$ 25,150	$ 128,733	$ 43,810	$ 84,923	3.4
A3108	BERKELEY	01C1761	BARROWS	Monitoring Based Commissioning	129,885	15.0	25,361	$ 30,486	$ 163,371	$ 51,461	$ 111,910	3.7
A3110	BERKELEY	01C1762	MCCONE	Monitoring Based Commissioning	317,881	36.0	31,366	$ 50,756	$ 209,019	$ 101,384	$ 107,635	2.1
A3111	BERKELEY	01C1774	TOLMAN	Monitoring Based Commissioning	133,364	15.0	31,616	$ 35,635	$ 203,657	$ 57,300	$ 146,357	4.1
A3114	BERKELEY	01C1776	OXFORD RES (Oxford Tract)	Monitoring Based Commissioning	146,221	17.0	16,809	$ 25,197	$ 112,007	$ 48,540	$ 63,467	2.5
A3116	BERKELEY	01C1782	LATIMER	Monitoring Based Commissioning	395,052	45.0	46,421	$ 68,859	$ 309,343	$ 131,949	$ 177,394	2.6
A3118	BERKELEY	01C1783	ETCHEVERRY	Monitoring Based Commissioning	291,845	33.0	23,269	$ 42,303	$ 149,883	$ 88,658	$ 61,225	1.4
A3120	BERKELEY	01C1784	CHAVEZ (Golden Bear)	Monitoring Based Commissioning	37,716	4.0	13,843	$ 13,886	$ 89,171	$ 20,126	$ 69,045	5.0
A3122	BERKELEY	01C1790	EVANS	Monitoring Based Commissioning	252,983	29.0	36,253	$ 49,166	$ 233,520	$ 89,718	$ 143,802	2.9
A3123	BERKELEY	01C1791	KING UNION	Monitoring Based Commissioning	137,934	16.0	14,453	$ 22,678	$ 93,095	$ 44,666	$ 48,429	2.1
A3125	BERKELEY	01C1793	BARKER	Monitoring Based Commissioning	214,635	24.0	21,845	$ 34,788	$ 145,573	$ 68,988	$ 76,585	2.2
A3127	BERKELEY	01C1794	FULTON2223	Monitoring Based Commissioning	23,836	3.0	6,800	$ 7,262	$ 43,807	$ 11,161	$ 32,646	4.5
A3129	BERKELEY	01C1797	WURSTER	Monitoring Based Commissioning	181,482	21.0	29,195	$ 37,748	$ 188,059	$ 66,912	$ 121,147	3.2
A3131	BERKELEY	01C1800	LAWRENCE	Monitoring Based Commissioning	113,006	13.0	8,674	$ 16,119	$ 108,675	$ 34,060	$ 74,615	4.6
A3133	BERKELEY	01C1802	ZELLERBACH	Monitoring Based Commissioning	99,212	11.0	20,096	$ 23,849	$ 129,455	$ 39,888	$ 89,567	3.8
A3137	BERKELEY	01C1809	HILDEBRAND	Monitoring Based Commissioning	350,272	40.0	32,351	$ 54,209	$ 215,583	$ 109,946	$ 105,637	1.9
B3008	SAN FRANCISCO	02C2012	LIBRARY	Monitoring Based Commissioning	326,188	37.0	16,893	$ 55,243	$ 118,709	$ 91,799	$ 26,910	0.5
B3524	SAN FRANCISCO MC	02C2018	MTZ BLDG A	Monitoring Based Commissioning	328,060	37.0	112,460	$ 128,117	$ 237,405	$ 168,702	$ 68,703	0.5
B3526	SAN FRANCISCO MC	02C2019	MTZ BLDG B	Monitoring Based Commissioning	16,875	2.0	26,999	$ 22,713	$ 212,626	$ 25,649	$ 186,977	8.2
B3540	SAN FRANCISCO MC	02C2036	MTZ 1701 DIV (T Building)	Monitoring Based Commissioning	111,307	13.0	7,630	$ 20,269	$ 66,177	$ 32,818	$ 33,359	1.6
B3011	SAN FRANCISCO	02C2212	MILLBERRY	Monitoring Based Commissioning	333,848	38.0	19,668	$ 58,348	$ 999,999	$ 95,858	$ 904,141	15.5
B3012	SAN FRANCISCO	02C2251	CLINICAL SCI	Monitoring Based Commissioning	123,840	14.0	40,716	$ 47,044	$ 308,002	$ 62,295	$ 245,707	5.2
B3013	SAN FRANCISCO	02C2252	MED SCIENCES	Monitoring Based Commissioning	713,942	82.0	175,693	$ 226,339	$ 910,000	$ 311,900	$ 598,100	2.6
B3542	SAN FRANCISCO MC	02C2274	MOFFITT HOSP	Monitoring Based Commissioning	925,785	106.0	276,363	$ 330,388	$ 756,815	$ 443,278	$ 313,537	0.9
B3544	SAN FRANCISCO MC	02C2275	LONG HOSP	Monitoring Based Commissioning	1,187,757	136.0	94,514	$ 226,239	$ 744,327	$ 360,673	$ 383,654	1.7
B3016	SAN FRANCISCO	02C2290	LPPI	Monitoring Based Commissioning	70,974	8.0	27,211	$ 29,907	$ 197,813	$ 38,803	$ 159,010	5.3
B3548	SAN FRANCISCO MC	02C2408	UC CLINICS (ACC)	Monitoring Based Commissioning	210,383	24.0	92,503	$ 97,652	$ 660,820	$ 124,494	$ 536,326	5.5
B3019	SAN FRANCISCO	02C2410	NURSING	Monitoring Based Commissioning	79,155	9.0	22,500	$ 27,390	$ 280,000	$ 36,997	$ 243,003	8.9

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
B3020	SAN FRANCISCO	02C2412	DENTISTRY	Monitoring Based Commissioning	210,621	24.0	54,229	$ 68,595	$ 280,000	$ 93,932	$ 186,068	2.7
B3023	SAN FRANCISCO	02C2415	MISSION CTR	Monitoring Based Commissioning	534,930	61.0	27,305	$ 90,293	$ 982,000	$ 155,688	$ 826,312	9.2
B3024	SAN FRANCISCO	02C2418	OYSTER POINT	Monitoring Based Commissioning	20,404	2.0	1,248	$ 3,601	$ 171,000	$ 6,145	$ 164,855	45.8
B3025	SAN FRANCISCO	02C2450	LAUREL HTS	Monitoring Based Commissioning	370,180	42.0	21,576	$ 64,521	$ 429,999	$ 110,419	$ 319,580	5.0
B3026	SAN FRANCISCO	02C3000	PSSRB	Monitoring Based Commissioning	251,029	29.0	22,965	$ 50,087	$ 166,941	$ 78,619	$ 88,322	1.8
B3027	SAN FRANCISCO	02C3002	GENENTECH HA	Monitoring Based Commissioning	1,862,784	213.0	86,101	$ 307,599	$ 808,618	$ 533,169	$ 275,449	0.9
B3028	SAN FRANCISCO	02C3003	COMMUNITY CE	Monitoring Based Commissioning	291,897	33.0	16,654	$ 50,604	$ 400,001	$ 86,709	$ 313,292	6.2
B3554	SAN FRANCISCO MC	02C3006	CENTRAL PLAN	MBCx Central Plant	75,000	9.0	7,500	$ 15,450	$ 81,900	$ 24,000	$ 57,900	3.7
B3031	SAN FRANCISCO	02C3008	HSIR EAST	Monitoring Based Commissioning	550,719	63.0	97,689	$ 145,837	$ 1,049,999	$ 210,324	$ 839,675	5.8
B3032	SAN FRANCISCO	02C3009	HSIR WEST	Monitoring Based Commissioning	623,357	71.0	110,573	$ 165,072	$ 839,999	$ 238,064	$ 601,935	3.6
B3033	SAN FRANCISCO	02C3029	FRESNO MERC	Monitoring Based Commissioning	74,613	8.0	1,224	$ 10,630	$ 119,599	$ 19,131	$ 100,468	9.5
C3032	DAVIS	03C3207	HART	Monitoring Based Commissioning	55,063	6.0	9,386	$ 13,161	$ 60,459	$ 20,724	$ 39,735	3.0
C3033	DAVIS	03C3266	YOUNG	Monitoring Based Commissioning	164,683	19.0	22,110	$ 34,114	$ 147,337	$ 57,212	$ 90,125	2.6
C3035	DAVIS	03C3331	HICKEY GYM	Monitoring Based Commissioning	63,788	7.0	10,873	$ 15,245	$ 70,039	$ 24,007	$ 46,032	3.0
C3036	DAVIS	03C3350	EVERSN	Monitoring Based Commissioning	36,669	4.0	6,250	$ 8,764	$ 40,262	$ 13,801	$ 26,461	3.0
C3039	DAVIS	03C3390	LIB	Monitoring Based Commissioning	757,342	86.0	101,680	$ 156,882	$ 677,570	$ 263,106	$ 414,464	2.6
C3043	DAVIS	03C3607	HOAGLD	Monitoring Based Commissioning	98,545	11.0	13,230	$ 20,413	$ 88,165	$ 34,235	$ 53,930	2.6
C3044	DAVIS	03C3745	VRHIES	Monitoring Based Commissioning	37,588	4.0	6,408	$ 8,984	$ 41,271	$ 14,147	$ 27,124	3.0
C3048	DAVIS	03C3803	OLSON	Monitoring Based Commissioning	43,021	5.0	7,334	$ 10,283	$ 47,236	$ 16,192	$ 31,044	3.0
C3049	DAVIS	03C3815	SPROUL	Monitoring Based Commissioning	38,945	4.0	6,639	$ 9,308	$ 42,761	$ 14,658	$ 28,103	3.0
C3052	DAVIS	03C3970	MUSIC	Monitoring Based Commissioning	34,020	4.0	4,568	$ 7,047	$ 30,437	$ 11,819	$ 18,618	2.6
C3054	DAVIS	03C3971	ART	Monitoring Based Commissioning	39,193	4.0	6,681	$ 9,368	$ 43,034	$ 14,751	$ 28,283	3.0
C3055	DAVIS	03C3972	WRIGHT HALL	Monitoring Based Commissioning	87,980	10.0	11,813	$ 18,225	$ 78,712	$ 30,565	$ 48,147	2.6
C3058	DAVIS	03C4073	STORER	Monitoring Based Commissioning	173,328	20.0	23,271	$ 35,905	$ 155,071	$ 60,216	$ 94,855	2.6
C3059	DAVIS	03C4098	SURGE 3	Monitoring Based Commissioning	110,465	13.0	14,831	$ 22,883	$ 98,829	$ 38,377	$ 60,452	2.6
C3063	DAVIS	03C4427	TUPPER HALL	Monitoring Based Commissioning	478,484	55.0	64,241	$ 99,117	$ 428,084	$ 166,229	$ 261,855	2.6
C3065	DAVIS	03C4428	MED SCI I B	Monitoring Based Commissioning	38,616	4.0	6,583	$ 9,229	$ 42,401	$ 14,534	$ 27,867	3.0
C3067	DAVIS	03C4466	VET MED 2	Monitoring Based Commissioning	85,050	10.0	11,419	$ 17,618	$ 76,091	$ 29,547	$ 46,544	2.6
C3069	DAVIS	03C4556	MEYER	Monitoring Based Commissioning	393,543	45.0	52,836	$ 81,521	$ 352,090	$ 136,719	$ 215,371	2.6
C3073	DAVIS	03C4632	ACADMC SURGE	Monitoring Based Commissioning	96,704	11.0	16,484	$ 23,112	$ 106,180	$ 36,396	$ 69,784	3.0
C3074	DAVIS	03C4633	KEMPER	Monitoring Based Commissioning	373,063	43.0	50,088	$ 77,280	$ 333,767	$ 129,605	$ 204,162	2.6
C3075	DAVIS	03C4656	SOCSCI&HUMAN	Monitoring Based Commissioning	110,182	13.0	18,781	$ 26,334	$ 120,981	$ 41,469	$ 79,512	3.0
C3077	DAVIS	03C4708	DUTTON HALL	Monitoring Based Commissioning	31,724	4.0	5,408	$ 7,582	$ 34,833	$ 11,940	$ 22,893	3.0
C3079	DAVIS	03C4722	CFA MONDAVI	Monitoring Based Commissioning	81,905	9.0	13,961	$ 19,575	$ 89,931	$ 30,826	$ 59,105	3.0
C3080	DAVIS	03C4725	ENGINEER 3	Monitoring Based Commissioning	127,717	15.0	17,148	$ 26,457	$ 114,263	$ 44,370	$ 69,893	2.6
C3082	DAVIS	03C4792	SCIENCES LAB	Monitoring Based Commissioning	264,078	30.0	35,455	$ 54,703	$ 236,262	$ 91,743	$ 144,519	2.6
C3083	DAVIS	03C4795	VM LAB FAC	Monitoring Based Commissioning	79,885	9.0	10,725	$ 16,548	$ 71,469	$ 27,752	$ 43,717	2.6
C3086	DAVIS	03C4821	MATH SCI	Monitoring Based Commissioning	50,545	6.0	8,616	$ 12,081	$ 55,500	$ 19,024	$ 36,476	3.0
C3093	DAVIS	03C9968	DV 3820 CHLS	Monitoring Based Commissioning	42,395	5.0	7,226	$ 10,132	$ 46,550	$ 15,956	$ 30,594	3.0
D3124	LOS ANGELES	04C4200	MURPHY HALL	Monitoring Based Commissioning	313,814	19.0	-	$ 27,616	$ 186,161	$ 63,811	$ 122,350	4.4
D3003	LOS ANGELES	04C4202	PERLOFF HALL	Monitoring Based Commissioning	93,931	6.0	-	$ 8,266	$ 55,723	$ 19,100	$ 36,623	4.4
D3004	LOS ANGELES	04C4203	YOUNG LIBRY	Monitoring Based Commissioning	435,993	27.0	-	$ 38,367	$ 258,643	$ 88,655	$ 169,988	4.4
D3128	LOS ANGELES	04C4227	SLICHTER	Monitoring Based Commissioning	89,153	6.0	-	$ 7,845	$ 52,890	$ 18,129	$ 34,761	4.4
D3008	LOS ANGELES	04C4228A	GEOLOGY	Monitoring Based Commissioning	574,992	39.0	-	$ 50,599	$ 307,998	$ 119,599	$ 188,399	3.7
D3131	LOS ANGELES	04C4228B	YOUNG HALL	Monitoring Based Commissioning	939,408	64.0	-	$ 82,668	$ 503,200	$ 195,397	$ 307,803	3.7
D3009	LOS ANGELES	04C4228C	MOLECULR SCI	Monitoring Based Commissioning	563,998	38.0	-	$ 49,632	$ 302,109	$ 117,312	$ 184,797	3.7
D3011	LOS ANGELES	04C4235	WOODEN/PS4	Monitoring Based Commissioning	296,046	18.0	-	$ 26,052	$ 175,619	$ 60,198	$ 115,421	4.4
D3013	LOS ANGELES	04C4256A	ENGR BLDG 4	Monitoring Based Commissioning	928,466	64.0	-	$ 81,705	$ 497,340	$ 193,122	$ 304,218	3.7
D3014	LOS ANGELES	04C4260	FACMGMT BLDG	Monitoring Based Commissioning	269,646	17.0	-	$ 23,729	$ 159,960	$ 54,830	$ 105,130	4.4
D3022	LOS ANGELES	04C4315	GONDA CENTER	Monitoring Based Commissioning	395,228	27.0	-	$ 34,780	$ 211,707	$ 82,208	$ 129,499	3.7
D3023	LOS ANGELES	04C4317	LAW	Monitoring Based Commissioning	392,555	24.0	-	$ 34,545	$ 232,872	$ 79,822	$ 153,050	4.4
D3024	LOS ANGELES	04C4318A	POWELL LIB	Monitoring Based Commissioning	237,790	15.0	-	$ 20,925	$ 141,062	$ 48,352	$ 92,710	4.4
D3143	LOS ANGELES	04C4319	FRANZ HALL	Monitoring Based Commissioning	751,470	51.0	-	$ 66,129	$ 402,529	$ 156,306	$ 246,223	3.7
D3025	LOS ANGELES	04C4320	LIFE SCIENCE	Monitoring Based Commissioning	677,471	46.0	-	$ 59,617	$ 362,894	$ 140,915	$ 221,979	3.7
D3026	LOS ANGELES	04C4325	DORIS STEIN	Monitoring Based Commissioning	297,709	20.0	-	$ 26,198	$ 159,469	$ 61,924	$ 97,545	3.7
D3147	LOS ANGELES	04C4329	REED RESRCH	Monitoring Based Commissioning	218,371	15.0	-	$ 19,217	$ 116,971	$ 45,421	$ 71,550	3.7
D3027	LOS ANGELES	04C4331	PUBLIC HLTH	Monitoring Based Commissioning	443,716	30.0	-	$ 39,047	$ 237,681	$ 92,293	$ 145,388	3.7
D3150	LOS ANGELES	04C4332B	BRAIN RSCH	Monitoring Based Commissioning	273,300	19.0	-	$ 24,050	$ 146,396	$ 56,847	$ 89,549	3.7
D3028	LOS ANGELES	04C4332E	M DAVIES CC	Monitoring Based Commissioning	221,688	15.0	-	$ 19,509	$ 118,751	$ 46,111	$ 72,640	3.7
D3030	LOS ANGELES	04C4333	JULES STEIN	Monitoring Based Commissioning	277,493	19.0	-	$ 24,419	$ 148,640	$ 57,719	$ 90,921	3.7
D3154	LOS ANGELES	04C4334	DENTISTRY	Monitoring Based Commissioning	645,136	44.0	-	$ 56,772	$ 345,573	$ 134,189	$ 211,384	3.7
D3156	LOS ANGELES	04C4335	SCHOENBERG	Monitoring Based Commissioning	174,661	11.0	-	$ 15,370	$ 103,613	$ 35,516	$ 68,097	4.4
D3158	LOS ANGELES	04C4336	FACTOR	Monitoring Based Commissioning	630,893	43.0	-	$ 55,519	$ 337,941	$ 131,226	$ 206,715	3.7
D3032	LOS ANGELES	04C4343	BOELTER HALL	Monitoring Based Commissioning	1,180,314	81.0	-	$ 103,868	$ 632,242	$ 245,506	$ 386,736	3.7
D3033	LOS ANGELES	04C4344	MORTON MED	Monitoring Based Commissioning	1,157,990	79.0	-	$ 101,903	$ 620,286	$ 240,863	$ 379,423	3.7
D3034	LOS ANGELES	04C4345	MED PLZA 300	Monitoring Based Commissioning	319,127	22.0	-	$ 28,083	$ 170,944	$ 66,379	$ 104,565	3.7
D3035	LOS ANGELES	04C4348	MACDONALDLAB	Monitoring Based Commissioning	456,496	31.0	-	$ 40,172	$ 244,525	$ 94,952	$ 149,573	3.7
D3164	LOS ANGELES	04C4359	MATH SCIENCE	Monitoring Based Commissioning	707,352	48.0	-	$ 62,247	$ 378,898	$ 147,130	$ 231,768	3.7

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
D3168	LOS ANGELES	04C4363	KNUDSEN HALL	Monitoring Based Commissioning	519,921	36.0	-	$ 45,753	$ 278,497	$ 108,144	$ 170,353	3.7
D3038	LOS ANGELES	04C4374	FOWLER MUSM	Monitoring Based Commissioning	321,970	22.0	-	$ 28,333	$ 172,464	$ 66,970	$ 105,494	3.7
D3039	LOS ANGELES	04C4375	ROYCE HALL	Monitoring Based Commissioning	263,198	16.0	-	$ 23,161	$ 156,134	$ 53,519	$ 102,615	4.4
D3172	LOS ANGELES	04C4403	BOYER HALL	Monitoring Based Commissioning	419,979	29.0	-	$ 36,958	$ 224,963	$ 87,356	$ 137,607	3.7
D3040	LOS ANGELES	04C4415	UNEX	Monitoring Based Commissioning	135,488	8.0	-	$ 11,923	$ 80,373	$ 27,550	$ 52,823	4.4
D3042	LOS ANGELES	04C4562	SOUTHERN REGIONAL LIBRARY FACILITY	Monitoring Based Commissioning	325,381	20.0	-	$ 28,634	$ 193,024	$ 66,163	$ 126,861	4.4
D3176	LOS ANGELES	04C4577A	MELNITZ HALL	Monitoring Based Commissioning	88,117	5.0	-	$ 7,754	$ 52,273	$ 17,918	$ 34,355	4.4
D3178	LOS ANGELES	04C4578	MACGOWAN	Monitoring Based Commissioning	184,623	11.0	-	$ 16,247	$ 109,522	$ 37,541	$ 71,981	4.4
D3180	LOS ANGELES	04C4579	PUBLIC AFFAIRS	Monitoring Based Commissioning	287,416	18.0	-	$ 25,293	$ 170,502	$ 58,443	$ 112,059	4.4
D3043	LOS ANGELES	04C4580	BUNCHE HALL	Monitoring Based Commissioning	326,724	20.0	-	$ 28,752	$ 193,820	$ 66,436	$ 127,384	4.4
D3183	LOS ANGELES	04C4581	WARREN HALL	Monitoring Based Commissioning	322,635	22.0	-	$ 28,392	$ 172,822	$ 67,108	$ 105,714	3.7
D3185	LOS ANGELES	04C4594	REHAB CENTER	Monitoring Based Commissioning	450,042	31.0	-	$ 39,604	$ 241,068	$ 93,609	$ 147,459	3.7
D3045	LOS ANGELES	04C515A	COLLINS CTR	Monitoring Based Commissioning	44,626	3.0	-	$ 3,927	$ 26,473	$ 9,074	$ 17,399	4.4
D3046	LOS ANGELES	04C515B	GOLD HALL	Monitoring Based Commissioning	78,876	5.0	-	$ 6,941	$ 46,791	$ 16,039	$ 30,752	4.4
D3047	LOS ANGELES	04C515C	ENTREP HALL	Monitoring Based Commissioning	103,456	6.0	-	$ 9,104	$ 61,372	$ 21,037	$ 40,335	4.4
D3048	LOS ANGELES	04C515D	CORNELL HALL	Monitoring Based Commissioning	102,237	6.0	-	$ 8,997	$ 60,651	$ 20,789	$ 39,862	4.4
D3049	LOS ANGELES	04C515E	ROSNFLD LIBR	Monitoring Based Commissioning	72,751	4.0	-	$ 6,402	$ 43,159	$ 14,793	$ 28,366	4.4
D3050	LOS ANGELES	04C515F	MULLIN CMNS	Monitoring Based Commissioning	48,393	3.0	-	$ 4,259	$ 28,708	$ 9,840	$ 18,868	4.4
D3084	LOS ANGELES	04CWIDE	CAMPUSWIDE	MBCx Central Plant	1,124,400	86.0	-	$ 98,947	$ 693,000	$ 240,000	$ 453,000	4.6
E3003	RIVERSIDE	05CP5186	BIOLOGIC SCI	Monitoring Based Commissioning	102,627	12.0	13,779	$ 19,409	$ 91,818	$ 35,653	$ 56,165	2.9
E3004	RIVERSIDE	05CP5194	ENGINEERING2	Monitoring Based Commissioning	298,595	34.0	40,089	$ 56,470	$ 267,143	$ 103,734	$ 163,409	2.9
E3005	RIVERSIDE	05CP5261	BOURNS	Monitoring Based Commissioning	297,087	34.0	39,886	$ 56,185	$ 265,795	$ 103,210	$ 162,585	2.9
E3006	RIVERSIDE	05CP5307	HUM & SOC SC	Monitoring Based Commissioning	81,594	9.0	13,908	$ 17,941	$ 89,590	$ 30,709	$ 58,881	3.3
E3007	RIVERSIDE	05CP5323	SPIETH	Monitoring Based Commissioning	190,752	22.0	25,610	$ 36,075	$ 170,660	$ 66,268	$ 104,392	2.9
E3008	RIVERSIDE	05CP5334	PE	Monitoring Based Commissioning	51,078	6.0	8,706	$ 11,231	$ 56,083	$ 19,224	$ 36,859	3.3
E3009	RIVERSIDE	05CP5335	GEOLOGY	Monitoring Based Commissioning	181,476	21.0	24,365	$ 34,321	$ 162,360	$ 63,046	$ 99,314	2.9
E3013	RIVERSIDE	05CP5354	WATKINS	Monitoring Based Commissioning	117,628	13.0	15,793	$ 22,246	$ 105,238	$ 40,865	$ 64,373	2.9
E3014	RIVERSIDE	05CP5380	CAMPUS SURGE	Monitoring Based Commissioning	55,702	6.0	9,495	$ 12,248	$ 61,161	$ 20,964	$ 40,197	3.3
E3015	RIVERSIDE	05CP5411	ARTS	Monitoring Based Commissioning	82,127	9.0	13,999	$ 18,058	$ 90,176	$ 30,909	$ 59,267	3.3
E3016	RIVERSIDE	05CP5414	PHYSICAL SCI	Monitoring Based Commissioning	254,600	29.0	34,183	$ 48,150	$ 227,782	$ 88,450	$ 139,332	2.9
E3017	RIVERSIDE	05CP5417	ENTOMOLOGY	Monitoring Based Commissioning	131,198	15.0	17,615	$ 24,813	$ 117,379	$ 45,580	$ 71,799	2.9
E3018	RIVERSIDE	05CP5497	OLMSTED	Monitoring Based Commissioning	71,297	8.0	12,153	$ 15,677	$ 78,285	$ 26,833	$ 51,452	3.3
E3019	RIVERSIDE	05CP5501	BATCHELOR	Monitoring Based Commissioning	199,081	23.0	26,729	$ 37,651	$ 178,112	$ 69,162	$ 108,950	2.9
E3022	RIVERSIDE	05CP5508	PIERCE	Monitoring Based Commissioning	267,161	30.0	35,869	$ 50,526	$ 239,020	$ 92,814	$ 146,206	2.9
E3023	RIVERSIDE	05CP5510	UNIV COMMONS	Monitoring Based Commissioning	41,110	5.0	7,008	$ 9,040	$ 45,139	$ 15,472	$ 29,667	3.3
E3025	RIVERSIDE	05CP5523	SPROUL	Monitoring Based Commissioning	60,702	7.0	10,348	$ 13,348	$ 66,651	$ 22,846	$ 43,805	3.3
E3027	RIVERSIDE	05CP5722	UCR EXTEN CT	Monitoring Based Commissioning	98,408	11.0	16,774	$ 21,638	$ 108,051	$ 37,037	$ 71,014	3.3
F3010	SAN DIEGO	06C6119	MTF	Monitoring Based Commissioning	177,868	20.0	-	$ 13,874	$ 157,964	$ 42,684	$ 115,280	8.3
F3013	SAN DIEGO	06C6129	CMRR	Monitoring Based Commissioning	49,089	2.0	-	$ 3,829	$ 36,908	$ 9,434	$ 27,474	7.2
F3015	SAN DIEGO	06C6131	ENG UNIT 1	Monitoring Based Commissioning	322,125	37.0	-	$ 25,126	$ 418,645	$ 77,303	$ 341,342	13.6
F3020	SAN DIEGO	06C6137	SUPERCOMPUTR	Monitoring Based Commissioning	1,051,670	111.0	-	$ 82,030	$ 99,882	$ 246,261	$ 19,976	0.2
F3023	SAN DIEGO	06C6156	CLIN SCI BLD	Monitoring Based Commissioning	292,861	33.0	-	$ 22,843	$ 162,870	$ 70,259	$ 92,611	4.1
F3500	SAN DIEGO MC	06C6157	PERLMAN HOSP	Monitoring Based Commissioning	154,543	18.0	32,075	$ 41,243	$ 103,988	$ 62,750	$ 41,238	1.0
F3503	SAN DIEGO MC	06C6162	THORNTON HSP	Monitoring Based Commissioning	644,902	74.0	133,849	$ 172,105	$ 433,936	$ 261,855	$ 172,081	1.0
F3025	SAN DIEGO	06C6172	WAR LEC HALL	Monitoring Based Commissioning	152,433	12.0	-	$ 11,890	$ 62,236	$ 32,627	$ 29,609	2.5
F3030	SAN DIEGO	06C6206	HUBBS HALL	Monitoring Based Commissioning	198,550	8.0	-	$ 15,487	$ 126,364	$ 36,988	$ 89,376	5.8
F3031	SAN DIEGO	06C6218	NIERENBERG	Monitoring Based Commissioning	118,028	10.0	-	$ 9,206	$ 40,894	$ 25,726	$ 15,168	1.6
F3032	SAN DIEGO	06C6246	NIEREN ANNEX	Monitoring Based Commissioning	56,513	5.0	-	$ 4,408	$ 13,182	$ 12,725	$ 2,636	0.6
F3035	SAN DIEGO	06C6328	SVERDRUP	Monitoring Based Commissioning	178,846	20.0	-	$ 13,950	$ 105,118	$ 42,535	$ 62,583	4.5
F3038	SAN DIEGO	06C6335	CENT UTLTIES	MBCx Central Plant	1,128,000	86.0	-	$ 87,984	$ 693,000	$ 240,000	$ 453,000	5.1
F3037	SAN DIEGO	06C6335	CENT UTLTIES	Monitoring Based Commissioning	2,273,091	255.0	-	$ 177,301	$ 53,243	$ 542,156	$ 10,649	0.1
F3041	SAN DIEGO	06C6336	UREY HALL	Monitoring Based Commissioning	293,962	34.0	-	$ 22,929	$ 307,322	$ 70,546	$ 236,776	10.3
F3043	SAN DIEGO	06C6352	MAYER HALL	Monitoring Based Commissioning	167,919	19.0	-	$ 13,098	$ 178,172	$ 40,299	$ 137,873	10.5
F3045	SAN DIEGO	06C6353	BONNER HALL	Monitoring Based Commissioning	246,343	28.0	-	$ 19,215	$ 204,176	$ 59,097	$ 145,079	7.6
F3047	SAN DIEGO	06C6355	PACIFIC HALL	Monitoring Based Commissioning	482,447	55.0	-	$ 37,631	$ 313,143	$ 115,682	$ 197,461	5.2
F3049	SAN DIEGO	06C6357	GALBRTH HALL	Monitoring Based Commissioning	207,319	15.0	-	$ 16,171	$ 95,261	$ 43,699	$ 51,562	3.2
F3051	SAN DIEGO	06C6361	YORK HALL	Monitoring Based Commissioning	209,880	24.0	-	$ 16,371	$ 163,835	$ 50,325	$ 113,510	6.9
F3053	SAN DIEGO	06C6365	TOR PINE NOR	Monitoring Based Commissioning	105,274	8.0	-	$ 8,211	$ 46,075	$ 22,336	$ 23,739	2.9
F3055	SAN DIEGO	06C6367	TOR PIN CTR	Monitoring Based Commissioning	282,129	21.0	-	$ 22,006	$ 126,614	$ 59,660	$ 66,954	3.0
F3057	SAN DIEGO	06C6371	7835 TRADE	Monitoring Based Commissioning	154,178	4.0	-	$ 12,026	$ 154,077	$ 27,205	$ 126,872	10.5
F3059	SAN DIEGO	06C6405	CENTER HALL	Monitoring Based Commissioning	111,281	8.0	-	$ 8,680	$ 48,039	$ 23,653	$ 24,386	2.8
F3061	SAN DIEGO	06C6429	RITTER REPL	Monitoring Based Commissioning	218,117	21.0	-	$ 17,013	$ 41,451	$ 49,712	$ 8,290	0.5
F3066	SAN DIEGO	06C6510	GYMNASIUM	Monitoring Based Commissioning	137,192	12.0	-	$ 10,701	$ 43,570	$ 30,156	$ 13,414	1.3
F3068	SAN DIEGO	06C6548	EBU 3B	Monitoring Based Commissioning	333,152	27.0	-	$ 25,986	$ 126,653	$ 71,903	$ 54,750	2.1
F3072	SAN DIEGO	06C6598	MANDEVILLE	Monitoring Based Commissioning	174,835	11.0	-	$ 13,637	$ 97,878	$ 35,736	$ 62,142	4.6
F3075	SAN DIEGO	06C6599	GEISEL LIB	Monitoring Based Commissioning	722,982	51.0	-	$ 56,393	$ 356,985	$ 150,816	$ 206,169	3.7
F3077	SAN DIEGO	06C6600	AP M BLDG	Monitoring Based Commissioning	499,828	29.0	-	$ 38,987	$ 329,171	$ 99,726	$ 229,445	5.9

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
F3079	SAN DIEGO	06C6601	BIOLOGY BLDG	Monitoring Based Commissioning	150,544	17.0	-	$ 11,742	$ 138,510	$ 36,119	$ 102,391	8.7
F3082	SAN DIEGO	06C6602	MCGILL/MANDLER BLDG	Monitoring Based Commissioning	246,235	16.0	-	$ 19,206	$ 136,617	$ 50,699	$ 85,918	4.5
F3084	SAN DIEGO	06C6603	H SS BLDG	Monitoring Based Commissioning	117,035	7.0	-	$ 9,129	$ 68,419	$ 23,738	$ 44,681	4.9
F3091	SAN DIEGO	06C6611	CHEM RES BLD	Monitoring Based Commissioning	94,675	10.0	-	$ 7,385	$ 89,229	$ 22,163	$ 67,066	9.1
F3093	SAN DIEGO	06C6612	COG SCI BLDG	Monitoring Based Commissioning	113,060	9.0	-	$ 8,819	$ 48,243	$ 24,067	$ 24,176	2.7
F3097	SAN DIEGO MC	06C6657	MULTIPURPOSE (Hillcrest)	Monitoring Based Commissioning	40,868	5.0	9,291	$ 11,643	$ 65,294	$ 17,241	$ 48,053	4.1
F3102	SAN DIEGO	06C6701	PRICE CTR	Monitoring Based Commissioning	372,495	30.0	-	$ 29,055	$ 143,114	$ 80,299	$ 62,815	2.2
F3104	SAN DIEGO	06C6783	PEPCYNHALL	Monitoring Based Commissioning	82,062	4.0	-	$ 6,401	$ 56,689	$ 16,090	$ 40,599	6.3
F3106	SAN DIEGO	06C6811	SOC SCI BLDG	Monitoring Based Commissioning	105,958	7.0	-	$ 8,265	$ 57,501	$ 21,774	$ 35,727	4.3
F3509	SAN DIEGO MC	06C6974	U HOSPITAL	Monitoring Based Commissioning	1,363,566	156.0	86,915	$ 185,451	$ 631,827	$ 396,788	$ 235,039	1.3
F3512	SAN DIEGO MC	06C6976	UH OUTPT CTR	Monitoring Based Commissioning	261,284	30.0	16,654	$ 35,535	$ 121,069	$ 76,031	$ 45,038	1.3
F3109	SAN DIEGO MC	06C6977	CTF (Hillcrest)	Monitoring Based Commissioning	61,086	7.0	29,834	$ 31,913	$ 216,880	$ 38,528	$ 178,352	5.6
G3027	SANTA CRUZ	07C7116	THIMANN LAB	Monitoring Based Commissioning	145,932	17.0	23,560	$ 33,992	$ 164,788	$ 53,872	$ 110,916	3.3
G3028	SANTA CRUZ	07C7134	CL COLL COM (Dining)	Monitoring Based Commissioning	58,296	7.0	6,834	$ 11,568	$ 38,173	$ 19,458	$ 18,715	1.6
G3131	SANTA CRUZ	07C7145	MCHENRY LIB	MBCx	200,000	40.0	3,125	$ 23,838	$ 272,727	$ 50,500	$ 222,227	9.3
G3031	SANTA CRUZ	07C7175	COMM. BLDG	Monitoring Based Commissioning	164,126	19.0	1,845	$ 19,001	$ 36,409	$ 40,866	$ 7,282	0.4
G3032	SANTA CRUZ	07C7179	NAT SCI 2	Monitoring Based Commissioning	87,571	10.0	23,125	$ 27,408	$ 163,718	$ 39,517	$ 124,201	4.5
G3033	SANTA CRUZ	07C7194	J BASKIN ENG	Monitoring Based Commissioning	156,885	18.0	984	$ 17,554	$ 305,256	$ 38,439	$ 266,817	15.2
G3035	SANTA CRUZ	07C7304	PORTER HSE B	Monitoring Based Commissioning	35,246	4.0	5,635	$ 8,167	$ 66,533	$ 12,967	$ 53,566	6.6
G3036	SANTA CRUZ	07C7305	PORTER DIN C	Monitoring Based Commissioning	6,998	1.0	1,005	$ 1,533	$ 25,517	$ 2,484	$ 23,033	15.0
G3038	SANTA CRUZ	07C7306	PORTER ACAD D	Monitoring Based Commissioning	14,063	2.0	2,474	$ 3,434	$ 24,906	$ 5,354	$ 19,552	5.7
G3039	SANTA CRUZ	07C7376	KERR HALL	Monitoring Based Commissioning	66,800	8.0	3,876	$ 10,171	$ 71,912	$ 19,133	$ 52,779	5.2
G3133	SANTA CRUZ	07C7744	SINSHEIMR LB	MBCx, Chiller Plant	217,942	50.0	2,635	$ 25,375	$ 333,167	$ 54,414	$ 278,753	11.0
G3040	SANTA CRUZ	07C7744	SINSHEIMR LB	Monitoring Based Commissioning	245,596	28.0	32,761	$ 51,833	$ 181,437	$ 85,152	$ 96,285	1.9
G3042	SANTA CRUZ	07C7782	SCI &ENG LIB	Monitoring Based Commissioning	85,704	10.0	1,173	$ 10,085	$ 69,266	$ 21,507	$ 47,759	4.7
G3132	SANTA CRUZ	07C7919	PHYS SCI BLD	MBCx	180,000	30.0	7,500	$ 25,110	$ 294,545	$ 49,200	$ 245,345	9.8
G3044	SANTA CRUZ	07C7920	SOC SCI 1	Monitoring Based Commissioning	39,134	4.0	3,946	$ 7,265	$ 49,081	$ 12,549	$ 36,532	5.0
G3045	SANTA CRUZ	07C7922	MUSIC CTR	Monitoring Based Commissioning	36,885	4.0	6,851	$ 9,291	$ 90,767	$ 14,333	$ 76,434	8.2
G3078	SANTA CRUZ	07CWIDE	CAMPUSWIDE	MBCx Central Plant	150,000	17.0	15,000	$ 27,750	$ 151,200	$ 48,000	$ 103,200	3.7
H3022	SANTA BARBARA	08C8251	PSYCH ADDITI	Monitoring Based Commissioning	1,750	-	4,215	$ 3,565	$ 27,153	$ 3,792	$ 23,361	6.6
H3025	SANTA BARBARA	08C8434	BLDG 434	Monitoring Based Commissioning	10,692	1.0	1,823	$ 2,634	$ 55,440	$ 4,024	$ 51,416	19.5
H3026	SANTA BARBARA	08C8479	OLD GYM	Monitoring Based Commissioning	17,682	2.0	3,014	$ 4,356	$ 55,440	$ 6,655	$ 48,785	11.2
H3027	SANTA BARBARA	08C8494	CREAT STDY	Monitoring Based Commissioning	12,838	2.0	2,189	$ 3,163	$ 55,440	$ 4,832	$ 50,608	16.0
H3029	SANTA BARBARA	08C8504	BSC INST FAC	Monitoring Based Commissioning	10,638	1.0	1,814	$ 2,621	$ 55,440	$ 4,004	$ 51,436	19.6
H3031	SANTA BARBARA	08C8507	RCVG STG FAC	Monitoring Based Commissioning	16,113	2.0	2,746	$ 3,969	$ 55,440	$ 6,064	$ 49,376	12.4
H3033	SANTA BARBARA	08C8515	HSSB	Monitoring Based Commissioning	131,301	15.0	4,501	$ 18,044	$ 125,476	$ 35,113	$ 90,363	5.0
H3034	SANTA BARBARA	08C8516	RECCEN	Monitoring Based Commissioning	99,040	11.0	30,646	$ 35,411	$ 111,821	$ 48,287	$ 63,534	1.8
H3035	SANTA BARBARA	08C8525	DAVIDSON LIB (Main)	Monitoring Based Commissioning	160,632	18.0	3,843	$ 20,744	$ 282,851	$ 41,626	$ 241,225	11.6
H3036	SANTA BARBARA	08C8526	WEBB HALL	Monitoring Based Commissioning	33,558	4.0	5,720	$ 8,267	$ 55,440	$ 12,630	$ 42,810	5.2
H3038	SANTA BARBARA	08C8528	SOUTH HALL	Monitoring Based Commissioning	80,921	9.0	4,704	$ 12,664	$ 111,372	$ 23,184	$ 88,188	7.0
H3039	SANTA BARBARA	08C8531	MUSIC	Monitoring Based Commissioning	36,727	4.0	10,300	$ 12,280	$ 66,349	$ 17,054	$ 49,295	4.0
H3040	SANTA BARBARA	08C8533	ROBERTSN GYM	Monitoring Based Commissioning	58,917	7.0	10,043	$ 14,515	$ 64,692	$ 22,174	$ 42,518	2.9
H3041	SANTA BARBARA	08C8534	ARTS	Monitoring Based Commissioning	149,595	17.0	20,085	$ 32,523	$ 133,838	$ 51,971	$ 81,867	2.5
H3043	SANTA BARBARA	08C8535	NORTH HALL	Monitoring Based Commissioning	47,821	6.0	4,538	$ 8,890	$ 55,960	$ 15,107	$ 40,853	4.6
H3048	SANTA BARBARA	08C8544	NOBLE HALL	Monitoring Based Commissioning	34,119	4.0	5,816	$ 8,406	$ 55,440	$ 12,842	$ 42,598	5.1
H3054	SANTA BARBARA	08C8551	PSYCHOLOGY	Monitoring Based Commissioning	49,870	6.0	4,365	$ 8,978	$ 40,988	$ 15,461	$ 25,527	2.8
H3055	SANTA BARBARA	08C8552	CHEADLE HALL	Monitoring Based Commissioning	60,100	7.0	1,416	$ 7,744	$ 58,012	$ 15,557	$ 42,455	5.5
H3057	SANTA BARBARA	08C8556	HAROLD FRANK	Monitoring Based Commissioning	189,096	22.0	25,388	$ 41,111	$ 169,179	$ 65,693	$ 103,486	2.5
H3058	SANTA BARBARA	08C8557	CHEMISTRY	Monitoring Based Commissioning	235,817	27.0	16,390	$ 39,052	$ 163,688	$ 69,708	$ 93,980	2.4
H3060	SANTA BARBARA	08C8560	PHELPS HALL	Monitoring Based Commissioning	101,300	12.0	17,268	$ 24,957	$ 111,228	$ 38,126	$ 73,102	2.9
H3064	SANTA BARBARA	08C8563	ELLISON HALL	Monitoring Based Commissioning	87,177	10.0	14,860	$ 21,477	$ 55,440	$ 32,810	$ 22,630	1.1
H3066	SANTA BARBARA	08C8565	ENV HLTH& SA	Monitoring Based Commissioning	10,880	1.0	1,855	$ 2,681	$ 55,440	$ 4,095	$ 51,345	19.2
H3068	SANTA BARBARA	08C8568	SAASB	Monitoring Based Commissioning	94,712	11.0	3,430	$ 13,162	$ 135,832	$ 25,475	$ 110,357	8.4
H3069	SANTA BARBARA	08C8571	BIOLOGY 2	Monitoring Based Commissioning	253,223	29.0	28,395	$ 50,571	$ 219,375	$ 83,490	$ 135,885	2.7
H3072	SANTA BARBARA	08C8574	PUBL SAFETY	Monitoring Based Commissioning	12,626	1.0	2,153	$ 3,111	$ 55,440	$ 4,752	$ 50,688	16.3
H3074	SANTA BARBARA	08C8578	HARDER OFFIC	Monitoring Based Commissioning	9,675	1.0	1,649	$ 2,383	$ 55,440	$ 3,641	$ 51,799	21.7
H3078	SANTA BARBARA	08C8657	PSB NORTH	Monitoring Based Commissioning	204,983	23.0	4,666	$ 26,281	$ 163,785	$ 52,929	$ 110,856	4.2
H3079	SANTA BARBARA	08C8672	PSB SOUTH	Monitoring Based Commissioning	17,618	2.0	3,003	$ 4,340	$ 55,440	$ 6,630	$ 48,810	11.2
H3082	SANTA BARBARA	08C8927	STORKE-HOLL	Monitoring Based Commissioning	12,040	1.0	2,053	$ 2,966	$ 55,440	$ 4,532	$ 50,908	17.2
H3083	SANTA BARBARA	08C8941	EMBARCADERO	Monitoring Based Commissioning	9,020	1.0	1,538	$ 2,222	$ 55,440	$ 3,395	$ 52,045	23.4
H3084	SANTA BARBARA	08C8948	IV THEATER	Monitoring Based Commissioning	8,332	1.0	1,420	$ 2,053	$ 55,440	$ 3,136	$ 52,304	25.5
H3085	SANTA BARBARA	08CNEW1	STUDENT RESOURCES BLDG (BLDG 221)	Monitoring Based Commissioning	48,504	6.0	704	$ 5,898	$ 42,273	$ 12,204	$ 30,069	5.1
H3024	SANTA BARBARA	08CTBD1	SAN CLEMENTE RESIDENCE HALL	Monitoring Based Commissioning	65,450	8.0	11,156	$ 16,125	$ 71,864	$ 24,633	$ 47,231	2.9
H3195	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Chilled Water Loop Optimization & Additional Chiller	627,000	320.0	-	$ 68,970	$ 1,330,560	$ 150,480	$ 1,180,080	17.1
I3075	IRVINE	09C9001	LANGSON LIB	Monitoring Based Commissioning	115,747	15.0	16,436	$ 28,756	$ 127,566	$ 47,447	$ 80,119	2.8
I3076	IRVINE	09C9003	ADMIN BLDG	Monitoring Based Commissioning	82,496	11.0	11,500	$ 20,320	$ 85,411	$ 34,167	$ 51,244	2.5

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
I3077	IRVINE	09C9005	UCI STU CNTR	Monitoring Based Commissioning	117,412	14.0	17,033	$ 29,465	$ 138,690	$ 47,539	$ 91,151	3.1
I3078	IRVINE	09C9035	HIB	Monitoring Based Commissioning	25,109	-	4,922	$ 7,350	$ 62,640	$ 8,069	$ 54,571	7.4
I3079	IRVINE	09C9050	W SMITH HALL	Monitoring Based Commissioning	9,216	1.0	1,225	$ 2,221	$ 7,996	$ 3,915	$ 4,081	1.8
I3080	IRVINE	09C9051	CTB THEATRE	Monitoring Based Commissioning	14,586	2.0	2,116	$ 3,661	$ 17,227	$ 5,906	$ 11,321	3.1
I3081	IRVINE	09C9052	SOTA DANCE	Monitoring Based Commissioning	9,122	1.0	1,323	$ 2,289	$ 10,778	$ 3,694	$ 7,084	3.1
I3082	IRVINE	09C9053	SOTA PROD ST	Monitoring Based Commissioning	3,253	-	493	$ 833	$ 4,381	$ 1,283	$ 3,098	3.7
I3083	IRVINE	09C9054	SOTA DRAMA	Monitoring Based Commissioning	16,060	3.0	1,881	$ 3,663	$ 7,416	$ 7,237	$ 1,483	0.4
I3084	IRVINE	09C9055	UNIV ART GAL	Monitoring Based Commissioning	6,386	1.0	926	$ 1,603	$ 7,541	$ 2,585	$ 4,956	3.1
I3085	IRVINE	09C9056	SOTA ART STD	Monitoring Based Commissioning	9,585	1.0	1,298	$ 2,329	$ 8,937	$ 4,032	$ 4,905	2.1
I3086	IRVINE	09C9057	SOTA SCULPTR	Monitoring Based Commissioning	13,522	2.0	1,699	$ 3,178	$ 9,210	$ 5,905	$ 3,305	1.0
I3088	IRVINE	09C9073	SCILIBRARY	Monitoring Based Commissioning	107,666	10.0	16,904	$ 28,073	$ 160,290	$ 41,487	$ 118,803	4.2
I3089	IRVINE	09C9075	STEINHAUS H	Monitoring Based Commissioning	169,128	23.0	23,603	$ 41,679	$ 181,810	$ 70,006	$ 111,804	2.7
I3304	IRVINE	09C9080	QURESHEY LAB	Monitoring Based Commisioning	17,961	1.0	2,977	$ 4,812	$ 73,954	$ 6,663	$ 67,291	14.0
I3316	IRVINE	09C9081	BONNEY RES L	Monitoring Based Commisioning	17,961	1.0	2,977	$ 4,812	$ 23,562	$ 6,663	$ 16,899	3.5
I3091	IRVINE	09C9088	HEWITT HALL	Monitoring Based Commissioning	205,398	35.0	25,385	$ 47,929	$ 133,365	$ 90,393	$ 42,972	0.9
I3092	IRVINE	09C9091	NAT SCI 2	Monitoring Based Commissioning	155,480	25.0	19,901	$ 36,842	$ 115,242	$ 67,303	$ 47,939	1.3
I3093	IRVINE	09C9100	ROWLAND HALL	Monitoring Based Commissioning	310,644	42.0	43,262	$ 76,480	$ 331,516	$ 128,732	$ 202,784	2.7
I3095	IRVINE	09C9108	REINES HALL	Monitoring Based Commissioning	259,191	36.0	35,648	$ 63,444	$ 264,653	$ 108,145	$ 156,508	2.5
I3096	IRVINE	09C9114	M SCI & TECH	Monitoring Based Commissioning	17,961	1.0	2,977	$ 4,812	$ 53,357	$ 6,663	$ 46,694	9.7
I3097	IRVINE	09C9115	CROUL HALL	Monitoring Based Commissioning	98,634	13.0	13,985	$ 24,487	$ 111,889	$ 40,467	$ 71,422	2.9
I3099	IRVINE	09C9125	ENG TOWER	Monitoring Based Commissioning	119,086	11.0	19,044	$ 31,335	$ 192,665	$ 45,319	$ 147,346	4.7
I3100	IRVINE	09C9126	COMP SCI BLD	Monitoring Based Commissioning	96,142	13.0	13,389	$ 23,670	$ 102,601	$ 39,841	$ 62,760	2.7
I3101	IRVINE	09C9128	SOC ECOLOGY	Monitoring Based Commissioning	87,145	12.0	12,136	$ 21,455	$ 93,001	$ 36,113	$ 56,888	2.7
I3102	IRVINE	09C9132	IRVINE HALL	Monitoring Based Commissioning	53,572	4.0	8,780	$ 14,271	$ 92,357	$ 20,038	$ 72,319	5.1
I3103	IRVINE	09C9140	ENG GATEWAY	Monitoring Based Commissioning	213,236	29.0	29,538	$ 52,368	$ 223,353	$ 88,624	$ 134,729	2.6
I3104	IRVINE	09C9204	SOCSCI TOWER	Monitoring Based Commissioning	100,269	17.0	12,701	$ 23,650	$ 70,887	$ 43,621	$ 27,266	1.2
I3106	IRVINE	09C9212	SOC SCI PL A	Monitoring Based Commissioning	33,267	4.0	4,826	$ 8,348	$ 39,296	$ 13,469	$ 25,827	3.1
I3107	IRVINE	09C9221	SOC SCI PL B	Monitoring Based Commissioning	35,127	4.0	5,096	$ 8,815	$ 41,493	$ 14,223	$ 27,270	3.1
I3108	IRVINE	09C9222	SOC ECOLOGY2	Monitoring Based Commissioning	29,379	4.0	4,088	$ 7,230	$ 30,227	$ 12,180	$ 18,047	2.5
I3110	IRVINE	09C9300	CRAWFORD HAL	Monitoring Based Commissioning	53,655	8.0	7,209	$ 12,994	$ 48,560	$ 22,666	$ 25,894	2.0
I3111	IRVINE	09C9302	CENTRL PLANT	MBCx Central Plant	564,000	86.0	74,715	$ 135,714	$ 693,000	$ 240,000	$ 453,000	3.3
I3112	IRVINE	09C9314	BREN EVENTS	Monitoring Based Commissioning	69,612	8.0	10,098	$ 17,470	$ 82,229	$ 28,185	$ 54,044	3.1
I3113	IRVINE	09C9322	MED SCI C	Monitoring Based Commissioning	124,460	20.0	15,893	$ 29,461	$ 94,443	$ 53,936	$ 40,507	1.4
I3114	IRVINE	09C9323	MED SCI D	Monitoring Based Commissioning	96,020	11.0	14,092	$ 24,231	$ 121,677	$ 38,610	$ 83,067	3.4
I3115	IRVINE	09C9325	MED SCI A	Monitoring Based Commissioning	21,261	3.0	2,961	$ 5,234	$ 22,687	$ 8,810	$ 13,877	2.7
I3116	IRVINE	09C9328	MED SCI B	Monitoring Based Commissioning	25,670	3.0	3,724	$ 6,442	$ 30,322	$ 10,394	$ 19,928	3.1
I3117	IRVINE	09C9329	MED SURG 2	Monitoring Based Commissioning	95,895	13.0	13,337	$ 23,594	$ 101,859	$ 39,769	$ 62,090	2.6
I3125	IRVINE	09CTBD1	BREN HALL	Monitoring Based Commissioning	105,912	13.0	15,364	$ 26,579	$ 125,107	$ 42,883	$ 82,224	3.1
T3001	SYSTEMWIDE	20S9300	FRANKLIN	Monitoring Based Commissioning	194,392	22.0	26,508	$ 40,628	$ 213,442	$ 73,162	$ 140,280	3.5
T3002	SYSTEMWIDE	20S9401	LAKESIDE 300	Monitoring Based Commissioning	93,938	11.0	12,810	$ 19,633	$ 103,144	$ 35,355	$ 67,789	3.5
Subtotal, State Funded, MBCx Projects					**65,436,580**	**6,689.0**	**4,667,930**	**$ 9,968,525**	**$ 52,976,822**	**$ 18,898,303**	**$ 34,078,519**	**3.4**
New Construction Projects												
A3024	BERKELEY	01C1208	ART GALLERY	SBD, New/Renov - Berkeley Art Museum and Pacific Film Archive	1,206,900	138.0	71,888	$ 156,029	$ 1,405,412	$ 347,166	$ 1,058,246	6.8
A3029	BERKELEY	01C1220	BIRGE	SBD, New/Renov - Birge Hall Infrastructure Improvements	699,090	80.0	41,640	$ 90,379	$ 814,075	$ 201,094	$ 612,981	6.8
A3038	BERKELEY	01C1231	LAW	SBD, New/Renov - Law Building Infill	249,750	29.0	29,250	$ 43,457	$ 377,515	$ 83,340	$ 294,175	6.8
A3037	BERKELEY	01C1231	LAW	SBD, New/Renov - Law Building Renovation Step 3	85,195	10.0	9,978	$ 14,824	$ 128,775	$ 28,429	$ 100,346	6.8
A3107	BERKELEY	01C1760	CAMPBELL	SBD, New/Renov - Campbell Hall Seismic Replacement Building	716,765	82.0	42,694	$ 92,665	$ 834,663	$ 206,179	$ 628,484	6.8
A3139	BERKELEY	01CTBD1	HELIOS ENERGY RESEARCH FACILITY	SBD, New/Renov - Helios Energy Research Facility	1,180,080	135.0	70,290	$ 152,562	$ 1,374,182	$ 339,451	$ 1,034,731	6.8
A3140	BERKELEY	01CTBD2	STUDENT ATHLETE HIGH PERFORMANCE CENTER	SBD, New/Renov - Student Athlete High Performance Center	544,205	62.0	63,736	$ 94,692	$ 822,603	$ 181,598	$ 641,005	6.8
A3163	BERKELEY	01CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	67,616	8.0	7,919	$ 11,765	$ 102,201	$ 22,563	$ 79,638	6.8
A3162	BERKELEY	01CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	67,616	8.0	7,919	$ 11,765	$ 102,201	$ 22,563	$ 79,638	6.8
A3161	BERKELEY	01CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	67,616	8.0	7,919	$ 11,765	$ 102,201	$ 22,563	$ 79,638	6.8
A3160	BERKELEY	01CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	67,616	8.0	7,919	$ 11,765	$ 102,201	$ 22,563	$ 79,638	6.8
B3009	SAN FRANCISCO MC	02C2018	MTZ BLDG A	SBD, New/Renov - SB1953 Mount Zion Buildings A, B and D Seismic Upgrades and Clinical Expansion	809,294	92.0	48,205	$ 141,844	$ 1,542,372	$ 232,795	$ 1,309,577	9.2
B3015	SAN FRANCISCO	02C2252	MED SCIENCES	SBD, New/Renov - Medical Sciences Building Improvements, Phase 4	100,968	12.0	6,014	$ 17,696	$ 1,119,999	$ 29,043	$ 1,090,956	61.6
B3014	SAN FRANCISCO	02C2252	MED SCIENCES	SBD, New/Renov - Medical Sciences Building Improvements, Phase 3	287,636	33.0	17,133	$ 50,413	$ 2,100,002	$ 82,739	$ 2,017,263	40.0

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
B3018	SAN FRANCISCO MC	02C2408	UC CLINICS (ACC)	SBD, New/Renov - Ambulatory Care Center-7 Ophthalmology Relocation	134,368	15.0	8,004	$ 23,551	$ 256,082	$ 38,651	$ 217,431	9.2
B3017	SAN FRANCISCO MC	02C2408	UC CLINICS (ACC)	SBD, New/Renov - Ambulatory Care Center-5	63,698	7.0	3,794	$ 11,164	$ 121,391	$ 18,323	$ 103,068	9.2
B3039	SAN FRANCISCO MC	02CTBD1	INSTITUTE FOR REGENERATION MEDICINE BLDG	SBD, New/Renov - Institute for Regeneration Medicine Building	603,450	69.0	35,944	$ 105,766	$ 1,061,596	$ 173,583	$ 888,013	8.4
B3041	SAN FRANCISCO	02CTBD3	TELEMEDICINE AND PRIME FACILITY	SBD, New/Renov - Telemedicine and PRIME-US Education Facilities	335,250	38.0	15,975	$ 55,724	$ 756,000	$ 96,435	$ 659,565	11.8
B3066	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	SBD, New/Renov - Mission Bay Central Utilities System Phase 2	451,309	52.0	21,505	$ 75,014	$ 793,948	$ 129,819	$ 664,129	8.9
B3065	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	169,034	19.0	15,837	$ 34,011	$ 461,966	$ 56,405	$ 405,561	11.9
B3064	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	169,034	19.0	15,837	$ 34,011	$ 461,966	$ 56,405	$ 405,561	11.9
B3063	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	169,034	19.0	15,837	$ 34,011	$ 461,966	$ 56,405	$ 405,561	11.9
B3062	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	169,034	19.0	15,837	$ 34,011	$ 461,966	$ 56,405	$ 405,561	11.9
C3034	DAVIS	03C3320	CRUESS	SBD, New/Renov - Cruess Hall Renovations	209,790	24.0	24,570	$ 40,293	$ 348,971	$ 70,006	$ 278,965	6.9
C3038	DAVIS	03C3351	WICKSN	SBD, New/Renov - Wickson Renovation (2 of 2)	458,407	52.0	27,305	$ 64,827	$ 582,324	$ 131,862	$ 450,462	6.9
C3037	DAVIS	03C3351	WICKSN	SBD, New/Renov - Wickson Renovation (1 of 2)	458,407	52.0	27,305	$ 64,827	$ 582,324	$ 131,862	$ 450,462	6.9
C3040	DAVIS	03C3460	MU	SBD, New/Renov - Coffee House Renovation	116,004	13.0	13,586	$ 22,280	$ 192,963	$ 38,710	$ 154,253	6.9
C3041	DAVIS	03C3487	VITFLB	SBD, New/Renov - Viticulture and Enology Research and Teaching Winery	398,277	45.0	23,723	$ 56,322	$ 505,930	$ 114,564	$ 391,366	6.9
C3042	DAVIS	03C3493	HARING	SBD, New/Renov - Haring Hall Renovations	488,797	56.0	57,246	$ 93,880	$ 813,066	$ 163,108	$ 649,958	6.9
C3051	DAVIS	03C3961	CHEM	SBD, New/Renov - Chemistry Building Renovations (2 of 2)	882,369	101.0	52,558	$ 124,781	$ 1,120,882	$ 253,815	$ 867,067	6.9
C3050	DAVIS	03C3961	CHEM	SBD, New/Renov - Chemistry Building Renovations (1 of 2)	882,369	101.0	52,558	$ 124,781	$ 1,120,882	$ 253,815	$ 867,067	6.9
C3053	DAVIS	03C3970	MUSIC	SBD, New/Renov - Music Instruction and Recital Building	50,450	6.0	5,909	$ 9,690	$ 83,922	$ 16,835	$ 67,087	6.9
C3060	DAVIS	03C4241	ANI BLDG	SBD, New/Renov - Animal Resource Services	40,230	5.0	2,396	$ 5,689	$ 51,100	$ 11,572	$ 39,528	6.9
C3061	DAVIS	03C4272	VMTH FEED	SBD, New/Renov - Briggs Hall Safety Improvement and Building Renewal (1 of 2)	811,734	93.0	48,350	$ 114,792	$ 1,031,158	$ 233,496	$ 797,662	6.9
C3062	DAVIS	03C4273	BRIGGS	SBD, New/Renov - Briggs Hall Safety Improvement and Building Renewal (2 of 2)	811,734	93.0	48,350	$ 114,792	$ 1,031,158	$ 233,496	$ 797,662	6.9
C3064	DAVIS	03C4427	TUPPER HALL	SBD, New/Renov - Tupper Hall 2nd Floor Laboratory Remodel	168,850	19.0	10,058	$ 23,878	$ 214,492	$ 48,570	$ 165,922	6.9
C3068	DAVIS	03C4466	VET MED 2	SBD, New/Renov - Veterinary Medicine 3B	1,024,944	117.0	61,050	$ 144,944	$ 1,301,999	$ 294,827	$ 1,007,172	6.9
C3070	DAVIS	03C4557	TERCERO TRLA	SBD, New/Renov - Tercero Sout Student Housing Phase 2	298,631	34.0	34,975	$ 57,356	$ 496,752	$ 99,651	$ 397,101	6.9
C3072	DAVIS	03C4610	PRIM RSCH OF	SBD, New/Renov - Calif National Primate Research Center Virology	53,935	6.0	3,213	$ 7,627	$ 68,516	$ 15,514	$ 53,002	6.9
C3094	DAVIS	03CTBD1	STUDENT RESOURCE CENTER	SBD, New/Renov - Student Resource Center	79,920	9.0	9,360	$ 15,350	$ 132,937	$ 26,669	$ 106,268	6.9
C3095	DAVIS	03CTBD2	SOUTH VALLEY ANIMAL HEALTH LABORATORY	SBD, New/Renov - South Valley Animal Health Laboratory	295,020	34.0	17,573	$ 41,721	$ 374,769	$ 84,863	$ 289,906	6.9
C3096	DAVIS	03CTBD3	TELEMEDICINE RESOURCE CENTER	SBD, New/Renov - Telemedicine Resource Center	344,637	39.0	20,528	$ 48,737	$ 437,793	$ 99,135	$ 338,658	6.9
C3097	DAVIS	03CTBD4	HEALTH AND WELLNESS CENTER	SBD, New/Renov - Health and Wellness Center	563,220	64.0	33,548	$ 79,648	$ 715,464	$ 162,011	$ 553,453	6.9
C3098	DAVIS	03CTBD5	GRADUATE SCHOOL OF MANAGEMENT AND CONFERENCE CENTER	SBD, New/Renov - Graduate School of Management and Conference Center	278,222	32.0	32,585	$ 53,437	$ 462,805	$ 92,841	$ 369,964	6.9
C3099	DAVIS	03CTBD6	STOCKTON BOULEVARD RESEARCH CENTER	SBD, New/Renov - Stockton Boulevard Research Center	244,162	28.0	28,595	$ 46,894	$ 406,135	$ 81,475	$ 324,660	6.9
C3100	DAVIS	03CTBD7	RESEARCH IV	SBD, New/Renov - Research IV	482,760	55.0	28,755	$ 68,270	$ 613,254	$ 138,866	$ 474,388	6.9
C3101	DAVIS	03CTBD8	ENGINEERING 4	SBD, New/Renov - Engineering 4	630,270	72.0	37,541	$ 89,130	$ 800,638	$ 181,298	$ 619,340	6.9
C3130	DAVIS	03CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	28,172	3.0	3,300	$ 5,411	$ 46,870	$ 9,401	$ 37,469	6.9
C3129	DAVIS	03CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	28,172	3.0	3,300	$ 5,411	$ 46,870	$ 9,401	$ 37,469	6.9
C3128	DAVIS	03CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	28,172	3.0	3,300	$ 5,411	$ 46,870	$ 9,401	$ 37,469	6.9
C3127	DAVIS	03CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	28,172	3.0	3,300	$ 5,411	$ 46,870	$ 9,401	$ 37,469	6.9
C3126	DAVIS	03CWIDE	CAMPUSWIDE	SBD, New/Renov - Chilled Water System Improvements Phase 7	121,418	14.0	14,220	$ 23,320	$ 201,967	$ 40,516	$ 161,451	6.9
C3125	DAVIS	03CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	28,172	3.0	3,300	$ 5,411	$ 46,870	$ 9,401	$ 37,469	6.9
C3124	DAVIS	03CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	28,172	3.0	3,300	$ 5,411	$ 46,870	$ 9,401	$ 37,469	6.9
C3123	DAVIS	03CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	28,172	3.0	3,300	$ 5,411	$ 46,870	$ 9,401	$ 37,469	6.9

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
C3122	DAVIS	03CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	28,172	3.0	3,300	$ 5,411	$ 46,870	$ 9,401	$ 37,469	6.9
D3005	LOS ANGELES	04C4203	YOUNG LIBRY	SBD, New/Renov - Young Research Library Renovation	478,877	34.0	-	$ 42,141	$ 442,353	$ 100,842	$ 341,511	8.1
D3006	LOS ANGELES	04C4204	PAULEY	SBD, New/Renov - Pauley Pavilion Renovation and Expansion	1,242,705	90.0	-	$ 109,358	$ 1,147,921	$ 261,688	$ 886,233	8.1
D3010	LOS ANGELES	04C4230	POLICE STN	SBD, New/Renov - Police Station Replacement Building	117,733	8.0	-	$ 10,360	$ 108,750	$ 24,792	$ 83,958	8.1
D3029	LOS ANGELES MC	04C4332F	SEMEL INST	SBD, New/Renov - CHS South Tower Seismic Renovation	1,938,015	140.0	-	$ 170,545	$ 2,034,322	$ 408,105	$ 1,626,217	9.5
D3031	LOS ANGELES	04C4333	JULES STEIN	SBD, New/Renov - Jules Stein Eye Institute Seismic Repair	865,891	76.0	-	$ 76,198	$ 777,227	$ 191,988	$ 585,239	7.7
D3041	LOS ANGELES	04C4451	CLARK LIB	SBD, New/Renov - Clark Library Seismic Correction	98,149	7.0	-	$ 8,637	$ 90,665	$ 20,668	$ 69,997	8.1
D3051	LOS ANGELES	04CTBD1	CNSI - BSL 3 LABORATORY	SBD, New/Renov - CNSI-BSL3 Laboratory	104,475	9.0	-	$ 9,194	$ 93,780	$ 23,165	$ 70,615	7.7
D3055	LOS ANGELES	04CTBD5	TELEMEDICINE AND PRIME FACILITIES	SBD, New/Renov - Telemedicine and Prime Facilities Phase 2	496,511	44.0	-	$ 43,693	$ 445,671	$ 110,088	$ 335,583	7.7
D3056	LOS ANGELES	04CTBD6	LETTERS AND SCIENCE EXPANSION	SBD, New/Renov - Letters and Science Expansion	554,072	40.0	-	$ 48,758	$ 511,810	$ 116,676	$ 395,134	8.1
D3083	LOS ANGELES	04CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	44,646	3.0	-	$ 3,929	$ 41,243	$ 9,401	$ 31,842	8.1
D3082	LOS ANGELES	04CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	44,646	3.0	-	$ 3,929	$ 41,243	$ 9,401	$ 31,842	8.1
D3081	LOS ANGELES	04CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	44,646	3.0	-	$ 3,929	$ 41,243	$ 9,401	$ 31,842	8.1
D3080	LOS ANGELES	04CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	44,646	3.0	-	$ 3,929	$ 41,243	$ 9,401	$ 31,842	8.1
D3079	LOS ANGELES	04CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	44,646	3.0	-	$ 3,929	$ 41,243	$ 9,401	$ 31,842	8.1
D3078	LOS ANGELES	04CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	44,646	3.0	-	$ 3,929	$ 41,243	$ 9,401	$ 31,842	8.1
D3077	LOS ANGELES	04CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	44,646	3.0	-	$ 3,929	$ 41,243	$ 9,401	$ 31,842	8.1
D3076	LOS ANGELES	04CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	44,646	3.0	-	$ 3,929	$ 41,243	$ 9,401	$ 31,842	8.1
E3020	RIVERSIDE	05CP5501	BATCHELOR	SBD, New/Renov - Batchelor Hall Building Systems Renewal	280,040	32.0	16,399	$ 34,942	$ 392,980	$ 80,329	$ 312,651	8.9
E3033	RIVERSIDE	05CTBD3	ENGINEERING BUILDING UNIT 3	SBD, New/Renov - Engineering Building Unit 3	1,032,570	118.0	61,504	$ 129,721	$ 1,056,936	$ 297,020	$ 759,916	5.9
E3034	RIVERSIDE	05CTBD4	WEST CAMPUS GRADUATE AND PROFESSIONAL CTR	SBD, New/Renov - West Campus Graduate and Professional Center Phase 1	299,700	34.0	35,100	$ 52,313	$ 420,572	$ 100,008	$ 320,564	6.1
E3058	RIVERSIDE	05CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	3,380	-	396	$ 590	$ 4,744	$ 1,128	$ 3,616	6.1
E3057	RIVERSIDE	05CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	3,380	-	396	$ 590	$ 4,744	$ 1,128	$ 3,616	6.1
E3056	RIVERSIDE	05CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	3,380	-	396	$ 590	$ 4,744	$ 1,128	$ 3,616	6.1
E3055	RIVERSIDE	05CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	2,817	-	330	$ 492	$ 3,958	$ 940	$ 3,018	6.1
E3054	RIVERSIDE	05CWIDE	CAMPUSWIDE	SBD, New/Renov - Academic Facilities Renewal Step 1	71,898	8.0	8,420	$ 12,549	$ 100,891	$ 23,992	$ 76,899	6.1
E3010	RIVERSIDE	05CWIDE	CAMPUSWIDE	SBD, New/Renov - Boyce Hall and Webber Hall Renovations	1,248,096	142.0	74,341	$ 156,797	$ 1,277,540	$ 359,016	$ 918,524	5.9
F3073	SAN DIEGO	06C6598	MANDEVILLE	SBD, New/Renov - Mandeville Auditorium Upgrade	158,868	11.0	-	$ 12,392	$ 157,949	$ 33,336	$ 124,613	10.1
F3080	SAN DIEGO	06C6601	BIOLOGY BLDG	SBD, New/Renov - Biological and Physical Sciences Building	955,475	84.0	-	$ 74,527	$ 863,138	$ 211,385	$ 651,753	8.7
F3123	SAN DIEGO	06CTBD10	TELEMEDICINE AND PRIME FACILITY	SBD, New/Renov - Telemedicine and PRIME Education Facility	850,861	75.0	-	$ 66,367	$ 768,631	$ 188,241	$ 580,390	8.7
F3124	SAN DIEGO	06CTBD11	CTR FOR MARINE BIOTECHNOLOGY AND BIOMEDICINE	SBD, New/Renov - The Center for Marine Biotechnology and Biomedicine	426,306	37.0	-	$ 33,252	$ 385,111	$ 94,314	$ 290,797	8.7
F3125	SAN DIEGO	06CTBD12	BIRCH AQUARIUM EXPANSION	SBD, New/Renov - The Stephen Birch Aquarium Museum Expansion at Scripps Institution of Oceanography	679,992	60.0	-	$ 53,039	$ 614,272	$ 150,439	$ 463,833	8.7
F3126	SAN DIEGO	06CTBD2	CTR FOR INTEGRATIVE NEUROSCIENCES	SBD, New/Renov - Center for Integrative Neurosciences	871,785	77.0	-	$ 67,999	$ 787,531	$ 192,870	$ 594,661	8.7
F3127	SAN DIEGO	06CTBD3	ESPP EXPANSION - EAST CAMPUS	SBD, New/Renov - Extended Studies and Public Programs (ESPP) Expansion - East Campus	516,321	37.0	-	$ 40,273	$ 513,323	$ 108,342	$ 404,981	10.1
F3128	SAN DIEGO	06CTBD4	HEALTH SCIENCES BIOMEDICAL RESEARCH BLDF	SBD, New/Renov - Health Sciences Biomedical Research Building	1,482,035	130.0	-	$ 115,599	$ 1,338,808	$ 327,879	$ 1,010,929	8.7
F3130	SAN DIEGO	06CTBD6	INSTITUTE FOR TRANS-SCALE THEORY	SBD, New/Renov - Institute for Trans-scale Theory	871,785	77.0	-	$ 67,999	$ 787,531	$ 192,870	$ 594,661	8.7
F3131	SAN DIEGO	06CTBD7	MGMT SCHOOL FACILITY	SBD, New/Renov - Management School Facility, Phase 2	397,170	29.0	-	$ 30,979	$ 394,871	$ 83,340	$ 311,531	10.1
F3132	SAN DIEGO	06CTBD8	SIO RESEARCH SUPPORT FACILITY	SBD, New/Renov - SIO Research Support Facilities	266,768	23.0	-	$ 20,808	$ 240,988	$ 59,019	$ 181,969	8.7
F3163	SAN DIEGO	06CWIDE	CAMPUSWIDE	SBD, New/Renov - Satellite Utilities Plant	344,484	30.0	-	$ 26,870	$ 311,192	$ 76,212	$ 234,980	8.7
F3162	SAN DIEGO	06CWIDE	CAMPUSWIDE	SBD, New/Renov - Cogeneration Plant Expansion	522,779	46.0	-	$ 40,777	$ 472,255	$ 115,657	$ 356,598	8.7

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
F3161	SAN DIEGO	06CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	17,922	1.0	-	$ 1,398	$ 17,823	$ 3,761	$ 14,062	10.1
F3160	SAN DIEGO	06CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	44,804	3.0	-	$ 3,495	$ 44,542	$ 9,401	$ 35,141	10.1
F3159	SAN DIEGO	06CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	17,922	1.0	-	$ 1,398	$ 17,823	$ 3,761	$ 14,062	10.1
F3158	SAN DIEGO	06CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	44,804	3.0	-	$ 3,495	$ 44,542	$ 9,401	$ 35,141	10.1
F3157	SAN DIEGO	06CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	17,922	1.0	-	$ 1,398	$ 17,823	$ 3,761	$ 14,062	10.1
F3156	SAN DIEGO	06CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	44,804	3.0	-	$ 3,495	$ 44,542	$ 9,401	$ 35,141	10.1
F3155	SAN DIEGO	06CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	17,922	1.0	-	$ 1,398	$ 17,823	$ 3,761	$ 14,062	10.1
F3154	SAN DIEGO	06CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	44,804	3.0	-	$ 3,495	$ 44,542	$ 9,401	$ 35,141	10.1
G3043	SANTA CRUZ	07C7919	PHYS SCI BLD	SBD, New/Renov - Alterations for Physical, Biological and Social Sciences	194,472	22.0	11,584	$ 29,844	$ 296,744	$ 55,940	$ 240,804	8.1
G3048	SANTA CRUZ	07CTBD1	EARLY EDUCATION AND CHILDCARE CTR	SBD, New/Renov - Early Education and Child Care Center	34,822	4.0	4,079	$ 6,907	$ 66,372	$ 11,620	$ 54,752	7.9
G3049	SANTA CRUZ	07CTBD2	ENVIRONMENTAL SCIENCES 1	SBD, New/Renov - Environmental Sciences 1	335,250	38.0	19,969	$ 51,447	$ 511,546	$ 96,435	$ 415,111	8.1
G3050	SANTA CRUZ	07CTBD3	SILICON VALLEY CTR	SBD, New/Renov - Silicon Valley Center	320,007	37.0	19,061	$ 49,109	$ 488,293	$ 92,051	$ 396,242	8.1
G3077	SANTA CRUZ	07CWIDE	CAMPUSWIDE	SBD, New/Renov - Infrastructure Improvements Phase 2	112,170	13.0	6,681	$ 17,214	$ 171,154	$ 32,266	$ 138,888	8.1
G3076	SANTA CRUZ	07CWIDE	CAMPUSWIDE	SBD, New/Renov - Environmental Health and Safety Facility Improvements	96,132	11.0	5,726	$ 14,753	$ 146,684	$ 27,653	$ 119,031	8.1
G3075	SANTA CRUZ	07CWIDE	CAMPUSWIDE	SBD, New/Renov - Coastal Sciences Campus Infrastructure	56,045	6.0	3,339	$ 8,601	$ 85,519	$ 16,122	$ 69,397	8.1
G3074	SANTA CRUZ	07CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	11,269	1.0	1,320	$ 2,235	$ 21,475	$ 3,761	$ 17,714	7.9
G3073	SANTA CRUZ	07CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	11,269	1.0	1,320	$ 2,235	$ 21,475	$ 3,761	$ 17,714	7.9
G3072	SANTA CRUZ	07CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	11,269	1.0	1,320	$ 2,235	$ 21,475	$ 3,761	$ 17,714	7.9
G3071	SANTA CRUZ	07CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	11,269	1.0	1,320	$ 2,235	$ 21,475	$ 3,761	$ 17,714	7.9
H3028	SANTA BARBARA	08C8503	ENGR 2	SBD, New/Renov - Engineering II Life Safety Improvements and Addition	204,181	23.0	12,161	$ 32,189	$ 293,418	$ 58,732	$ 234,686	7.3
H3042	SANTA BARBARA	08C8534	ARTS	SBD, New/Renov - Arts Building Seismic Corrections and Renewal	298,967	34.0	35,014	$ 60,897	$ 536,472	$ 99,763	$ 436,709	7.2
H3044	SANTA BARBARA	08C8535	NORTH HALL	SBD, New/Renov - North Hall Computer Center Renovations	53,640	6.0	3,195	$ 8,456	$ 77,082	$ 15,430	$ 61,652	7.3
H3061	SANTA BARBARA	08C8560	PHELPS HALL	SBD, New/Renov - Phelps Hall Renovation	213,786	24.0	25,038	$ 43,546	$ 383,617	$ 71,339	$ 312,278	7.2
H3065	SANTA BARBARA	08C8563	ELLISON HALL	SBD, New/Renov - Ellison Hall Renovation	272,228	31.0	31,883	$ 55,451	$ 488,496	$ 90,841	$ 397,655	7.2
H3071	SANTA BARBARA	08C8571	BIOLOGY 2	SBD, New/Renov - Biological Science II Lab Renovations/Stem Cell	134,100	15.0	7,988	$ 21,141	$ 192,711	$ 38,574	$ 154,137	7.3
H3070	SANTA BARBARA	08C8571	BIOLOGY 2	SBD, New/Renov - Biological Science II Lab Infrastructure Improvements	68,659	8.0	4,090	$ 10,824	$ 98,669	$ 19,750	$ 78,919	7.3
H3073	SANTA BARBARA	08C8574	PUBL SAFETY	SBD, New/Renov - Public Safety Building Renovation and Expansion	81,905	9.0	9,593	$ 16,684	$ 146,976	$ 27,331	$ 119,645	7.2
H3110	SANTA BARBARA	08CWIDE	CAMPUSWIDE	SBD, New/Renov - Devereux/West Campus Building Renovations	224,775	26.0	26,325	$ 45,785	$ 403,341	$ 75,006	$ 328,335	7.2
H3109	SANTA BARBARA	08CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	16,903	2.0	1,980	$ 3,443	$ 30,338	$ 5,641	$ 24,697	7.2
H3108	SANTA BARBARA	08CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	16,903	2.0	1,980	$ 3,443	$ 30,338	$ 5,641	$ 24,697	7.2
H3107	SANTA BARBARA	08CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	16,903	2.0	1,980	$ 3,443	$ 30,338	$ 5,641	$ 24,697	7.2
H3106	SANTA BARBARA	08CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	16,903	2.0	1,980	$ 3,443	$ 30,338	$ 5,641	$ 24,697	7.2
I3087	IRVINE	09C9058	ARTS TECH	SBD, New/Renov - Arts Building	150,925	22.0	20,533	$ 36,759	$ 384,568	$ 63,338	$ 321,230	8.7
I3105	IRVINE	09C9208	SCH BUSINESS	SBD, New/Renov - School of Business Building	198,585	29.0	27,018	$ 48,368	$ 506,008	$ 83,340	$ 422,668	8.7
I3126	IRVINE	09CTBD2	BIOLOGICAL SCIENCES 3 LABORATORY	SBD, New/Renov - Biological Sciences 3 Laboratory Conversion	134,256	24.0	16,398	$ 31,168	$ 342,762	$ 59,404	$ 283,358	9.1
I3127	IRVINE	09CTBD3	BIOMEDICAL RESEARCH FACILITY 4 - STEM CELL	SBD, New/Renov - Irvine Biomedical Research Facility - 4 (Stem Cell)	455,945	80.0	55,688	$ 105,849	$ 1,164,065	$ 201,742	$ 962,323	9.1
I3128	IRVINE	09CTBD4	HEALTH SCIENCES ACADEMIC BUILDING	SBD, New/Renov - Health Sciences Academic Building	156,921	28.0	19,166	$ 36,430	$ 400,634	$ 69,433	$ 331,201	9.1
I3129	IRVINE	09CTBD5	TELEMEDICINE/PRIME-LC FACILITY	SBD, New/Renov - Telemedicine/PRIME-LC Facilities	261,536	46.0	31,943	$ 60,716	$ 667,721	$ 115,722	$ 551,999	9.1

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
I3155	IRVINE	09CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	67,204	10.0	9,143	$ 16,368	$ 171,240	$ 28,204	$ 143,036	8.7
I3154	IRVINE	09CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	67,204	10.0	9,143	$ 16,368	$ 171,240	$ 28,204	$ 143,036	8.7
I3153	IRVINE	09CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	67,204	10.0	9,143	$ 16,368	$ 171,240	$ 28,204	$ 143,036	8.7
I3152	IRVINE	09CWIDE	CAMPUSWIDE	SBD, New/Renov - Classroom Renovations Phase 6	17,873	3.0	2,432	$ 4,353	$ 45,541	$ 7,501	$ 38,040	8.7
I3151	IRVINE	09CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	67,204	10.0	9,143	$ 16,368	$ 171,240	$ 28,204	$ 143,036	8.7
Subtotal, State Funded, New Construction Projects					**41,087,561**	**4,279.0**	**1,969,281**	**$ 5,383,471**	**$ 55,757,661**	**$ 11,263,320**	**$ 44,494,341**	**8.3**
HVAC Projects												
B1029	SAN FRANCISCO	02C2012	LIBRARY	Installing VFD driven Centrifugal Chiller (150 Ton) with suitable CHW primary pump, VFD driven secondary pump, condenser pump; VFD on existing CT fan & retrofitting the same to handle lower water flow rate	286,680	5.0	145,189	$ 147,612	$ 2,099,390	$ 184,954	$ 1,914,436	13.0
B1517	SAN FRANCISCO MC	02C2274	MOFFITT HOSP	Remove the absorption chillers at Moffitt & Long Hospital. Install 1 Nos. 1200 TR VFD driven Centrifugal Chiller (in Central Plant Room) & connect…	-	-	1,072,978	$ 815,463	$ 4,446,607	$ 858,382	$ 3,588,225	4.4
B3022	SAN FRANCISCO	02C2415	MISSION CTR	Chiller Unit Condensing Coil Replacement	12,000	1.0	-	$ 1,560	$ 271,700	$ 2,880	$ 268,820	172.3
B3021	SAN FRANCISCO	02C2415	MISSION CTR	Chiller System Replacement 500 ton	372,500	43.0	-	$ 48,425	$ 1,840,001	$ 89,400	$ 1,750,601	36.2
B1034	SAN FRANCISCO	02CWIDEP	CAMPUSWIDE	Remove multiple air-cooled chiller 3 Nos at Hooper Pad. Install new VFD driven 600 ton Centrifugal watercooled chiller and interconnect Hooper pad to CUP piping	696,181	459.0	-	$ 90,504	$ 1,035,058	$ 167,083	$ 867,975	9.6
B1030	SAN FRANCISCO	02CWIDEP	CAMPUSWIDE	Install VSD on existing 1200 TR Electric Centrifugal Chiller	246,754	(370.0)	387,698	$ 326,728	$ 578,200	$ 369,379	$ 208,821	0.6
F3203	SAN DIEGO	06C6210	SIO AQUARIUM (BIRCH)	Turbocor Compressor Retrofit	231,610	-	-	$ 18,066	$ 138,600	$ 55,586	$ 83,014	4.6
G5004	SANTA CRUZ	07C7175	COMM. BLDG	Retrofit Scoll Chillers with Frictionless Turbocor Compressors	56,900	-	-	$ 6,088	$ 138,012	$ 13,656	$ 124,356	20.4
G3026	SANTA CRUZ	07C7744	SINSHEIMR LB	Optimize Chiller Staging at higher loads & Primary Pump Head Reduction	51,894	45.0	2,635	$ 7,608	$ 25,704	$ 14,563	$ 11,141	1.5
G5011	SANTA CRUZ	07C7775	EARTH MAR SC	Retrofit Screw Chillers with frictionless Turbocor Compressors	531,700	-	-	$ 56,892	$ 889,408	$ 127,608	$ 761,800	13.4
I3090	IRVINE	09C9084	MCGAUGH HALL	Compressor and control upgrades, walk-in refrigeration units in McGaugh Hall. (18 units)	64,394	22.0	6,390	$ 13,740	$ 596,119	$ 30,909	$ 565,210	41.1
A1072	BERKELEY	01C1220	BIRGE	AHU 1 - SP Reset	15,510	-	(413)	$ 967	$ 31,420	$ 3,310	$ 28,110	29.1
A1104	BERKELEY	01C1225	LS ADDITION	Install VFD's on existing centrifugal chillers and VFD control on cooling tower fans; convert constant volume chilled & condenser water pumping to variable volume	1,026,527	258.0	-	$ 85,202	$ 825,036	$ 246,366	$ 578,670	6.8
A1090	BERKELEY	01C1225	LS ADDITION	AHU 8A, 8B, 9A, 9B - CAV to VAV & SP Reset	2,436,775	-	176,225	$ 339,179	$ 926,906	$ 761,051	$ 185,381	0.5
A1009	BERKELEY	01C1231	LAW	SF 65 - CAV to VAV & SP Reset	17,068	-	1,963	$ 2,942	$ 89,779	$ 6,059	$ 83,720	28.5
A1008	BERKELEY	01C1231	LAW	SF 24 - CAV to VAV & SP Reset0	103,580	(1.0)	34,500	$ 35,404	$ 96,358	$ 59,359	$ 36,999	1.0
A1007	BERKELEY	01C1231	LAW	SF 9, 16 - Dis Dmpr to VAV & SP Reset	99,897	(2.0)	8,188	$ 14,653	$ 153,256	$ 32,163	$ 121,093	8.3
A1041	BERKELEY	01C1234	HAAS STU BLD	AHU 12 - CAV to VAV	68,862	-	7,800	$ 11,776	$ 40,160	$ 24,327	$ 15,833	1.3
A1040	BERKELEY	01C1234	HAAS STU BLD	AHU 2 - CAV to VAV & SP Reset	54,826	-	275	$ 4,764	$ 59,356	$ 13,433	$ 45,923	9.6
A1039	BERKELEY	01C1234	HAAS STU BLD	AHU 1 - CAV to VAV	140,240	8.0	13,725	$ 22,304	$ 56,249	$ 47,383	$ 11,250	0.5
A1092	BERKELEY	01C1236	HAAS FAC BLD	AHU 13 - CAV to VAV & SP Reset	47,281	-	9,575	$ 11,364	$ 42,241	$ 20,922	$ 21,319	1.9
A1038	BERKELEY	01C1236	HAAS FAC BLD	AHU 11- CAV to VAV	14,387	-	3,450	$ 3,875	$ 29,741	$ 6,903	$ 22,838	5.9
A1037	BERKELEY	01C1236	HAAS FAC BLD	AHU 10 - SP Reset	2,383	-	1,975	$ 1,732	$ 3,147	$ 2,547	$ 629	0.4
A1100	BERKELEY	01C1237	SODA	Install VFD's on existing centrifugal chillers and VFD control on cooling tower fans; convert constant volume condenser water pumping to variable volume	172,043	67.0	-	$ 14,280	$ 165,390	$ 41,290	$ 124,100	8.7
A1036	BERKELEY	01C1237	SODA	AHU 1 - SP Reset	142,493	-	17,175	$ 25,172	$ 3,147	$ 51,373	$ 629	0.0
A1045	BERKELEY	01C1270	CALIFORNIA	AH 1, AH 2 CAV to VAV	127,280	(2.0)	20,475	$ 26,473	$ 100,662	$ 51,022	$ 49,640	1.9
A1098	BERKELEY	01C1295	DWINELLE	Install VSD control on Cooling tower fan motor; Convert constant volume chilled water and condenser pumping to variable volume	19,113	2.0	-	$ 1,586	$ 41,952	$ 4,587	$ 37,365	23.6
A1021	BERKELEY	01C1295	DWINELLE	AHU 8 - CAV to VAV & SP Reset	12,670	-	5,038	$ 4,966	$ 85,620	$ 8,078	$ 77,542	15.6
A1093	BERKELEY	01C1297	GARDNERSTACK	VSD on Centrifugal Chiller	40,615	42.0	-	$ 3,371	$ 85,806	$ 9,748	$ 76,058	22.6
A1010	BERKELEY	01C1297	GARDNERSTACK	AHU 1 to 5 - SP Reset	52,606	-	1,925	$ 5,862	$ 15,734	$ 14,550	$ 3,147	0.5
A1013	BERKELEY	01C1301	DOE LIBRARY	AHU 7 - SP Reset & CAV to VAV on EF	14,354	-	638	$ 1,687	$ 42,036	$ 4,082	$ 37,954	22.5
A1012	BERKELEY	01C1301	DOE LIBRARY	AHU 4 - CAV to VAV	156,331	(2.0)	18,663	$ 27,476	$ 110,405	$ 56,182	$ 54,223	2.0
A1011	BERKELEY	01C1301	DOE LIBRARY	AHU 1 & 2 - CAV to VAV	191,146	(2.0)	22,575	$ 33,406	$ 147,470	$ 68,450	$ 79,020	2.4
A1095	BERKELEY	01C1302	MINOR ADDITN	Convert constant volume chilled water pumping to variable volume	19,797	1.0	-	$ 1,643	$ 39,103	$ 4,751	$ 34,352	20.9
A1033	BERKELEY	01C1323	DAVIS	AHU 2 - SP Reset	42,084	-	3,700	$ 6,368	$ 236,041	$ 13,800	$ 222,241	34.9
A1032	BERKELEY	01C1323	DAVIS	AHU 3, 4 & 6 - SP Reset	10,848	-	1,288	$ 1,901	$ 75,865	$ 3,891	$ 71,974	37.9
A1030	BERKELEY	01C1323	DAVIS	AHU 1 - SP Reset	5,026	-	463	$ 777	$ 25,692	$ 1,669	$ 24,023	30.9
A1061	BERKELEY	01C1325	CORY	AHU 1, 2 SP Reset	22,697	-	(113)	$ 1,796	$ 53,587	$ 5,335	$ 48,252	26.9

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
A1074	BERKELEY	01C1346	MULFORD	AHU 1 - CAV to VAV	23,663	-	10,238	$ 9,919	$ 45,459	$ 15,917	$ 29,542	3.0
A1084	BERKELEY	01C1360	HAAS PAVIL	AHU 1 to 4 - DD to VAV	557,805	(10.0)	33,375	$ 72,230	$ 136,714	$ 167,248	$ 27,343	0.4
A1083	BERKELEY	01C1360	HAAS PAVIL	AHU 6 - CAV to VAV	51,598	-	21,363	$ 20,881	$ 53,105	$ 33,746	$ 19,359	0.9
A1082	BERKELEY	01C1360	HAAS PAVIL	AHU 5 - CAV to VAV	64,953	-	17,913	$ 19,309	$ 38,298	$ 33,501	$ 7,660	0.4
A1047	BERKELEY	01C1371	HAVILAND	AHU 2 - CAV to VAV	1,711	-	788	$ 754	$ 26,818	$ 1,198	$ 25,620	34.0
A1046	BERKELEY	01C1371	HAVILAND	AHU 1 - CAV to VAV	3,215	-	1,488	$ 1,423	$ 45,459	$ 2,259	$ 43,200	30.4
A1107	BERKELEY	01C1373	HEARST MIN	Install VFD control on cooling tower fan	54,853	30.0	-	$ 4,553	$ 54,906	$ 13,165	$ 41,741	9.2
A1091	BERKELEY	01C1373	HEARST MIN	HV 2 - TOD Controls & SP Reset	67,486	-	6,675	$ 10,788	$ 35,512	$ 22,872	$ 12,640	1.2
A1068	BERKELEY	01C1373	HEARST MIN	HV 1 - TOD Controls & SP Reset	26,212	-	8,175	$ 8,528	$ 27,045	$ 14,466	$ 12,579	1.5
A1076	BERKELEY	01C1376	HILGARD	SF 37 - CAV to VAV & SP Reset	67,278	-	18,475	$ 19,939	$ 46,474	$ 34,622	$ 11,852	0.6
A1079	BERKELEY	01C1382	MORGAN	Fume Hoods - Rebalance	61,059	7.0	2,838	$ 7,273	$ 21,732	$ 17,492	$ 4,346	0.6
A1078	BERKELEY	01C1382	MORGAN	AHU 1 - 2-speed to VAV	12,042	-	5,763	$ 5,477	$ 48,353	$ 8,653	$ 39,700	7.2
A1102	BERKELEY	01C1405	LE CONTE	Convert constant volume primary Chilled water pumping to variable flow	14,497	-	-	$ 1,203	$ 20,749	$ 3,479	$ 17,270	14.4
A1049	BERKELEY	01C1405	LE CONTE	AHU 1 - SP Reset	6,869	-	(100)	$ 492	$ 3,147	$ 1,549	$ 1,598	3.2
A1048	BERKELEY	01C1405	LE CONTE	AHU 2 - SP Reset	21,491	-	600	$ 2,250	$ 3,147	$ 5,758	$ 629	0.3
A1103	BERKELEY	01C1406	VALLEY LSB	Install VFD's on existing centrifugal chillers and VFD control on cooling tower fans; convert constant volume chilled & condenser water pumping to variable volume	1,092,037	103.0	-	$ 90,639	$ 582,771	$ 262,089	$ 320,682	3.5
A1058	BERKELEY	01C1406	VALLEY LSB	Fume Hoods - Rebalance	463,570	170.0	25,563	$ 58,338	$ 185,600	$ 136,819	$ 48,781	0.8
A1057	BERKELEY	01C1406	VALLEY LSB	AHU 25 - SP reset	82,560	-	1,363	$ 7,911	$ 38,648	$ 21,177	$ 17,471	2.2
A1056	BERKELEY	01C1406	VALLEY LSB	AHU 15 - SP reset	13,805	-	(138)	$ 1,039	$ 3,147	$ 3,176	$ 629	0.6
A1055	BERKELEY	01C1406	VALLEY LSB	AHU 18 - CAV to VAV	121,722	-	11,088	$ 18,718	$ 45,059	$ 40,301	$ 9,012	0.5
A1054	BERKELEY	01C1406	VALLEY LSB	AHU 16,17,22 - CAV to VAV	277,699	-	31,575	$ 47,583	$ 113,259	$ 98,223	$ 22,652	0.5
A1053	BERKELEY	01C1406	VALLEY LSB	AHU 8, 10, 11 - CAV to VAV	402,311	-	31,738	$ 58,052	$ 140,575	$ 128,292	$ 28,115	0.5
A1052	BERKELEY	01C1406	VALLEY LSB	AHU 7 - SP Reset	11,057	-	538	$ 1,335	$ 25,692	$ 3,191	$ 22,501	16.9
A1051	BERKELEY	01C1406	VALLEY LSB	AHU 5, 6 - CAV to VAV	378,427	-	18,938	$ 46,124	$ 88,046	$ 109,760	$ 17,609	0.4
A1050	BERKELEY	01C1406	VALLEY LSB	AHU 1 to 4 - SP Reset	66,875	1.0	(875)	$ 4,871	$ 122,972	$ 15,175	$ 107,797	22.1
A1006	BERKELEY	01C1486	KROEBER	AHU 2 - CAV to VAV	116,350	(1.0)	45,725	$ 45,185	$ 76,200	$ 73,649	$ 15,240	0.3
A1044	BERKELEY	01C1488	STEPHENS	AHU 2 - CAV to VAV	21,328	(1.0)	4,900	$ 5,578	$ 42,292	$ 10,019	$ 32,273	5.8
A1043	BERKELEY	01C1488	STEPHENS	AHU 1 - CAV to VAV	36,926	(1.0)	9,400	$ 10,369	$ 33,765	$ 18,262	$ 15,503	1.5
A1097	BERKELEY	01C1520	UCB ART MUSE	Replace existing absorber with VFD driven Centrifugal Chiller; Convert constant volume chilled & condenser water pumping to variable flow	(19,148)	(134.0)	72,339	$ 54,618	$ 501,577	$ 53,275	$ 448,302	8.2
A1019	BERKELEY	01C1520	UCB ART MUSE	AHU 1, 2 - CAV to VAV & SP Reset	470,863	22.0	92,918	$ 111,279	$ 158,885	$ 200,641	$ 31,777	0.3
A1028	BERKELEY	01C1552	WHEELER	AHU 2 - SP Reset	3,575	-	-	$ 297	$ 3,147	$ 858	$ 2,289	7.7
A1027	BERKELEY	01C1552	WHEELER	AHU 1 - CAV to VAV	23,986	(1.0)	3,150	$ 4,438	$ 43,836	$ 8,907	$ 34,929	7.9
A1026	BERKELEY	01C1594	UNIVERSITY	AHU 6 - CAV to VAV & SP Reset	81,905	(1.0)	25,000	$ 26,223	$ 125,397	$ 44,657	$ 80,740	3.1
A1025	BERKELEY	01C1594	UNIVERSITY	SF 3 - CAV to VAV & SP Reset	25,813	(1.0)	11,700	$ 11,233	$ 105,550	$ 17,895	$ 87,655	7.8
A1035	BERKELEY	01C1762	MCCONE	AHU 2- SP reset	6,578	1.0	1,013	$ 1,333	$ 30,649	$ 2,591	$ 28,058	21.1
A1034	BERKELEY	01C1762	MCCONE	AHU 1- SP reset	13,698	-	1,100	$ 1,992	$ 29,217	$ 4,388	$ 24,829	12.5
A1060	BERKELEY	01C1774	TOLMAN	AHU 3 - VIV to VAV & SP Reset	51,375	(1.0)	7,113	$ 9,791	$ 117,216	$ 19,442	$ 97,774	10.0
A1059	BERKELEY	01C1774	TOLMAN	AHU 1, 2 - VIV to VAV & SP Reset	88,800	20.0	2,975	$ 9,682	$ 176,687	$ 24,287	$ 152,400	15.7
A1001	BERKELEY	01C1775	ATHERTO2425	SF 11, 12, 37 to 39 - CV Rebalance	-	-	150,400	$ 116,861	$ 227,990	$ 150,400	$ 77,590	0.7
A1105	BERKELEY	01C1783	ETCHEVERRY	Install VFD control on cooling tower fans; convert constant volume chilled & condenser water pumping to variable volume	43,576	11.0	-	$ 3,617	$ 52,994	$ 10,458	$ 42,536	11.8
A1065	BERKELEY	01C1783	ETCHEVERRY	AHU 4 - CAV to VAV	465,956	(3.0)	50,225	$ 77,699	$ 88,382	$ 162,054	$ 17,676	0.2
A1064	BERKELEY	01C1783	ETCHEVERRY	AHU 1 to 3 - SP Reset	54,633	-	6,225	$ 9,371	$ 94,699	$ 19,337	$ 75,362	8.0
A1080	BERKELEY	01C1784	CHAVEZ (Golden Bear)	AHU 1 - CAV to VAV	141,643	(1.0)	34,900	$ 38,874	$ 80,904	$ 68,894	$ 16,181	0.4
A1099	BERKELEY	01C1790	EVANS	Replace absorber with VFD driven centrifugal chiller; Convert Constant volume chilled & condenser water pumping to variable volume	22,141	(52.0)	23,850	$ 20,369	$ 214,652	$ 24,394	$ 190,258	9.3
A1023	BERKELEY	01C1790	EVANS	AHU 5 - SP Reset	51,395	-	-	$ 4,266	$ 26,904	$ 12,335	$ 14,569	3.4
A1022	BERKELEY	01C1790	EVANS	AHU 1 to 4 - SP Reset	225,994	(1.0)	59,100	$ 64,678	$ 127,881	$ 113,339	$ 25,576	0.4
A1086	BERKELEY	01C1791	KING UNION	AHU 2 - CAV to VAV	77,929	(1.0)	21,613	$ 23,261	$ 79,041	$ 40,315	$ 38,726	1.7
A1085	BERKELEY	01C1791	KING UNION	AHU 1 - CAV to VAV	110,763	(1.0)	41,250	$ 41,245	$ 105,586	$ 67,833	$ 37,753	0.9
A1110	BERKELEY	01C1793	BARKER	Install VFD control on Cooling tower fan motor; convert constant volume chilled water & condenser water pumping to variable volume	116,956	25.0	-	$ 9,707	$ 140,170	$ 28,069	$ 112,101	11.5
A1075	BERKELEY	01C1793	BARKER	SF 1, 2 - Lab side - VAV Retrofit	219,862	101.0	64,575	$ 68,423	$ 1,030,562	$ 117,342	$ 913,220	13.3
A1106	BERKELEY	01C1796	KOSHLAND	Install VFD's on existing centrifugal chillers and VFD control on cooling tower fans; convert constant volume chilled & condenser water pumping to variable volume	559,354	30.0	-	$ 46,426	$ 233,241	$ 134,245	$ 98,996	2.1
A1005	BERKELEY	01C1797	WURSTER	AHU 3,4 - VIV to VAV	102,311	(2.0)	17,663	$ 22,216	$ 38,571	$ 42,217	$ 7,714	0.3
A1004	BERKELEY	01C1797	WURSTER	AHU 2 - VIV to VAV	111,237	(2.0)	9,450	$ 16,575	$ 30,878	$ 36,147	$ 6,176	0.4
A1003	BERKELEY	01C1797	WURSTER	AHU 1 - VIV to VAV	78,761	(2.0)	(388)	$ 6,236	$ 31,427	$ 18,515	$ 12,912	2.1
A1015	BERKELEY	01C1800	LAWRENCE	SF 18 to 20, EF 38, 39 - VIV to VAV	16,548	(1.0)	2,225	$ 3,102	$ 102,416	$ 6,197	$ 96,219	31.0

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
A1088	BERKELEY	01C1802	ZELLERBACH	AHU 2, 3 - VIV to VAV	7,518	(1.0)	5,213	$ 4,674	$ 33,913	$ 7,017	$ 26,896	5.8
A1087	BERKELEY	01C1802	ZELLERBACH	AHU 1 - VIV to VAV	1,843	-	1,250	$ 1,124	$ 16,117	$ 1,692	$ 14,425	12.8
A1109	BERKELEY	01C1808	TAN	Install VFD's on existing centrifugal chiller and VFD control on cooling tower fan; convert constant volume chilled & condenser water pumping to variable volume	328,649	60.0	-	$ 27,278	$ 234,496	$ 78,876	$ 155,620	5.7
A1071	BERKELEY	01C1808	TAN	AC 5 - CAV to VAV & SP Reset	2,939	-	2,350	$ 2,070	$ 24,318	$ 3,055	$ 21,263	10.3
A1070	BERKELEY	01C1808	TAN	SF 1 to 4 - SP Reset	238,512	8.0	(3,400)	$ 17,155	$ 116,867	$ 53,843	$ 63,024	3.7
A1108	BERKELEY	01C1809	HILDEBRAND	Replace absorbption unit & laser-lab reciprocating chiller with 450 TR VFD driven centrifugal chiller; add VFD control on cooling tower fans; convert constant volume chilled & condenser water pumping to variable volume	348,357	(59.0)	39,255	$ 59,415	$ 647,678	$ 115,010	$ 532,668	9.0
A1069	BERKELEY	01C1809	HILDEBRAND	SF 33, 34 - CAV to VAV & SP Reset	558,962	(1.0)	51,671	$ 86,542	$ 309,590	$ 183,963	$ 125,627	1.5
A3197	BERKELEY	01CTBD3	FUTURE BUILDING	Variable Speed Circulation Pump - Golden Bear Pool	11,791	-	-	$ 979	$ 7,250	$ 2,830	$ 4,420	4.5
A3201	BERKELEY	01CTBD4	FUTURE BUILDING	High Efficiency Boiler Replacement - Strawberry Canyon Pool	-	-	6,973	$ 5,418	$ 128,591	$ 5,578	$ 123,013	22.7
A3198	BERKELEY	01CTBD4	FUTURE BUILDING	Variable Speed Circulation Pump - Strawberry Canyon Pool	78,956	-	-	$ 6,553	$ 23,027	$ 18,949	$ 4,605	0.7
A3199	BERKELEY	01CTBD6	FUTURE BUILDING	Variable Speed Circulation Pump - Hearst Pool P2	8,215	-	-	$ 682	$ 4,903	$ 1,972	$ 2,931	4.3
A3196	BERKELEY	01CTBD6	FUTURE BUILDING	Variable Speed Circulation Pump - Hearst Pool Pump 1	15,721	-	-	$ 1,305	$ 9,502	$ 3,773	$ 5,729	4.4
A1111	BERKELEY	01CWIDE	CAMPUSWIDE	UC Berkeley Steam Line Insulation Project: Cutting/Patching of Damaged and Missing Insulation	-	-	342,263	$ 265,938	$ 126,861	$ 342,262	$ 25,372	0.1
B1513	SAN FRANCISCO MC	02C2018	MTZ BLDG A	AHU- 1 SAT Reset	5,828	-	1,088	$ 1,584	$ 9,753	$ 2,486	$ 7,267	4.6
B1019	SAN FRANCISCO	02C2212	MILLBERRY	SF 1 to 4, 7 to 19 - CAV to VAV and SP reset	748,227	(1.0)	-	$ 97,270	$ 991,807	$ 179,574	$ 812,233	8.4
B1016	SAN FRANCISCO	02C2212	MILLBERRY	SF 5, 6 - CAV to VAV and SP reset	166,028	1.0	30,025	$ 44,403	$ 279,945	$ 69,872	$ 210,073	4.7
B1041	SAN FRANCISCO	02C2251	CLINICAL SCI	LAB CAV to VAV - SF1, 2, HV1, AC1, AC2	332,053	37.0	44,050	$ 76,645	$ 904,052	$ 123,743	$ 780,309	10.2
B1036	SAN FRANCISCO	02C2252	MED SCIENCES	LAB CAV to VAV	493,273	(236.0)	121,025	$ 156,104	$ 5,213,772	$ 239,411	$ 4,974,361	31.9
B1027	SAN FRANCISCO	02C2252	MED SCIENCES	Remove multiple aircooled chillers and interconnect system to CUP piping	295,017	-	-	$ 38,352	$ 699,598	$ 70,804	$ 628,794	16.4
B1024	SAN FRANCISCO	02C2252	MED SCIENCES	SF 1 to 4 - CAV to VAV & SP Reset	852,237	(2.0)	50,938	$ 149,503	$ 403,935	$ 255,474	$ 148,461	1.0
B3501	SAN FRANCISCO MC	02C2274	MOFFITT HOSP	UCSF Pamassus Kitchen Hood Controls	19,075	4.0	1,223	$ 3,409	$ 14,742	$ 5,556	$ 9,186	2.7
B1504	SAN FRANCISCO MC	02C2274	MOFFITT HOSP	SF 18 - CAV to VAV & SP Reset	67,153	-	15,925	$ 20,833	$ 263,349	$ 32,042	$ 231,307	11.1
B1503	SAN FRANCISCO MC	02C2274	MOFFITT HOSP	SF 14, 15, 38, 39 - SAT Reset	-	-	70,624	$ 53,674	$ 37,426	$ 60,909	$ 7,485	0.1
B1502	SAN FRANCISCO MC	02C2274	MOFFITT HOSP	SF 4SA, 4SB - SAT Reset	-	-	13,036	$ 9,908	$ 44,146	$ 11,722	$ 32,424	3.3
B1501	SAN FRANCISCO MC	02C2274	MOFFITT HOSP	SF 06 - TOD Controls	53,278	-	38,975	$ 36,547	$ 1,951	$ 51,762	$ 390	0.0
B1500	SAN FRANCISCO MC	02C2274	MOFFITT HOSP	SF 4N - SAT Reset	-	-	7,251	$ 5,511	$ 9,753	$ 6,266	$ 3,487	0.6
B1510	SAN FRANCISCO MC	02C2275	LONG HOSP	SF 23 - SP reset	33,224	-	6,875	$ 9,544	$ 3,901	$ 14,849	$ 780	0.1
B1509	SAN FRANCISCO MC	02C2275	LONG HOSP	SF 5.3, 5.4, 5.5 - SAT Reset	195,990	-	12,288	$ 34,817	$ 29,258	$ 59,325	$ 5,852	0.2
B1508	SAN FRANCISCO MC	02C2275	LONG HOSP	SF 1, 2, 3, 14,15 - SAT Reset	-	-	76,599	$ 58,215	$ 48,763	$ 66,212	$ 9,753	0.2
B1518	SAN FRANCISCO MC	02C2408	UC CLINICS (ACC)	Remove ACC-RAC-14 (chiller supplying cooling to AC-05) & connect to rooftop chiller ACC-CHR.3 piping. Convert Chilled Water CV pumping to Variable volume pumping.	101,020	7.0	-	$ 13,133	$ 156,986	$ 24,245	$ 132,741	10.1
B1512	SAN FRANCISCO MC	02C2408	UC CLINICS (ACC)	SF 009 - SAT Reset	38,351	-	3,088	$ 7,332	$ 22,601	$ 12,292	$ 10,309	1.4
B1511	SAN FRANCISCO MC	02C2408	UC CLINICS (ACC)	AHU 1, 2, 3, 4 - CAV to VAV & SP Reset	1,315,709	(14.0)	176,700	$ 305,334	$ 1,129,218	$ 492,470	$ 636,748	2.1
B1023	SAN FRANCISCO	02C2415	MISSION CTR	SF 2.1 - CAV to VAV & SP Reset	188,279	6.0	11,156	$ 32,955	$ 112,565	$ 56,343	$ 56,222	1.7
B1022	SAN FRANCISCO	02C2450	LAUREL HTS	SF-5, 7, 9 to 17 VIV to VFD & SP Reset	269,951	(3.0)	26,529	$ 55,256	$ 1,207,966	$ 91,317	$ 1,116,649	20.2
B1021	SAN FRANCISCO	02C2450	LAUREL HTS	SF-6, 8 SP Reset	41,643	-	7,403	$ 11,040	$ 170,470	$ 17,397	$ 153,073	13.9
B1020	SAN FRANCISCO	02C2450	LAUREL HTS	AIC-3 SP Reset	7,961	-	1,486	$ 2,164	$ 37,201	$ 3,397	$ 33,804	15.6
B1035	SAN FRANCISCO	02C3000	PSSRB	LAB CAV to VAV	1,604,830	176.0	-	$ 208,628	$ 5,136,172	$ 385,159	$ 4,751,013	22.8
B1001	SAN FRANCISCO	02C3000	PSSRB	AHU 1A, 1B, 2A, 2B - SP reset	172,545	-	36,838	$ 50,427	$ 14,404	$ 78,248	$ 2,881	0.1
B1040	SAN FRANCISCO	02C3001	ROCK HALL	CAV to VAV with OS	1,353,637	252.0	68,567	$ 228,084	$ 2,064,069	$ 393,440	$ 1,670,629	7.3
B1033	SAN FRANCISCO	02C3001	ROCK HALL	Conversion of cooling tower fans from 2-speed to VFD	19,721	25.0	-	$ 2,564	$ 34,328	$ 4,733	$ 29,595	11.5
B1012	SAN FRANCISCO	02C3001	ROCK HALL	AHU 3 to 6 - SP Reset	133,862	-	21,106	$ 33,443	$ 19,996	$ 53,233	$ 3,999	0.1
B1011	SAN FRANCISCO	02C3001	ROCK HALL	AHU 1, 2 - SP Reset	234,088	-	13,126	$ 40,407	$ 14,997	$ 69,307	$ 2,999	0.1
B1026	SAN FRANCISCO	02C3002	GENENTECH HA	CV to VAV with ZPS	1,100,000	-	58,000	$ 187,080	$ 1,528,000	$ 322,000	$ 1,206,000	6.4
B1018	SAN FRANCISCO	02C3002	GENENTECH HA	SF - S1 to S4 & N1 to N6 - SP Reset	890,175	(1.0)	101,830	$ 193,114	$ 36,009	$ 340,930	$ 7,202	0.0
B1010	SAN FRANCISCO	02C3002	GENENTECH HA	SF - N 10, 11 - SP Reset	57,752	-	8,810	$ 14,203	$ 14,997	$ 24,873	$ 2,999	0.2
B1009	SAN FRANCISCO	02C3002	GENENTECH HA	SF - N7 to N9 - SP Reset	41,448	-	3,810	$ 8,284	$ 15,000	$ 14,710	$ 3,000	0.4
B3029	SAN FRANCISCO	02C3003	COMMUNITY CE	UCSF Mission Bay Kitchen Hood Controls	76,299	18.0	3,912	$ 12,892	$ 125,000	$ 22,224	$ 102,776	8.0
B1031	SAN FRANCISCO	02C3003	COMMUNITY CE	Replace 2 speed control by VFD control on Cooling Tower Fan	103,617	-	-	$ 13,470	$ 249,342	$ 24,868	$ 224,474	16.7
B1008	SAN FRANCISCO	02C3003	COMMUNITY CE	AHU 5 - SP Reset	86,145	16.0	11,252	$ 19,750	$ 14,997	$ 31,927	$ 2,999	0.2
B1007	SAN FRANCISCO	02C3003	COMMUNITY CE	AHU 2, 6, 7 - SP Reset	114,983	-	11,687	$ 23,830	$ 15,000	$ 39,283	$ 3,000	0.1
B1006	SAN FRANCISCO	02C3003	COMMUNITY CE	AHU 1, 3, 4 - SP Reset	55,687	-	6,990	$ 12,552	$ 19,997	$ 20,355	$ 3,999	0.3
B1038	SAN FRANCISCO	02C3008	HSIR EAST	Lab Model CAV to VAV	1,254,345	79.0	-	$ 163,065	$ 4,224,011	$ 301,043	$ 3,922,968	24.1
B1004	SAN FRANCISCO	02C3008	HSIR EAST	SF 5A, 5B, 6A, 6B- SP Reset	556,687	4.0	65,163	$ 121,893	$ 14,404	$ 198,767	$ 2,881	0.0
B1037	SAN FRANCISCO	02C3009	HSIR WEST	LAB CAV to VAV	1,040,901	22.0	-	$ 135,317	$ 3,252,376	$ 249,816	$ 3,002,560	22.2
B1003	SAN FRANCISCO	02C3009	HSIR WEST	SF 1A, 1B, 2A, 2B- SP Reset	556,687	4.0	65,163	$ 121,893	$ 14,404	$ 198,767	$ 2,881	0.0
B1519	SAN FRANCISCO	02C3029	FRESNO MERC	AHU 1 thru 4 - SP reset	75,613	-	5,235	$ 13,808	$ 14,404	$ 23,382	$ 2,881	0.2
B3110	SAN FRANCISCO	02CTBD4	Helen Diller Cancer	Lab Model CAV to VAV	173,977	11.0	10,190	$ 30,361	$ 286,956	$ 51,944	$ 235,012	7.7

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
B3003	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	Variable Speed Circulation Pump - Mission Bay Outdoor Pool	11,791	-	-	$ 1,533	$ 8,129	$ 2,830	$ 5,299	3.5
B3002	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	Variable Speed Circulation Pump - Mission Bay Indoor Pool	11,791	-	-	$ 1,533	$ 8,129	$ 2,830	$ 5,299	3.5
B3109	SAN FRANCISCO	02CWIDEP	CAMPUSWIDE	Hartman Control Loop	-	-	-	$ -	$ -	$ -	$ -	
B3006	SAN FRANCISCO	02CWIDEP	CAMPUSWIDE	Variable Speed Circulation Pump - Parnassus Indoor Pool	6,715	-	-	$ 873	$ 6,057	$ 1,612	$ 4,445	5.1
C1007	DAVIS	03C3207	HART	AC 1 - Spot Cooling	25,306	-	-	$ 2,252	$ 9,778	$ 6,074	$ 3,704	1.6
C1005	DAVIS	03C3266	YOUNG	AC 4 - Spot Cooling & CAV to VAV	51,823	1.0	19,163	$ 21,475	$ 56,930	$ 31,600	$ 25,330	1.2
C1004	DAVIS	03C3266	YOUNG	AC-1, 3- CAV to VAV	79,489	3.0	8,800	$ 14,819	$ 62,525	$ 27,877	$ 34,648	2.3
C3258	DAVIS	03C3331	HICKEY GYM	Variable Speed Circulation Pump - Hickey Pool	37,553	-	-	$ 3,342	$ 22,066	$ 9,013	$ 13,053	3.9
C1034	DAVIS	03C3390	LIB	AC 1, AC 2, AHU 02 - SP Reset	536,652	22.0	86,188	$ 123,607	$ 8,420	$ 214,984	$ 1,684	0.0
C1033	DAVIS	03C3390	LIB	1S, 3S, AC51, AC52, AC53, AC54, AHU01- CAV to VAV	1,713,727	101.0	269,638	$ 389,803	$ 292,014	$ 680,932	$ 58,403	0.1
C1035	DAVIS	03C3460	MU	AC 4 CAV to VAV	122,850	5.0	24,525	$ 32,516	$ 29,725	$ 54,009	$ 5,945	0.2
C1031	DAVIS	03C3460	MU	S-4 CAV to VAV & SP Reset	144,504	7.0	5,638	$ 17,822	$ 67,590	$ 40,318	$ 27,272	1.5
C1053	DAVIS	03C3773	FRBORN	S-2-MZ AHU-CAV to VAV	80,262	4.0	7,325	$ 13,589	$ 30,184	$ 26,588	$ 6,037	0.4
C1052	DAVIS	03C3773	FRBORN	AHU-1 CAV to VAV & DCV	172,509	15.0	(888)	$ 14,572	$ 46,683	$ 40,515	$ 9,337	0.6
C3289	DAVIS	03C3788	HUTCH	FH RCx & ACR Reduction	325,480	-	78,269	$ 97,844	$ 437,411	$ 140,730	$ 296,681	3.0
C1023	DAVIS	03C3788	HUTCH	SF 1 thru 5 - LAB CAV to VAV	515,256	-	72,363	$ 109,537	$ 1,970,328	$ 196,024	$ 1,774,304	16.2
C1001	DAVIS	03C3803	OLSON	AC1 / AC2 - Spot Cooling & CAV to VAV	230,148	15.0	29,713	$ 46,630	$ 103,015	$ 84,948	$ 20,603	0.4
C3292	DAVIS	03C3839	FOOD SC&TECH	FH RCx & ACR Reduction	54,811	-	11,579	$ 15,067	$ 88,661	$ 22,418	$ 66,243	4.4
C3291	DAVIS	03C3844	PRIM CTR LAB	FH RCx & ACR Reduction	88,321	-	21,016	$ 26,355	$ 71,003	$ 38,010	$ 32,993	1.3
C3282	DAVIS	03C3961	CHEM	Lab VAV Retrofit	695,483	63.0	115,718	$ 163,729	$ 4,670,820	$ 259,490	$ 4,411,330	26.9
C3281	DAVIS	03C3961	CHEM	Non-Lab Air Recirculation	8,296	1.0	1,083	$ 1,691	$ 291,060	$ 2,857	$ 288,203	170.4
C3280	DAVIS	03C3961	CHEM	Non-Lab VAV Retrofit	246,663	14.0	48,443	$ 64,582	$ 249,480	$ 97,953	$ 151,527	2.3
C3279	DAVIS	03C3961	CHEM	Test and Balance	78,591	3.0	32,273	$ 35,394	$ 89,281	$ 44,680	$ 44,601	1.3
C3286	DAVIS	03C3961B	CHEM ANX	Lab VAV Retrofit	726,405	66.0	133,238	$ 181,899	$ 3,880,800	$ 280,927	$ 3,599,873	19.8
C3285	DAVIS	03C3961B	CHEM ANX	Non-Lab Air Recirculation	10,999	2.0	2,283	$ 2,987	$ 184,338	$ 4,466	$ 179,872	60.2
C3284	DAVIS	03C3961B	CHEM ANX	Non-Lab VAV Retrofit	150,778	7.0	36,406	$ 45,457	$ 158,004	$ 65,312	$ 92,692	2.0
C3283	DAVIS	03C3961B	CHEM ANX	Test and Balance	28,724	2.0	16,564	$ 17,133	$ 101,515	$ 20,145	$ 81,370	4.7
C1032	DAVIS	03C3971	ART	Art Hall - AC 1,2,3 - CAV to VAV & SP reset	119,848	3.0	30,038	$ 37,099	$ 88,912	$ 58,801	$ 30,111	0.8
C1018	DAVIS	03C4004	BAINER	RF3, 4 CAV - VSD	28,785	2.0	650	$ 3,134	$ 12,270	$ 7,558	$ 4,712	1.5
C3288	DAVIS	03C4051	KING	HVAC System Upgrade	516,599	-	231,766	$ 249,932	$ 782,448	$ 309,397	$ 473,051	1.9
C1024	DAVIS	03C4073	STORER	AH 00 to 06 - CAV to VAV	505,095	25.0	94,313	$ 127,948	$ 226,943	$ 215,535	$ 45,389	0.4
C3290	DAVIS	03C4098	SURGE 3	FH RCx & ACR Reduction	180,604	-	47,465	$ 57,843	$ 215,128	$ 81,317	$ 133,811	2.3
C1029	DAVIS	03C4098	SURGE 3	AC 3, 4 - CAV to VAV	157,022	20.0	14,500	$ 26,735	$ 79,503	$ 52,185	$ 27,318	1.0
C1028	DAVIS	03C4098	SURGE 3	AC 1, 2 - CAV to VAV	47,608	2.0	10,663	$ 13,620	$ 59,400	$ 22,088	$ 37,312	2.7
C1041	DAVIS	03C4266	PHYGEO	AHU 1, 3, 4, 5- CAV to VAV	479,365	21.0	66,038	$ 100,776	$ 141,038	$ 181,085	$ 28,208	0.3
C1003	DAVIS	03C4267	VMTH	convert CAV to VAV - SF1 thru SF 5	758,231	-	78,150	$ 136,255	$ 1,591,502	$ 260,126	$ 1,331,376	9.8
C1063	DAVIS	03C4273	BRIGGS	Recommission Heat Recovery Wheels	236,486	-	7,720	$ 27,841	$ 277,200	$ 62,933	$ 214,267	7.7
C1038	DAVIS	03C4428	MED SCI I B	CAV to VAV - MZ 1	48,871	5.0	(163)	$ 4,207	$ 39,083	$ 11,567	$ 27,516	6.5
C1037	DAVIS	03C4428	MED SCI I B	CAV to VAV - AC 6	18,868	4.0	188	$ 1,844	$ 35,285	$ 4,716	$ 30,569	16.6
C1036	DAVIS	03C4428	MED SCI I B	Spot cooling, CAV to VAV - SF 1, AC 4	106,657	10.0	688	$ 10,097	$ 76,083	$ 26,285	$ 49,798	4.9
C1012	DAVIS	03C4556	MEYER	AC 3 to 5, 7 - CAV to VAV	790,702	58.0	82,500	$ 142,972	$ 193,244	$ 272,268	$ 38,649	0.3
C1022	DAVIS	03C4632	ACADMC SURGE	AHU 5 - SP Reset	45,953	2.0	(988)	$ 3,221	$ 2,807	$ 10,041	$ 561	0.2
C1021	DAVIS	03C4632	ACADMC SURGE	AHU 3 - SP Reset	75,920	3.0	10,463	$ 15,964	$ 2,807	$ 28,683	$ 561	0.0
C1017	DAVIS	03C4633	KEMPER	AHU 8 - SP Reset	34,298	1.0	-	$ 3,053	$ 2,807	$ 8,232	$ 561	0.2
C1016	DAVIS	03C4633	KEMPER	SF 1, 2 - CAV to VAV	1,354,899	64.0	77,288	$ 188,599	$ 210,237	$ 402,463	$ 42,047	0.2
C1015	DAVIS	03C4633	KEMPER	AHU 7 - CAV to VAV & SP Reset	86,572	3.0	13,300	$ 19,409	$ 55,171	$ 34,077	$ 21,094	1.1
C1014	DAVIS	03C4633	KEMPER	AHU 2, 3 - SP Reset	47,563	2.0	6,363	$ 9,832	$ 5,613	$ 17,778	$ 1,123	0.1
C1013	DAVIS	03C4633	KEMPER	AHU 1 - CAV to VAV & SP Reset	449,525	20.0	15,138	$ 53,329	$ 96,983	$ 123,024	$ 19,397	0.4
C1055	DAVIS	03C4656	SOCSCI&HUMAN	AH 3, 5, 6, 7, 8, 9, 10 - Spot cooling & SP Reset	223,253	-	44,550	$ 59,074	$ 24,558	$ 98,131	$ 4,912	0.1
C1054	DAVIS	03C4656	SOCSCI&HUMAN	Spot cooling, CAV to VAV & DCV AH 1, 2	35,012	4.0	8,525	$ 10,618	$ 71,478	$ 16,928	$ 54,550	5.1
C1006	DAVIS	03C4708	DUTTON HALL	AHU 1, 2 - Spot Cooling	200,969	-	37,000	$ 50,446	$ 49,855	$ 85,233	$ 9,971	0.2
C1051	DAVIS	03C4722	CFA MONDAVI	CAV to VAV - AHU 4	81,734	1.0	(1,055)	$ 6,346	$ 50,818	$ 18,772	$ 32,046	5.0
C1050	DAVIS	03C4722	CFA MONDAVI	CAV to VAV & DCV - AHU 2	61,032	8.0	(1,294)	$ 4,293	$ 42,769	$ 13,613	$ 29,156	6.8
C1049	DAVIS	03C4722	CFA MONDAVI	AHU 1 - SP Reset	16,644	1.0	615	$ 2,022	$ 2,807	$ 4,486	$ 561	0.3
C1027	DAVIS	03C4725	ENGINEER 3	AH 5 - SP Reset	12,342	1.0	825	$ 1,824	$ 2,807	$ 3,787	$ 561	0.3
C1026	DAVIS	03C4725	ENGINEER 3	AH 3, 4 - SP Reset	44,928	2.0	2,888	$ 6,540	$ 5,613	$ 13,670	$ 1,123	0.2
C1025	DAVIS	03C4725	ENGINEER 3	AH 2 - SP Reset	46,630	2.0	5,425	$ 8,924	$ 22,764	$ 16,616	$ 6,148	0.7
C1020	DAVIS	03C4726	PLNT&ENV SCI	AHU 6, 7 - SP Reset	31,413	2.0	1,825	$ 4,402	$ 5,613	$ 9,364	$ 1,123	0.3
C1019	DAVIS	03C4726	PLNT&ENV SCI	AHU 2 to 5 - SP Reset	148,238	5.0	23,800	$ 34,137	$ 11,226	$ 59,377	$ 2,245	0.1
C1056	DAVIS	03C4792	SCIENCES LAB	AHU 1 Spot Cooling	17,551	-	6,413	$ 7,205	$ 24,928	$ 10,625	$ 14,303	2.0
C3293	DAVIS	03C4820	VM EQUINE LB	FH RCx & ACR Reduction	120,189	-	27,339	$ 34,755	$ 116,050	$ 50,716	$ 65,334	1.9
C1008	DAVIS	03C4821	MATH SCI	AHU 1 to 3 - SP Reset	99,243	2.0	9,025	$ 16,775	$ 8,420	$ 32,843	$ 1,684	0.1
C1040	DAVIS	03C9968	DV 3820 CHLS	AC 3 - CAV to VAV & TOD Controls	49,671	5.0	11,224	$ 14,298	$ 29,234	$ 20,900	$ 8,334	0.6
C1039	DAVIS	03C9968	DV 3820 CHLS	DV 3820 Chiles - MZ 1,2,3 - CAV to VAV & TOD Controls	292,709	23.0	50,959	$ 70,895	$ 112,064	$ 111,017	$ 22,413	0.3
C3263	DAVIS	03CTBD10	REC POOL	High Efficiency Boiler Replacement - Recreation Pool	-	-	1,579	$ 1,389	$ 149,859	$ 1,263	$ 148,596	107.0
C3257	DAVIS	03CTBD10	REC POOL	Variable Speed Circulation Pump - Recreation Pool	84,730	-	-	$ 7,541	$ 22,066	$ 20,335	$ 4,413	0.6
C3256	DAVIS	03CTBD11	SHELL POOL	Variable Speed Circulation Pump - Shell Pool (2)	45,605	-	-	$ 4,059	$ 26,362	$ 10,945	$ 15,417	3.8

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
C3255	DAVIS	03CTBD11	SHELL POOL	Variable Speed Circulation Pump - Shell Pool (1)	45,605	-	-	$ 4,059	$ 26,362	$ 10,945	$ 15,417	3.8
C3057	DAVIS	03CTBD9	TERCERO BLDG	Tercero Kitchen Hood Controls	57,873	23.0	3,110	$ 7,887	$ 49,896	$ 16,378	$ 33,518	4.2
C3277	DAVIS	03CWIDE	CAMPUSWIDE	STM Expansion Ph. 2 (150,000 PPH Boiler #1 Replacement)	-	-	548,674	$ 482,833	$ 20,076,210	$ 438,939	$ 19,637,271	40.7
C3274	DAVIS	03CWIDE	CAMPUSWIDE	Steam Pipe Replacement (2-4)	-	-	126,350	$ 111,188	$ 4,931,388	$ 101,080	$ 4,830,308	43.4
C3273	DAVIS	03CWIDE	CAMPUSWIDE	Steam Pipe Replacement (2-1, 2, 3, 5, & 4-1)	-	-	106,534	$ 93,750	$ 4,158,000	$ 85,227	$ 4,072,773	43.4
C3268	DAVIS	03CWIDE	CAMPUSWIDE	Boilers Emission Efficiency Improvement	-	-	344,968	$ 303,571	$ 2,945,250	$ 275,974	$ 2,669,276	8.8
C3266	DAVIS	03CWIDE	CAMPUSWIDE	Steam Traps and Instrumentation Improvement in Steam Vaults	-	-	62,405	$ 54,916	$ 1,826,748	$ 49,924	$ 1,776,824	32.4
C3265	DAVIS	03CWIDE	CAMPUSWIDE	Steam Pipe Replacement (1-5, 7, 8, 9, 10, 11)	-	-	138,494	$ 121,875	$ 5,405,400	$ 110,795	$ 5,294,605	43.4
C3264	DAVIS	03CWIDE	CAMPUSWIDE	Steam Pipe Replacement (1-4 and 1-12)	-	-	177,556	$ 156,250	$ 6,930,000	$ 142,045	$ 6,787,955	43.4
C3031	DAVIS	03CWIDE	CAMPUSWIDE	Campuswide Boiler Replacements: CEPRAP	-	-	249	$ 219	$ 19,533	$ 199	$ 19,334	88.3
C3030	DAVIS	03CWIDE	CAMPUSWIDE	Campuswide Boiler Replacements: FEED MILL #1	-	-	238	$ 209	$ 19,533	$ 190	$ 19,343	92.6
C3029	DAVIS	03CWIDE	CAMPUSWIDE	Campuswide Boiler Replacements: VEG. CROPS	-	-	238	$ 209	$ 19,533	$ 190	$ 19,343	92.6
C3028	DAVIS	03CWIDE	CAMPUSWIDE	Campuswide Boiler Replacements: RADIOBIO LAB AN #2	-	-	238	$ 209	$ 19,533	$ 190	$ 19,343	92.6
C3027	DAVIS	03CWIDE	CAMPUSWIDE	Campuswide Boiler Replacements: COMP ONCOL FLD LAB	-	-	235	$ 207	$ 19,533	$ 188	$ 19,345	93.5
C3026	DAVIS	03CWIDE	CAMPUSWIDE	Campuswide Boiler Replacements: ARS K-2	-	-	238	$ 209	$ 19,533	$ 190	$ 19,343	92.6
C3025	DAVIS	03CWIDE	CAMPUSWIDE	Campuswide Boiler Replacements: TB 196	-	-	388	$ 341	$ 19,533	$ 310	$ 19,223	56.4
C3024	DAVIS	03CWIDE	CAMPUSWIDE	Campuswide Boiler Replacements: AGRON FLD HOUSE	-	-	179	$ 157	$ 19,533	$ 143	$ 19,390	123.3
C3023	DAVIS	03CWIDE	CAMPUSWIDE	Campuswide Boiler Replacements: HEAD HOUSE 50	-	-	358	$ 315	$ 19,533	$ 286	$ 19,247	61.2
C3022	DAVIS	03CWIDE	CAMPUSWIDE	Campuswide Boiler Replacements: SM. ANI. HOLDING	-	-	235	$ 207	$ 19,533	$ 188	$ 19,345	93.5
C3021	DAVIS	03CWIDE	CAMPUSWIDE	Campuswide Boiler Replacements: CELLULAR BIO	-	-	149	$ 131	$ 19,533	$ 119	$ 19,414	148.3
C3020	DAVIS	03CWIDE	CAMPUSWIDE	Campuswide Boiler Replacements: EQUINE S-1	-	-	358	$ 315	$ 19,533	$ 286	$ 19,247	61.2
C3019	DAVIS	03CWIDE	CAMPUSWIDE	Campuswide Boiler Replacements: RADIOBIO QTS 1	-	-	894	$ 787	$ 27,752	$ 715	$ 27,037	34.4
C3018	DAVIS	03CWIDE	CAMPUSWIDE	Campuswide Boiler Replacements: COMP ONC	-	-	384	$ 338	$ 19,533	$ 307	$ 19,226	56.9
C3017	DAVIS	03CWIDE	CAMPUSWIDE	Campuswide Boiler Replacements: R-1	-	-	536	$ 472	$ 19,533	$ 429	$ 19,104	40.5
C3016	DAVIS	03CWIDE	CAMPUSWIDE	Campuswide Boiler Replacements: P-1	-	-	714	$ 628	$ 24,162	$ 571	$ 23,591	37.6
C3015	DAVIS	03CWIDE	CAMPUSWIDE	Campuswide Boiler Replacements: M3	-	-	578	$ 508	$ 19,533	$ 462	$ 19,071	37.5
C3014	DAVIS	03CWIDE	CAMPUSWIDE	Campuswide Boiler Replacements: M2	-	-	536	$ 472	$ 19,533	$ 429	$ 19,104	40.5
C3013	DAVIS	03CWIDE	CAMPUSWIDE	Campuswide Boiler Replacements: M1	-	-	536	$ 472	$ 19,533	$ 429	$ 19,104	40.5
C3012	DAVIS	03CWIDE	CAMPUSWIDE	Campuswide Boiler Replacements: J-1	-	-	1,321	$ 1,163	$ 19,533	$ 1,057	$ 18,476	15.9
C3011	DAVIS	03CWIDE	CAMPUSWIDE	Campuswide Boiler Replacements: CENTRAL GARAGE	-	-	209	$ 184	$ 19,533	$ 167	$ 19,366	105.4
C3010	DAVIS	03CWIDE	CAMPUSWIDE	Campuswide Boiler Replacements: REPROGRAPHICS	-	-	1,548	$ 1,362	$ 41,659	$ 1,238	$ 40,421	29.7
C3009	DAVIS	03CWIDE	CAMPUSWIDE	Campuswide Boiler Replacements: UNIVERSITY CLUB	-	-	536	$ 472	$ 19,533	$ 429	$ 19,104	40.5
C3008	DAVIS	03CWIDE	CAMPUSWIDE	Campuswide Boiler Replacements: ENV HORT K2	-	-	819	$ 721	$ 27,752	$ 655	$ 27,097	37.6
C3007	DAVIS	03CWIDE	CAMPUSWIDE	Campuswide Boiler Replacements: ENV HORT K1	-	-	1,905	$ 1,676	$ 45,127	$ 1,524	$ 43,603	26.0
C1066	DAVIS	03CWIDE	CAMPUSWIDE	TES Plant - Install VFDs on Cooling Tower Fans	1,072,829	666.0	-	$ 95,482	$ 521,158	$ 257,479	$ 263,679	2.8
C1065	DAVIS	03CWIDE	CAMPUSWIDE	TES Plant - Install VFDs on Condenser Pumps	545,002	287.0	-	$ 48,505	$ 318,727	$ 130,800	$ 187,927	3.9
C1062	DAVIS	03CWIDE	CAMPUSWIDE	Free Cooling HX - CHCP	953,259	-	-	$ 84,840	$ 454,418	$ 228,782	$ 225,636	2.7
C1061	DAVIS	03CWIDE	CAMPUSWIDE	Free Cooling HX - TES	953,259	-	-	$ 84,840	$ 454,418	$ 228,782	$ 225,636	2.7
C1060	DAVIS	03CWIDE	CAMPUSWIDE	Install VFDs on Cooling Tower Fans	417,386	-	-	$ 37,147	$ 174,290	$ 100,173	$ 74,116	2.0
C1059	DAVIS	03CWIDE	CAMPUSWIDE	Install Condensing Stack Economizer	(306,600)	(35.0)	302,950	$ 239,309	$ 606,375	$ 168,776	$ 437,599	1.8
C1058	DAVIS	03CWIDE	CAMPUSWIDE	Add DA Condenser	1,380	-	32,981	$ 29,146	$ 45,288	$ 26,716	$ 18,572	0.6
C1057	DAVIS	03CWIDE	CAMPUSWIDE	Add O2 trim and B-1/B-2 VFDs	359,530	-	48,230	$ 74,441	$ 192,131	$ 124,871	$ 67,260	0.9
D3225	LOS ANGELES	04C4200	MURPHY HALL	Dual Duct Conversion to VAV (Cogent Report)	159,915	2.0	-	$ 14,073	$ 113,025	$ 38,180	$ 74,845	5.3
D1051	LOS ANGELES	04C4202	PERLOFF HALL	CAV to VAV - AHU 1, 2, 5W and 5E & Add Economizer	228,070	4.0	-	$ 20,070	$ 231,886	$ 56,783	$ 175,103	8.7
D1050	LOS ANGELES	04C4203	YOUNG LIBRY	SAF 9 CAV to VAV	101,270	2.0	-	$ 8,912	$ 33,239	$ 24,071	$ 9,168	1.0
D1049	LOS ANGELES	04C4203	YOUNG LIBRY	SAF-3 to 8 CAV to VAV	932,532	63.0	-	$ 82,063	$ 260,501	$ 216,698	$ 52,100	0.6
D1048	LOS ANGELES	04C4203	YOUNG LIBRY	SAF-1 & 2 SP Reset	365,279	1.0	-	$ 32,145	$ 61,824	$ 82,093	$ 12,365	0.4
D3235	LOS ANGELES	04C4227	SLICHTER	Dual Duct Conversion to VAV (Cogent Report)	336,668	4.0	-	$ 29,627	$ 150,701	$ 77,005	$ 73,696	2.5
D1056	LOS ANGELES	04C4228A	GEOLOGY	Aircuity	7,207	1.0	-	$ 634	$ 48,656	$ 1,730	$ 46,926	74.0
D1055	LOS ANGELES	04C4228A	GEOLOGY	S-1(Geophysics)	224,261	2.0	-	$ 19,735	$ 45,741	$ 50,373	$ 9,148	0.5
D1054	LOS ANGELES	04C4228A	GEOLOGY	S-1, 5, 9, 10 to 12	365,538	5.0	-	$ 32,167	$ 176,117	$ 84,253	$ 91,864	2.9
D3237	LOS ANGELES	04C4228B	YOUNG HALL	Dual Duct Conversion to VAV (Cogent Report)	505,033	6.0	-	$ 44,443	$ 226,051	$ 115,513	$ 110,538	2.5
D1016	LOS ANGELES	04C4228C	MOLECULR SCI	AHU 1, 2, 3, 4 & 6 Aircuity	3,559,048	68.0	-	$ 313,196	$ 1,155,824	$ 822,292	$ 333,532	1.1
D1015	LOS ANGELES	04C4228C	MOLECULR SCI	AHU - 5 VIV to VAV & SP Reset	12,629	-	-	$ 1,111	$ 35,195	$ 3,027	$ 32,168	28.9
D1034	LOS ANGELES	04C4235	WOODEN/PS4	AHU 4 CAV to VAV & DCV	194,701	50.0	(0)	$ 17,134	$ 62,008	$ 47,476	$ 14,532	0.8
D1033	LOS ANGELES	04C4235	WOODEN/PS4	AHU 2 Pace) SP reset	49,533	-	-	$ 4,359	$ 2,784	$ 11,303	$ 557	0.1
D1032	LOS ANGELES	04C4235	WOODEN/PS4	AHU 1 Pace) SP reset	43,721	-	-	$ 3,847	$ 2,784	$ 10,012	$ 557	0.1
D1031	LOS ANGELES	04C4235	WOODEN/PS4	AHU 1 (Mcquay) SP reset	67,300	-	-	$ 5,922	$ 47,848	$ 15,355	$ 32,493	5.5
D1030	LOS ANGELES	04C4235	WOODEN/PS4	CAV to VAV	232,032	57.0	(0)	$ 20,419	$ 125,784	$ 56,290	$ 69,494	3.4
D1029	LOS ANGELES	04C4235	WOODEN/PS4	AHU 3 VIV to VAV & SP Reset	103,025	1.0	-	$ 9,066	$ 65,921	$ 24,120	$ 41,801	4.6
D1028	LOS ANGELES	04C4235	WOODEN/PS4	AHU 1 VIV to VAV	41,673	-	-	$ 3,667	$ 36,733	$ 9,748	$ 26,985	7.4
D1065	LOS ANGELES	04C4256A	ENGR BLDG 4	ACS 9 - CAV to VAV	104,641	4.0	-	$ 9,208	$ 32,243	$ 23,860	$ 8,383	0.9
D1064	LOS ANGELES	04C4256A	ENGR BLDG 4	CF - 1 to 22 - VIV to VAV	1,176,481	143.0	-	$ 103,530	$ 755,712	$ 293,908	$ 461,804	4.5
D1063	LOS ANGELES	04C4256A	ENGR BLDG 4	ACS 8 (AHU-3) - Aircruity	558,742	22.0	-	$ 49,169	$ 1,551,693	$ 129,310	$ 1,422,383	28.9
D1062	LOS ANGELES	04C4256A	ENGR BLDG 4	ACS - 1 to 5 - SP Reset	589,949	3.0	-	$ 51,915	$ 126,983	$ 136,824	$ 25,397	0.5

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
D1002	LOS ANGELES	04C4260	FACMGMT BLDG	AHU 1 & 2 - SP Reset	100,125	-	-	$ 8,811	$ 46,233	$ 22,944	$ 23,289	2.6
D1005	LOS ANGELES	04C4315	GONDA CENTER	CV Rebalance	328,672	24.0	-	$ 28,923	$ 86,096	$ 77,061	$ 17,219	0.6
D1047	LOS ANGELES	04C4317	LAW	S-8 CAV to VAV	49,076	1.0	-	$ 4,319	$ 30,759	$ 11,515	$ 19,244	4.5
D1046	LOS ANGELES	04C4317	LAW	S-5 & 6 CAV to VAV	220,903	4.0	-	$ 19,439	$ 81,053	$ 52,371	$ 28,682	1.5
D1045	LOS ANGELES	04C4317	LAW	S-4 CAV to VAV	71,619	1.0	-	$ 6,302	$ 30,085	$ 16,811	$ 13,274	2.1
D1044	LOS ANGELES	04C4317	LAW	SF 3 & 7 VIV to VAV & SP Reset	192,296	1.0	-	$ 16,922	$ 96,194	$ 45,384	$ 50,810	3.0
D1043	LOS ANGELES	04C4317	LAW	SF 1 & 2 SP Reset	77,125	-	-	$ 6,787	$ 46,817	$ 17,665	$ 29,152	4.3
D1021	LOS ANGELES	04C4318A	POWELL LIB	AH 20 CAV to VAV	93,311	4.0	-	$ 8,211	$ 44,343	$ 22,043	$ 22,300	2.7
D1020	LOS ANGELES	04C4318A	POWELL LIB	AH 18, 38 & 39 CAV to VAV	25,070	5.0	(0)	$ 2,206	$ 19,798	$ 6,071	$ 13,727	6.2
D1019	LOS ANGELES	04C4318A	POWELL LIB	AH-19 CAV to VAV	141,194	7.0	-	$ 12,425	$ 46,563	$ 33,317	$ 13,246	1.1
D1018	LOS ANGELES	04C4318A	POWELL LIB	AH 1 to 4, 17 & 37 CAV to VAV with DCV	46,108	10.0	(0)	$ 4,057	$ 48,385	$ 11,206	$ 37,179	9.2
D1017	LOS ANGELES	04C4318A	POWELL LIB	S-1 CAV to VAV	21,971	1.0	-	$ 1,933	$ 36,901	$ 5,057	$ 31,844	16.5
D3223	LOS ANGELES	04C4319	FRANZ HALL	Dual Duct Conversion to VAV (Cogent Report)	454,484	-	-	$ 39,995	$ 301,401	$ 106,056	$ 195,345	4.9
D1010	LOS ANGELES	04C4320	LIFE SCIENCE	SF - 4 & 5 - Aircuity	933,010	32.0	-	$ 82,105	$ 2,503,946	$ 215,086	$ 2,288,860	27.9
D1009	LOS ANGELES	04C4320	LIFE SCIENCE	Vivarium - CV Rebalance	76,582	-	-	$ 6,739	$ 58,784	$ 17,420	$ 41,364	6.1
D1061	LOS ANGELES	04C4325	DORIS STEIN	AHU - 1, 2 & 3 VIV to VAV SP Reset	256,468	1.0	-	$ 22,569	$ 117,329	$ 60,590	$ 56,739	2.5
D3234	LOS ANGELES	04C4329	REED RESRCH	Dual Duct Conversion to VAV (Cogent Report)	252,517	3.0	-	$ 22,221	$ 113,025	$ 57,757	$ 55,268	2.5
D1042	LOS ANGELES	04C4331	PUBLIC HLTH	CV Rebalance - S-1	93,063	-	-	$ 8,190	$ 26,664	$ 21,169	$ 5,495	0.7
D1041	LOS ANGELES	04C4331	PUBLIC HLTH	CAV to VAV - AHU S-2 to S-9	265,427	12.0	-	$ 23,358	$ 219,224	$ 61,921	$ 157,303	6.7
D3228	LOS ANGELES	04C4332B	BRAIN RSCH	Dual Duct Conversion to VAV (Cogent Report)	1,010,067	13.0	-	$ 88,886	$ 452,102	$ 231,026	$ 221,076	2.5
D3233	LOS ANGELES	04C4332D	HEALTH SCI	Dual Duct Conversion to VAV (Cogent Report)	1,262,583	16.0	-	$ 111,107	$ 565,127	$ 288,783	$ 276,344	2.5
D1040	LOS ANGELES	04C4332E	M DAVIES CC	AHU 1 CAV to VAV	40,321	1.0	-	$ 3,548	$ 26,360	$ 9,331	$ 17,029	4.8
D1039	LOS ANGELES	04C4333	JULES STEIN	S2, 3 & 4Aircuity	233,762	9.0	-	$ 20,571	$ 317,011	$ 53,987	$ 263,024	12.8
D1038	LOS ANGELES	04C4333	JULES STEIN	S-1, 5 & 6 CAV to VAV	494,776	7.0	-	$ 43,540	$ 121,465	$ 115,384	$ 24,293	0.6
D3229	LOS ANGELES	04C4334	DENTISTRY	Dual Duct Conversion to VAV (Cogent Report)	757,550	10.0	-	$ 66,664	$ 339,076	$ 173,270	$ 165,806	2.5
D3220	LOS ANGELES	04C4335	SCHOENBERG	Dual Duct Conversion to VAV (Cogent Report)	680,760	-	-	$ 59,907	$ 263,726	$ 158,444	$ 105,282	1.8
D3230	LOS ANGELES	04C4336	FACTOR	Dual Duct Conversion to VAV (Cogent Report)	589,184	7.0	-	$ 51,848	$ 263,726	$ 134,761	$ 128,965	2.5
D1053	LOS ANGELES	04C4343	BOELTER HALL	AH 4 to 7, 10 to 12 - SP Reset	734,759	2.0	-	$ 64,659	$ 161,132	$ 166,693	$ 32,226	0.5
D1052	LOS ANGELES	04C4343	BOELTER HALL	S-1 to 11 except 9 - CAV to VAV	1,427,651	15.0	-	$ 125,633	$ 358,186	$ 323,388	$ 71,637	0.6
D6008	LOS ANGELES	04C4345	MED PLZA 300	CW Reset	170,100	-	-	$ 14,969	$ 9,013	$ 40,824	$ 1,803	0.1
D1013	LOS ANGELES	04C4348	MACDONALDLAB	Lab CAV to VAV with Aircuity	2,335,790	154.0	-	$ 205,550	$ 4,023,619	$ 545,095	$ 3,478,524	16.9
D1012	LOS ANGELES	04C4348	MACDONALDLAB	AHU 2 Vivarium Aircuity	186,450	14.0	-	$ 16,408	$ 495,153	$ 43,975	$ 451,178	27.5
D1011	LOS ANGELES	04C4348	MACDONALDLAB	AHU 1 VIV to VAV & SP Reset	11,470	(2.0)	-	$ 1,009	$ 46,015	$ 2,789	$ 43,226	42.8
D3232	LOS ANGELES	04C4359	MATH SCIENCE	Dual Duct Conversion to VAV (Cogent Report)	589,184	7.0	-	$ 51,848	$ 263,726	$ 134,761	$ 128,965	2.5
D3231	LOS ANGELES	04C4363	KNUDSEN HALL	Dual Duct Conversion to VAV (Cogent Report)	925,914	12.0	-	$ 81,480	$ 414,427	$ 211,778	$ 202,649	2.5
D1003	LOS ANGELES	04C4374	FOWLER MUSM	AHU 1 & 2 SP Reset	368,136	1.0	-	$ 32,396	$ 49,351	$ 84,100	$ 9,870	0.3
D1023	LOS ANGELES	04C4375	ROYCE HALL	AC 3, 4, 6 to 8 - CAV to VAV	114,281	11.0	(0)	$ 10,057	$ 185,171	$ 27,553	$ 157,618	15.7
D1022	LOS ANGELES	04C4375	ROYCE HALL	AC 1 & 2 - SP Reset	110,457	-	-	$ 9,720	$ 45,550	$ 25,178	$ 20,372	2.1
D3227	LOS ANGELES	04C4403	BOYER HALL	Dual Duct Conversion to VAV (Cogent Report)	589,184	7.0	-	$ 51,848	$ 263,726	$ 134,761	$ 128,965	2.5
D6011	LOS ANGELES	04C4415	UNEX	CT VFDs	11,650	2.0	-	$ 1,025	$ 7,599	$ 2,796	$ 4,803	4.7
D6005	LOS ANGELES	04C4415	UNEX	Replace Chiller	212,201	72.0	-	$ 18,674	$ 352,860	$ 50,928	$ 301,932	16.2
D6003	LOS ANGELES	04C4415	UNEX	Replace Boiler	37,053	-	-	$ 3,261	$ 156,646	$ 5,938	$ 150,708	46.2
D1035	LOS ANGELES	04C4415	UNEX	AHU 1 to 8 T-1 & T-2 CAV to VAV	627,124	21.0	-	$ 55,187	$ 3,048,573	$ 133,376	$ 2,915,197	52.8
D6009	LOS ANGELES	04C4562	SOUTHERN REGIONAL LIBRARY FACILITY	CW Reset	40,032	-	-	$ 3,523	$ 9,013	$ 9,608	$ 1,803	0.5
D6004	LOS ANGELES	04C4562	SOUTHERN REGIONAL LIBRARY FACILITY	Replace Chiller	264,354	80.0	-	$ 23,263	$ 387,408	$ 63,445	$ 323,963	13.9
D1026	LOS ANGELES	04C4562	SOUTHERN REGIONAL LIBRARY FACILITY	AHU 3 5 & SF-1 CAV to VAV with SP Reset	147,123	4.0	-	$ 12,947	$ 132,983	$ 33,019	$ 99,964	7.7
D1025	LOS ANGELES	04C4562	SOUTHERN REGIONAL LIBRARY FACILITY	AHU 1, 2 & 4 SP Reset	554,493	5.0	-	$ 48,795	$ 72,370	$ 123,813	$ 14,474	0.3
D3224	LOS ANGELES	04C4577A	MELNITZ HALL	Dual Duct Conversion to VAV (Cogent Report)	106,630	1.0	-	$ 9,383	$ 75,350	$ 25,457	$ 49,893	5.3
D3222	LOS ANGELES	04C4578	MACGOWAN	Dual Duct Conversion to VAV (Cogent Report)	333,970	-	-	$ 29,389	$ 301,401	$ 76,655	$ 224,746	7.6
D3221	LOS ANGELES	04C4579	PUBLIC AFFAIRS	Dual Duct Conversion to VAV (Cogent Report)	350,601	-	-	$ 30,853	$ 339,076	$ 81,744	$ 257,332	8.3
D6013	LOS ANGELES	04C4580	BUNCHE HALL	TOD EF	8,081	-	-	$ 711	$ 2,253	$ 1,939	$ 451	0.6
D1060	LOS ANGELES	04C4580	BUNCHE HALL	Apply DDC controls, convert to VAV	1,861,221	67.0	-	$ 163,787	$ 3,634,425	$ 428,856	$ 3,205,569	19.6
D3236	LOS ANGELES	04C4581	WARREN HALL	Dual Duct Conversion to VAV (Cogent Report)	420,882	5.0	-	$ 37,038	$ 188,376	$ 96,265	$ 92,111	2.5
D3226	LOS ANGELES	04C4594	REHAB CENTER	Dual Duct Conversion to VAV (Cogent Report)	1,649,252	23.0	-	$ 145,134	$ 376,752	$ 384,615	$ 75,350	0.5
D1001	LOS ANGELES	04C515A	COLLINS CTR	AHU - 1 VIV to VAV SP Reset	106,041	-	-	$ 9,332	$ 40,897	$ 24,902	$ 15,995	1.7
D1014	LOS ANGELES	04C515B	GOLD HALL	AHU - 2, 7, 9 VIV to VAV SP Reset	238,032	1.0	-	$ 20,947	$ 115,534	$ 55,772	$ 59,762	2.9
D1037	LOS ANGELES	04C515C	ENTREP HALL	VFD + DCV for a CAV system	61,127	2.0	-	$ 5,379	$ 10,407	$ 14,441	$ 2,081	0.4
D1036	LOS ANGELES	04C515C	ENTREP HALL	AHU - 3 VIV to VAV SP Reset	141,268	1.0	-	$ 12,432	$ 41,969	$ 33,071	$ 8,898	0.7
D6007	LOS ANGELES	04C515D	CORNELL HALL	CW Reset	68,040	-	-	$ 5,988	$ 9,013	$ 16,330	$ 1,803	0.3
D1057	LOS ANGELES	04C515D	CORNELL HALL	AHU - 4 VIV to VAV SP Reset	127,238	-	-	$ 11,197	$ 45,552	$ 29,767	$ 15,785	1.4
D1058	LOS ANGELES	04C515E	ROSNFLD LIBR	AHU - 6 VIV to VAV SP Reset	137,755	1.0	-	$ 12,122	$ 47,642	$ 32,257	$ 15,385	1.3
D1059	LOS ANGELES	04C515F	MULLIN CMNS	AHU - 5 & 10 VIV to VAV SP Reset	144,543	1.0	-	$ 12,720	$ 74,077	$ 33,874	$ 40,203	3.2
D6012	LOS ANGELES	04CWIDE	CAMPUSWIDE	Pump VFDs	201,511	34.0	-	$ 17,733	$ 115,587	$ 48,363	$ 67,224	3.8
E2001	RIVERSIDE	05CP5186	BIOLOGIC SCI	LAB HOODS & AHU'S - CV TO VAV CONVERSION	672,807	34.0	40,850	$ 85,183	$ 2,233,267	$ 202,324	$ 2,030,943	23.8

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
E3195	RIVERSIDE	05CP5261	BOURNS	Evaporative Precooling for 100% OSA Systems	308,026	79.0	-	$ 23,102	$ 331,953	$ 73,926	$ 258,027	11.2
E2002	RIVERSIDE	05CP5261	BOURNS	LAB HOODS & AHU'S - CV TO VAV CONVERSION	1,420,664	86.0	58,388	$ 156,179	$ 4,021,836	$ 399,347	$ 3,622,489	23.2
E3199	RIVERSIDE	05CP5301	INSECTARY	Evaporative Precooling for 100% OSA Systems	280,296	72.0	-	$ 21,022	$ 302,069	$ 67,271	$ 234,798	11.2
E2003	RIVERSIDE	05CP5322	RIVERA LIB	AHU'S - CV TO VAV RETROFIT	407,851	27.0	54,425	$ 76,850	$ 555,059	$ 152,309	$ 402,750	5.2
E3191	RIVERSIDE	05CP5323	SPIETH	HEAT RECOVERY	936,344	3.0	39,164	$ 103,515	$ 243,908	$ 256,054	$ 48,782	0.5
E2005	RIVERSIDE	05CP5323	SPIETH	LAB HOODS & AHU'S - CV TO VAV CONVERSION	1,150,551	52.0	46,438	$ 125,763	$ 3,515,922	$ 322,570	$ 3,193,352	25.4
E2004	RIVERSIDE	05CP5323	SPIETH	MZDDAHU'S - CV TO VAV RETROFIT	181,943	19.0	17,063	$ 28,149	$ 275,479	$ 60,729	$ 214,750	7.6
E2006	RIVERSIDE	05CP5334	PE	AHU'S - CV TO VAV RETROFIT	228,983	22.0	29,050	$ 41,866	$ 295,993	$ 84,006	$ 211,987	5.1
E3198	RIVERSIDE	05CP5335	GEOLOGY	Evaporative Precooling for 100% OSA Systems	199,355	51.0	-	$ 14,952	$ 214,840	$ 47,845	$ 166,995	11.2
E2007	RIVERSIDE	05CP5335	GEOLOGY	LABHOODS & AHU'S - CV TO VAV CONVERSION	1,232,445	59.0	69,950	$ 151,891	$ 1,763,198	$ 365,737	$ 1,397,461	9.2
E3196	RIVERSIDE	05CP5341	BOYCE	Evaporative Precooling for 100% OSA Systems	364,235	93.0	-	$ 27,318	$ 392,528	$ 87,416	$ 305,112	11.2
E2008	RIVERSIDE	05CP5341	BOYCE	LAB FUMEHOOD & DDAHU'S - CV TO VAV CONVERSION	1,554,589	68.0	126,988	$ 224,534	$ 3,514,806	$ 500,089	$ 3,014,717	13.4
E3203	RIVERSIDE	05CP5342	WEBBER	Evaporative Precooling for 100% OSA Systems	130,405	33.0	-	$ 9,780	$ 140,535	$ 31,297	$ 109,238	11.2
E2009	RIVERSIDE	05CP5342	WEBBER	FUMEHOOD & MZAHU - CV TO VAV CONVERSION	575,565	27.0	45,675	$ 81,991	$ 1,400,548	$ 183,811	$ 1,216,737	14.8
E2011	RIVERSIDE	05CP5380	CAMPUS SURGE	Replace (E) Pkg AC Units w/ VAVAHU's & Connect to CHW & Steam	867,568	415.0	(19,036)	$ 48,887	$ 1,983,753	$ 188,877	$ 1,794,876	36.7
E3193	RIVERSIDE	05CP5411	ARTS	Evaporative Precooling for 100% OSA Systems	31,477	8.0	-	$ 2,361	$ 33,922	$ 7,554	$ 26,368	11.2
E3200	RIVERSIDE	05CP5414	PHYSICAL SCI	Evaporative Precooling for 100% OSA Systems	606,308	155.0	-	$ 45,473	$ 653,406	$ 145,514	$ 507,892	11.2
E2012	RIVERSIDE	05CP5414	PHYSICAL SCI	LAB HOODS & AHU'S - CV TO VAV CONVERSION	3,139,991	155.0	107,088	$ 326,524	$ 10,319,585	$ 860,685	$ 9,458,900	29.0
E3197	RIVERSIDE	05CP5417	ENTOMOLOGY	Evaporative Precooling for 100% OSA Systems	159,634	41.0	-	$ 11,973	$ 172,034	$ 38,312	$ 133,722	11.2
E2013	RIVERSIDE	05CP5417	ENTOMOLOGY	LAB FUMEHOODS & AHU'S - CV TO VAV CONVERSION	1,116,114	55.0	55,963	$ 131,277	$ 1,646,118	$ 323,830	$ 1,322,288	10.1
E2014	RIVERSIDE	05CP5480	HINDERAKER	DDMZAHU - CV TO VAV RETROFIT	308,272	33.0	21,450	$ 41,353	$ 339,758	$ 95,435	$ 244,323	5.9
E2015	RIVERSIDE	05CP5497	OLMSTED	DDMZAHU'S - CV TO VAV RETROFIT	305,743	25.0	35,800	$ 53,361	$ 189,922	$ 109,178	$ 80,744	1.5
E3194	RIVERSIDE	05CP5501	BATCHELOR	Evaporative Precooling for 100% OSA Systems	293,786	75.0	-	$ 22,034	$ 316,607	$ 70,509	$ 246,098	11.2
E2016	RIVERSIDE	05CP5501	BATCHELOR	FUMEHOOD & AHU'S - CV TO VAV CONVERSION	1,273,825	58.0	77,125	$ 161,093	$ 5,011,504	$ 382,843	$ 4,628,661	28.7
E3201	RIVERSIDE	05CP5504	PHYSICS	Evaporative Precooling for 100% OSA Systems	174,623	45.0	-	$ 13,097	$ 188,187	$ 41,910	$ 146,277	11.2
E2019	RIVERSIDE	05CP5504	PHYSICS	AHU (S-8) - CV TO VAV RETROFIT	155,734	18.0	8,800	$ 19,160	$ 66,760	$ 46,176	$ 20,584	1.1
E2018	RIVERSIDE	05CP5504	PHYSICS	LAB FUMEHOODS & DDMZAHU'S - CV TO VAV CONVERSION	936,030	43.0	61,213	$ 122,233	$ 1,950,970	$ 285,860	$ 1,665,110	13.6
E3202	RIVERSIDE	05CP5508	PIERCE	Evaporative Precooling for 100% OSA Systems	543,354	139.0	-	$ 40,752	$ 585,561	$ 130,405	$ 455,156	11.2
E2020	RIVERSIDE	05CP5508	PIERCE	LAB FUMEHOODS & DDMZAHU'S - CV TO VAV CONVERSION	2,666,824	124.0	75,813	$ 264,452	$ 6,739,032	$ 715,850	$ 6,023,182	22.8
E2022	RIVERSIDE	05CP5523	SPROUL	DDAHU'S - CV TO VAV RETROFIT	793,391	60.0	22,675	$ 78,778	$ 1,031,303	$ 213,089	$ 818,214	10.4
E3190	RIVERSIDE	05CP5588	STAT COMP	HEAT RECOVERY	537,938	1.0	22,500	$ 59,470	$ 185,936	$ 147,105	$ 38,831	0.7
E2023	RIVERSIDE	05CP5588	STAT COMP	DDAHU'S - CV TO VAV RETROFIT	332,266	32.0	36,825	$ 56,221	$ 625,422	$ 116,569	$ 508,853	9.1
E3192	RIVERSIDE	05CWIDE	CAMPUSWIDE	Replace CHW Coils	1,222,960	252.0	-	$ 91,722	$ 788,838	$ 293,510	$ 495,328	5.4
E3053	RIVERSIDE	05CWIDE	CAMPUSWIDE	UC Riverside Energy Recovery System	28,416	-	33,919	$ 30,962	$ 258,572	$ 33,955	$ 224,617	7.3
F2078	SAN DIEGO	06C6119	MTF	CV to VAV Lab Hoods	1,699,349	46.0	32,509	$ 162,132	$ 2,788,869	$ 415,543	$ 2,373,326	14.6
F2052	SAN DIEGO	06C6129	CMRR	AH-1, AH-2 & AH-3 - CV to VAV Lab Hoods	244,206	7.0	4,654	$ 23,283	$ 413,859	$ 59,709	$ 354,150	15.2
F2051	SAN DIEGO	06C6129	CMRR	AHU'S CAV TO VAV RETROFIT	120,656	1.0	4,285	$ 13,311	$ 315,019	$ 31,741	$ 283,278	21.3
F2079	SAN DIEGO	06C6131	ENG UNIT 1	CV to VAV Lab Hoods	2,671,336	93.0	52,909	$ 256,512	$ 3,960,158	$ 669,978	$ 3,290,180	12.8
F2053	SAN DIEGO	06C6132	ENG UNIT 2	VAV FUMEHOOD EXHAUST FANS	1,737,260	61.0	34,216	$ 166,643	$ 1,796,099	$ 435,805	$ 1,360,294	8.2
F2056	SAN DIEGO	06C6135	CENT MOL GEN	AHU-6 - RETROFIT INLET GUIDE VANES WITH VFD	70,785	-	2,233	$ 7,553	$ 86,559	$ 18,622	$ 67,937	9.0
F2055	SAN DIEGO	06C6135	CENT MOL GEN	AHU-4&5 - RETROFIT CAV TO VAV	118,413	1.0	4,067	$ 12,937	$ 196,550	$ 31,059	$ 165,491	12.8
F2054	SAN DIEGO	06C6135	CENT MOL GEN	AH-1, AH-2 & AH-3 - CV TO VAV FUME HOOD	595,685	23.0	7,347	$ 53,150	$ 1,027,376	$ 144,849	$ 882,527	16.6
F2057	SAN DIEGO	06C6143	CMM WEST	AHU's - CV TO VAV FUMEHOODS	1,180,129	40.0	25,167	$ 114,952	$ 2,017,171	$ 297,177	$ 1,719,994	15.0
F2080	SAN DIEGO	06C6156	CLIN SCI BLD	AH-1,2,3,&4 - CV to VAV Lab Hoods	2,141,991	102.0	27,821	$ 192,392	$ 3,048,529	$ 530,304	$ 2,518,225	13.1
F2001	SAN DIEGO MC	06C6157	PERLMAN HOSP	AHU'S - CVRH TO VAV	607,906	4.0	81,838	$ 121,889	$ 763,069	$ 227,735	$ 535,334	4.4
F2002	SAN DIEGO MC	06C6162	THORNTON HSP	AHU'S CVRH TO VAV	1,790,866	11.0	176,413	$ 300,223	$ 2,028,089	$ 606,220	$ 1,421,869	4.7
F2059	SAN DIEGO	06C6172	WAR LEC HALL	AHU-4 & AHU-5 Retrofit	92,031	-	3,248	$ 10,134	$ 234,708	$ 24,115	$ 210,593	20.8
F2058	SAN DIEGO	06C6172	WAR LEC HALL	AHU'S - CV TO VAV RETROFIT	491,682	4.0	12,734	$ 49,939	$ 856,123	$ 125,893	$ 730,230	14.6
F3200	SAN DIEGO	06C6206	HUBBS HALL	Walk-in Cooler Evaporator Fan Controls	14,444	2.0	-	$ 1,127	$ 4,848	$ 3,467	$ 1,381	1.2
F3199	SAN DIEGO	06C6206	HUBBS HALL	Motor Replacements	10,239	3.0	-	$ 799	$ 10,913	$ 2,457	$ 8,456	10.6
F3198	SAN DIEGO	06C6206	HUBBS HALL	VSD Control of Supply Fans	71,503	16.0	-	$ 5,577	$ 26,140	$ 17,161	$ 8,979	1.6
F3196	SAN DIEGO	06C6206	HUBBS HALL	VSD Control of HW Pumps	31,094	-	-	$ 2,425	$ 14,006	$ 6,904	$ 7,102	2.9
F3195	SAN DIEGO	06C6206	HUBBS HALL	VSD Control of CHW Pumps	36,724	7.0	-	$ 2,864	$ 7,295	$ 8,814	$ 1,459	0.5
F2061	SAN DIEGO	06C6206	HUBBS HALL	AHU's - CAV TO VAV FUME HOODS	892,692	23.0	24,663	$ 92,074	$ 2,829,394	$ 227,596	$ 2,601,798	28.3
F3209	SAN DIEGO	06C6210	SIO AQUARIUM (BIRCH)	Motor Replacements	47,542	6.0	-	$ 3,708	$ 20,022	$ 11,410	$ 8,612	2.3
F3206	SAN DIEGO	06C6210	SIO AQUARIUM (BIRCH)	VSD Control of HW Pumps	3,732	-	-	$ 291	$ 2,342	$ 829	$ 1,513	5.2
F3205	SAN DIEGO	06C6210	SIO AQUARIUM (BIRCH)	Boiler Replacement	11,687	-	-	$ 912	$ 27,777	$ 1,855	$ 25,922	28.4
F3204	SAN DIEGO	06C6210	SIO AQUARIUM (BIRCH)	VSD Control of CHW Pumps	7,345	1.0	-	$ 573	$ 2,796	$ 1,763	$ 1,033	1.8
F3223	SAN DIEGO	06C6218	NIERENBERG	VSD Control of HW Pumps	3,732	-	-	$ 291	$ 1,479	$ 829	$ 650	2.2
F3222	SAN DIEGO	06C6218	NIERENBERG	Boiler Replacement	6,231	-	-	$ 486	$ 17,354	$ 989	$ 16,365	33.7
F3220	SAN DIEGO	06C6218	NIERENBERG	VSD Control of CHW Pumps	4,407	1.0	-	$ 344	$ 547	$ 1,058	$ 109	0.3
F2062	SAN DIEGO	06C6218	NIERENBERG	Replace Package AC Units with VAV AC Unit	99,527	19.0	-	$ 7,763	$ 293,139	$ 23,806	$ 269,333	34.7
F2063	SAN DIEGO	06C6246	NIEREN ANNEX	Replace Package AC Units with VAV AC Unit	80,801	2.0	-	$ 6,302	$ 330,243	$ 19,328	$ 310,915	49.3
F3215	SAN DIEGO	06C6285	RITTER HALL	VSD Control of Supply Fans	18,000	4.0	-	$ 1,404	$ 3,076	$ 4,320	$ 615	0.4
F3214	SAN DIEGO	06C6285	RITTER HALL	VSD Control of HW Pumps	47,836	6.0	-	$ 3,731	$ 8,403	$ 11,481	$ 1,681	0.5

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
F3213	SAN DIEGO	06C6285	RITTER HALL	VSD Control of CHW Pumps	-	-	-	$ -	$ -	$ -	$ -	
F2064	SAN DIEGO	06C6328	SVERDRUP	AH-1 - CV TO VAV FUMEHOODS	1,281,418	47.0	21,074	$ 119,128	$ 2,253,147	$ 317,253	$ 1,935,894	16.3
F3040	SAN DIEGO	06C6335	CENT UTLTIES	Sea Water Air Conditioning	23,809,680	2,718.0	-	$ 1,857,155	$ 84,546,000	$ 5,714,323	$ 78,831,677	42.4
F2065	SAN DIEGO	06C6336	UREY HALL	S-1&3 - CV TO VAV FUMEHOODS	1,769,235	65.0	26,920	$ 162,497	$ 2,345,307	$ 439,345	$ 1,905,962	11.7
F2081	SAN DIEGO	06C6352	MAYER HALL	CV to VAV Lab Hoods	1,079,687	44.0	16,108	$ 98,874	$ 2,482,404	$ 267,967	$ 2,214,437	22.4
F2066	SAN DIEGO	06C6353	BONNER HALL	AH-1,2,&3 - CV TO VAV FUMEHOOD	2,088,965	96.0	32,741	$ 192,733	$ 3,228,385	$ 520,634	$ 2,707,751	14.0
F2082	SAN DIEGO	06C6355	PACIFIC HALL	CV to VAV Lab Hoods	4,462,556	165.0	57,802	$ 400,679	$ 12,148,329	$ 1,084,675	$ 11,063,654	27.6
F3226	SAN DIEGO	06C6360	SCHOLANDER	VSD Control of Supply Fans	12,618	3.0	-	$ 984	$ 4,613	$ 3,028	$ 1,585	1.6
F3225	SAN DIEGO	06C6360	SCHOLANDER	CV to VAV Conversion	58,431	8.0	-	$ 4,558	$ 18,704	$ 11,967	$ 6,737	1.5
F3224	SAN DIEGO	06C6360	SCHOLANDER	VSD Control of HW Pumps	1,863	-	-	$ 145	$ 1,627	$ 414	$ 1,213	8.3
F3221	SAN DIEGO	06C6360	SCHOLANDER	VSD Control of CHW Pumps	4,407	1.0	-	$ 344	$ 1,216	$ 1,058	$ 243	0.7
F2067	SAN DIEGO	06C6361	YORK HALL	AHU'S 1,2,&3 - CV TO VAV FUMEHOOD	2,296,481	79.0	33,229	$ 209,364	$ 5,780,145	$ 559,009	$ 5,221,136	24.9
F2068	SAN DIEGO	06C6510	GYMNASIUM	HV'S - CV TO VAV RETROFIT	518,634	16.0	-	$ 40,453	$ 174,827	$ 113,036	$ 61,791	1.5
F2069	SAN DIEGO	06C6548	EBU 3B	VAV FUMEHOOD EXHAUST FANS	1,493,792	57.0	25,786	$ 139,981	$ 1,230,623	$ 372,728	$ 857,895	6.1
F2071	SAN DIEGO	06C6598	MANDEVILLE	MZDDAHU - CV TO VAV CONVERSION	273,931	4.0	3,681	$ 24,716	$ 645,082	$ 65,825	$ 579,257	23.4
F2070	SAN DIEGO	06C6598	MANDEVILLE	AHU'S - CAV TO VAV RETROFIT	477,263	3.0	16,832	$ 52,544	$ 884,219	$ 125,061	$ 759,158	14.4
F2072	SAN DIEGO	06C6599	GEISEL LIB	AHU's - CAV TO VAV RETROFIT	3,793,931	30.0	123,416	$ 408,235	$ 2,459,631	$ 1,006,387	$ 1,453,244	3.6
F2083	SAN DIEGO	06C6600	AP M BLDG	CV to VAV Lab Hoods	726,475	17.0	10,508	$ 66,227	$ 916,283	$ 179,850	$ 736,433	11.1
F2084	SAN DIEGO	06C6601	BIOLOGY BLDG	CV to VAV Lab Hoods	1,319,442	52.0	23,144	$ 123,977	$ 2,655,447	$ 329,727	$ 2,325,720	18.8
F2085	SAN DIEGO	06C6602	MCGILL/MANDLER BLDG	CV to VAV Lab Hoods	299,249	11.0	5,291	$ 28,156	$ 529,531	$ 74,679	$ 454,852	16.2
F2074	SAN DIEGO	06C6603	H SS BLDG	SF-1 to SF-6 Retrofit	687,637	7.0	12,827	$ 65,309	$ 259,500	$ 168,065	$ 91,435	1.4
F3090	SAN DIEGO	06C6606	MUIR COMMONS	UCSD John Muir Sierra Summit Kichen Hood Controls	37,791	10.0	-	$ 2,948	$ 32,225	$ 8,910	$ 23,314	7.9
F2003	SAN DIEGO MC	06C6657	MULTIPURPOSE (Hillcrest)	AHU-1 - Replace Inlet Guide Vanes with VFD's	280,876	3.0	26,213	$ 45,762	$ 34,277	$ 93,623	$ 6,855	0.1
F2076	SAN DIEGO	06C6701	PRICE CTR	AHU's - Replace Inlet Guide Vanes w/ VFD's	179,626	(5.0)	4,688	$ 18,277	$ 136,532	$ 45,458	$ 91,074	5.0
F2075	SAN DIEGO	06C6701	PRICE CTR	AHU's - CV to VAV Retrofit	385,849	10.0	8,226	$ 37,582	$ 654,294	$ 100,411	$ 553,883	14.7
F2077	SAN DIEGO	06C6811	SOC SCI BLDG	AHU-1 & 2 Retrofit	130,805	1.0	4,351	$ 14,162	$ 76,732	$ 34,348	$ 42,384	3.0
F3510	SAN DIEGO MC	06C6974	U HOSPITAL	UCSD Med Center Hillcrest Café Kitchen Hood Controls	56,479	18.0	1,341	$ 5,626	$ 45,360	$ 14,628	$ 30,732	5.5
F2005	SAN DIEGO MC	06C6974	U HOSPITAL	AHU'S - CAVRH TO VAV RETROFIT	1,331,563	7.0	250,063	$ 331,419	$ 4,227,021	$ 569,638	$ 3,657,383	11.0
F2008	SAN DIEGO MC	06C6977	CTF (Hillcrest)	CV to VAV Lab Hoods	520,535	20.0	59,650	$ 94,883	$ 3,800,227	$ 184,578	$ 3,615,649	38.1
F3004	SAN DIEGO	06CTBD13	FUTURE BUILDING	Variable Speed Circulation Pump - Canyonview East Pool	59,443	-	-	$ 4,637	$ 33,937	$ 14,266	$ 19,671	4.2
F3005	SAN DIEGO	06CTBD14	FUTURE BUILDING	Variable Speed Circulation Pump - Canyonview West Pool	59,443	-	-	$ 4,637	$ 33,937	$ 14,266	$ 19,671	4.2
F3006	SAN DIEGO	06CTBD15	FUTURE BUILDING	Variable Speed Circulation Pump - Natatorium Pool	59,350	-	-	$ 4,629	$ 33,937	$ 14,244	$ 19,693	4.3
F3232	SAN DIEGO	06CWIDE	CAMPUSWIDE	SIO Campus Virtual Chilled Water System	952,854	109.0	-	$ 74,323	$ 1,506,582	$ 228,685	$ 1,277,897	17.2
F3231	SAN DIEGO	06CWIDE	CAMPUSWIDE	Install Low Pressure Drop Filters	4,270,030	-	-	$ 333,062	$ 494,730	$ 1,024,807	$ 98,946	0.3
G5033	SANTA CRUZ	07C7116	THIMANN LAB	Cog Belts on Fan Drives	18,940	-	-	$ 2,027	$ 4,492	$ 4,546	$ 898	0.4
G3003	SANTA CRUZ	07C7116	THIMANN LAB	Tie Existing EMS System to Tridium	69,491	-	4,808	$ 11,185	$ 127,746	$ 20,524	$ 107,222	9.6
G1011	SANTA CRUZ	07C7116	THIMANN LAB	FS 64- CAV to VAV & Add Economizer	8,709	-	650	$ 1,439	$ 61,052	$ 2,740	$ 58,312	40.5
G1010	SANTA CRUZ	07C7116	THIMANN LAB	FS62, 63 - SP reset, VAV on Exh Fans (FH)	125,619	6.0	6,438	$ 18,462	$ 577,327	$ 36,586	$ 540,741	29.3
G5013	SANTA CRUZ	07C7134	CL COLL COM (Dining)	Cog Belts on Fan Drives	3,377	-	-	$ 361	$ 2,495	$ 810	$ 1,685	4.7
G3029	SANTA CRUZ	07C7134	CL COLL COM (Dining)	UCSC Cowell Kitchen Hood Controls	103,440	23.0	4,969	$ 14,944	$ 65,454	$ 28,801	$ 36,653	2.5
G3004	SANTA CRUZ	07C7134	CL COLL COM (Dining)	Tie Existing EMS System to Tridium	24,984	-	1,953	$ 4,196	$ 191,618	$ 7,558	$ 184,060	43.9
G1018	SANTA CRUZ	07C7134	CL COLL COM (Dining)	S1 , FS 003 - CAV to VAV	43,925	(1.0)	7,920	$ 10,878	$ 63,716	$ 16,878	$ 46,838	4.3
G5005	SANTA CRUZ	07C7175	COMM. BLDG	Differential Pressure reset on CHW Pumps	1,927	-	-	$ 206	$ 1,948	$ 462	$ 1,486	7.2
G5003	SANTA CRUZ	07C7175	COMM. BLDG	Cog Belts on Fan Drives	3,146	-	-	$ 337	$ 2,385	$ 755	$ 1,630	4.8
G3005	SANTA CRUZ	07C7175	COMM. BLDG	Tie Existing EMS System to Tridium	70,340	-	528	$ 7,938	$ 127,746	$ 17,304	$ 110,442	13.9
G1024	SANTA CRUZ	07C7175	COMM. BLDG	FS 60 - 2 speed to VAV	148,345	14.0	-	$ 15,873	$ 66,435	$ 35,603	$ 30,832	1.9
G1012	SANTA CRUZ	07C7175	COMM. BLDG	Ahu 1, 2 - Cav to VAV	46,456	9.0	5,925	$ 9,592	$ 71,358	$ 17,074	$ 54,284	5.7
G5022	SANTA CRUZ	07C7179	NAT SCI 2	Differential Pressure reset on HW Pumps	1,402	-	-	$ 150	$ 1,247	$ 336	$ 911	6.1
G5021	SANTA CRUZ	07C7179	NAT SCI 2	Cog Belts on Fan Drives	7,813	-	-	$ 836	$ 998	$ 1,875	$ 200	0.2
G5020	SANTA CRUZ	07C7179	NAT SCI 2	Retrofit Constant Volume CHW Pumps to Variable Volume	12,100	-	-	$ 1,295	$ 27,186	$ 2,904	$ 24,282	18.8
G3006	SANTA CRUZ	07C7179	NAT SCI 2	Tie Existing EMS System to Tridium	35,259	-	4,719	$ 7,453	$ 63,873	$ 12,237	$ 51,636	6.9
G1006	SANTA CRUZ	07C7179	NAT SCI 2	FS 58 - CAV to VAV (or ACH 6)	192,436	22.0	7,900	$ 26,753	$ 382,606	$ 54,085	$ 328,521	12.3
G5002	SANTA CRUZ	07C7194	J BASKIN ENG	Retrofit Constant Volume HW Pumps to Variable Volume	6,419	-	-	$ 687	$ 22,007	$ 1,541	$ 20,466	29.8
G5001	SANTA CRUZ	07C7194	J BASKIN ENG	Cog Belts on Fan Drives	20,234	-	-	$ 2,165	$ 5,723	$ 4,856	$ 1,145	0.5
G3007	SANTA CRUZ	07C7194	J BASKIN ENG	Tie Existing EMS System to Tridium	74,707	-	401	$ 8,307	$ 191,618	$ 18,251	$ 173,367	20.9
G1009	SANTA CRUZ	07C7194	J BASKIN ENG	AHU SF2, SF3 - convert CAV to VAV (or 6 ACH)	359,483	195.0	12,488	$ 48,205	$ 1,318,567	$ 98,763	$ 1,219,804	25.3
G1025	SANTA CRUZ	07C7199	HAHN ART FAC	Arts Facility Building Heating Loop (Cogent Study)	4,628	-	-	$ 495	$ 10,442	$ 1,111	$ 9,331	18.8
G1027	SANTA CRUZ	07C7301	CLRM BLDG	Classroom Unit HV-1 CAV to VAV, DCV, Economizer (Cogent Study)	31,922	-	913	$ 4,127	$ 117,180	$ 8,391	$ 108,789	26.4
G3009	SANTA CRUZ	07C7304	PORTER HSE B	Tie Existing EMS System to Tridium	15,106	-	1,610	$ 2,872	$ 63,873	$ 4,913	$ 58,960	20.5
G5023	SANTA CRUZ	07C7305	PORTER DIN C	VFD on HW Pumps or Trim Pump Impellers*	13,400	-	-	$ 1,434	$ 15,317	$ 3,216	$ 12,101	8.4
G3037	SANTA CRUZ	07C7305	PORTER DIN C	Porter-Kresge Kitchen Hood Controls	19,374	10.0	933	$ 2,800	$ 35,154	$ 5,396	$ 29,758	10.6
G3010	SANTA CRUZ	07C7305	PORTER DIN C	Tie Existing EMS System to Tridium	3,999	-	574	$ 875	$ 127,746	$ 1,419	$ 126,327	144.3
G1017	SANTA CRUZ	07C7305	PORTER DIN C	FS 57 - CAV to VAV	16,757	4.0	5,514	$ 6,094	$ 38,975	$ 8,433	$ 30,542	5.0
G3011	SANTA CRUZ	07C7306	PORTER ACAD D	Tie Existing EMS System to Tridium	6,027	-	706	$ 1,196	$ 63,873	$ 2,011	$ 61,862	51.7
G5016	SANTA CRUZ	07C7376	KERR HALL	Variable Flow on HW Distribution Pumps	40,065	-	-	$ 4,287	$ 29,564	$ 9,616	$ 19,948	4.7
G5015	SANTA CRUZ	07C7376	KERR HALL	Cog Belts on Fan Drives	5,558	-	-	$ 595	$ 1,497	$ 1,334	$ 299	0.5
G3012	SANTA CRUZ	07C7376	KERR HALL	Tie Existing EMS System to Tridium	28,628	-	1,108	$ 3,927	$ 127,746	$ 7,757	$ 119,989	30.6

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
G1016	SANTA CRUZ	07C7376	KERR HALL	FS 96 - CAV to VAV	13,212	2.0	3,350	$ 4,027	$ 34,204	$ 6,521	$ 27,683	6.9
G1015	SANTA CRUZ	07C7376	KERR HALL	FS 94, 95 - CAV to VAV	221,143	36.0	21,663	$ 40,559	$ 139,390	$ 74,737	$ 64,653	1.6
G5028	SANTA CRUZ	07C7744	SINSHEIMR LB	VFD on PCW-48, 47, CWP-47, 4, and CDWP-1 or Trim Impellers*	29,400	-	-	$ 3,146	$ 43,376	$ 7,056	$ 36,320	11.5
G5027	SANTA CRUZ	07C7744	SINSHEIMR LB	Retrofit Constant Volume CHW Pumps to Variable Volume	23,100	-	-	$ 2,472	$ 46,396	$ 5,544	$ 40,852	16.5
G5026	SANTA CRUZ	07C7744	SINSHEIMR LB	Premium Efficiency Motors	17,800	-	-	$ 1,905	$ 29,236	$ 4,272	$ 24,964	13.1
G5025	SANTA CRUZ	07C7744	SINSHEIMR LB	Cog Belts on Fan Drives	22,832	-	-	$ 2,443	$ 4,492	$ 5,480	$ 898	0.4
G3138	SANTA CRUZ	07C7744	SINSHEIMR LB	Balance Chilled Water Between Prim and Secondary, Remove Check Valve	80,000	5.0	-	$ 8,560	$ 151,200	$ 19,200	$ 132,000	15.4
G3135	SANTA CRUZ	07C7744	SINSHEIMR LB	OSA Economizer Repiping for Chilled Water Loop	80,000	-	7,500	$ 14,410	$ 226,800	$ 25,200	$ 201,600	14.0
G3013	SANTA CRUZ	07C7744	SINSHEIMR LB	Tie Existing EMS System to Tridium	110,323	-	6,686	$ 17,020	$ 127,746	$ 31,827	$ 95,919	5.6
G3001	SANTA CRUZ	07C7744	SINSHEIMR LB	FS 10 to 13 PE Motors	3,292	1.0	-	$ 352	$ 15,391	$ 790	$ 14,601	41.5
G1005	SANTA CRUZ	07C7744	SINSHEIMR LB	FS - 10 to 13 - VIV to VAV	237,631	13.0	(1,788)	$ 24,032	$ 74,277	$ 55,244	$ 19,033	0.8
G5012	SANTA CRUZ	07C7775	EARTH MAR SC	Differential Pressure reset on CHW Pumps	1,904	-	-	$ 204	$ 1,948	$ 457	$ 1,491	7.3
G5010	SANTA CRUZ	07C7775	EARTH MAR SC	Operate Both Secondary CHW Pumps Simutanously @ Lower Speed	11,353	-	-	$ 1,215	$ 1,948	$ 2,725	$ 390	0.3
G5009	SANTA CRUZ	07C7775	EARTH MAR SC	VFD on Primary CHW Pumps or Trim Pump Impellers*	12,700	-	-	$ 1,359	$ 16,282	$ 3,048	$ 13,234	9.7
G5008	SANTA CRUZ	07C7775	EARTH MAR SC	VFD on Cond Pumps or Trim Pump Impellers*	4,100	-	-	$ 439	$ 16,282	$ 984	$ 15,298	34.9
G5007	SANTA CRUZ	07C7775	EARTH MAR SC	Premium Efficiency Motors	23,900	-	-	$ 2,557	$ 40,294	$ 5,736	$ 34,558	13.5
G5006	SANTA CRUZ	07C7775	EARTH MAR SC	Cog Belts on Fan Drives	22,503	-	-	$ 2,408	$ 5,989	$ 5,401	$ 1,198	0.5
G3139	SANTA CRUZ	07C7775	EARTH MAR SC	Balance Chilled Water Between Prim and Secondary, Remove Check Valve	40,000	3.0	-	$ 4,280	$ 105,840	$ 9,600	$ 96,240	22.5
G3014	SANTA CRUZ	07C7775	EARTH MAR SC	Tie Existing EMS System to Tridium	152,287	-	4,326	$ 19,669	$ 127,746	$ 40,010	$ 87,736	4.5
G1021	SANTA CRUZ	07C7775	EARTH MAR SC	Ahu 138 - CAV to VAV	157,807	8.0	19,738	$ 32,281	$ 59,337	$ 57,611	$ 11,867	0.4
G1020	SANTA CRUZ	07C7775	EARTH MAR SC	FS 140, 141, 142, 143 - SP reset	321,729	15.0	80,738	$ 97,400	$ 70,385	$ 157,952	$ 14,077	0.1
G1001	SANTA CRUZ	07C7775	EARTH MAR SC	Ahu 137 - VIV to VAV	12,191	1.0	-	$ 1,304	$ 18,724	$ 2,926	$ 15,798	12.1
G5024	SANTA CRUZ	07C7782	SCI &ENG LIB	Retrofit Constant Volume HW Pumps to Variable Volume	8,512	-	-	$ 911	$ 22,582	$ 2,043	$ 20,539	22.6
G3015	SANTA CRUZ	07C7782	SCI &ENG LIB	Tie Existing EMS System to Tridium	35,303	-	335	$ 4,039	$ 191,618	$ 8,741	$ 182,877	45.3
G1014	SANTA CRUZ	07C7782	SCI &ENG LIB	AH 3 - SP Reset	14,378	-	3,100	$ 3,956	$ 3,542	$ 6,551	$ 708	0.2
G1013	SANTA CRUZ	07C7782	SCI &ENG LIB	AH 1, 2 - SP Reset	174,583	10.0	3,225	$ 21,196	$ 7,083	$ 45,125	$ 1,417	0.1
G3134	SANTA CRUZ	07C7919	PHYS SCI BLD	OSA Economizer Repiping for Chilled Water Loop	80,000	-	7,500	$ 14,410	$ 226,800	$ 25,200	$ 201,600	14.0
G5031	SANTA CRUZ	07C7920	SOC SCI 1	Retrofit Constant Volume HW Pumps to Variable Volume	14,982	-	-	$ 1,603	$ 24,872	$ 3,596	$ 21,276	13.3
G5030	SANTA CRUZ	07C7920	SOC SCI 1	Premium Efficiency Motors	1,200	-	-	$ 128	$ 2,073	$ 288	$ 1,785	13.9
G5029	SANTA CRUZ	07C7920	SOC SCI 1	Cog Belts on Fan Drives	5,893	-	-	$ 631	$ 3,993	$ 1,414	$ 2,579	4.1
G3016	SANTA CRUZ	07C7920	SOC SCI 1	Tie Existing EMS System to Tridium	16,772	-	1,128	$ 2,674	$ 63,873	$ 4,927	$ 58,946	22.0
G1019	SANTA CRUZ	07C7920	SOC SCI 1	AH 1, EF 3.1, 3.2, 3.3, 3.4, 7, 8 - Varicone to VSD (for SF & RF) and CAV to VAV (for Exhaust fan only)	49,776	3.0	-	$ 5,326	$ 40,744	$ 11,946	$ 28,798	5.4
G5032	SANTA CRUZ	07C7921	SOC SCI 2	Retrofit Air Cooled Chiller with frictionless Turborcor Compressors	127,100	-	-	$ 13,600	$ 72,327	$ 30,504	$ 41,823	3.1
G3017	SANTA CRUZ	07C7921	SOC SCI 2	Tie Existing EMS System to Tridium	16,317	-	1,123	$ 2,621	$ 127,746	$ 4,814	$ 122,932	46.9
G1008	SANTA CRUZ	07C7921	SOC SCI 2	AHU 152 - SP Reset	40,376	4.0	-	$ 4,320	$ 3,542	$ 9,690	$ 708	0.2
G1007	SANTA CRUZ	07C7921	SOC SCI 2	AHU 153 - Spot Cooling	85,373	-	11,590	$ 18,175	$ 9,402	$ 29,762	$ 1,880	0.1
G5019	SANTA CRUZ	07C7922	MUSIC CTR	Differential Pressure reset on CHW Pumps	2,063	-	-	$ 221	$ 1,247	$ 495	$ 752	3.4
G5018	SANTA CRUZ	07C7922	MUSIC CTR	Cog Belts on Fan Drives	4,123	-	-	$ 441	$ 1,996	$ 990	$ 1,006	2.3
G5017	SANTA CRUZ	07C7922	MUSIC CTR	Retrofit CH-1 and CH-2 with frictionless Turbocor Compressors	141,600	-	-	$ 15,151	$ 170,182	$ 33,984	$ 136,198	9.0
G3018	SANTA CRUZ	07C7922	MUSIC CTR	Tie Existing EMS System to Tridium	17,564	-	1,399	$ 2,970	$ 255,491	$ 5,334	$ 250,157	84.2
G1030	SANTA CRUZ	07C7922	MUSIC CTR	Music Center AH-1 CAV to VAV, DCV (Cogent Study)	48,435	-	390	$ 5,487	$ 57,834	$ 11,936	$ 45,898	8.4
G1004	SANTA CRUZ	07C7922	MUSIC CTR	AHU 1, 2, 3, 4 - CAV to VAV	67,391	30.0	13,466	$ 17,715	$ 161,358	$ 26,947	$ 134,411	7.6
G1028	SANTA CRUZ	07C7923	TA EXP THEAT	Exp Theater LH-1 CAV to VAV, DCV (Cogent Study)	45,104	-	19	$ 4,841	$ 36,542	$ 10,840	$ 25,702	5.3
G1029	SANTA CRUZ	07C7924	TA MEDIA THE	Media Theater BB-1 CAV to VAV, DCV (Cogent Study)	58,875	-	454	$ 6,654	$ 73,081	$ 14,493	$ 58,588	8.8
G5014	SANTA CRUZ	07C7940	ENGINEER BLD	Differential Pressure reset on CHW Pumps	1,870	-	-	$ 200	$ 1,948	$ 449	$ 1,499	7.5
G1003	SANTA CRUZ	07C7940	ENGINEER BLD	Ahu 2,7 - SP Reset & Time of Day Controls	6,620	-	1,788	$ 2,103	$ 7,637	$ 3,376	$ 4,261	2.0
G1002	SANTA CRUZ	07C7940	ENGINEER BLD	AHU 1, 3, 4, 5, 6 - SP reset & Time of Day Controls	308,145	16.0	38,675	$ 63,138	$ 19,092	$ 112,630	$ 3,818	0.1
G3137	SANTA CRUZ	07C7942	JBE AUDITORM	Balance Chilled Water Between Prim and Secondary, Remove Check Valve	60,000	5.0	-	$ 6,420	$ 105,840	$ 14,400	$ 91,440	14.2
G3024	SANTA CRUZ	07CWIDE	CAMPUSWIDE	High Efficiency Boiler Replacement - East Field House Pool	-	-	17,836	$ 13,912	$ 175,950	$ 14,269	$ 161,681	11.6
G1026	SANTA CRUZ	07CWIDE	CAMPUSWIDE	Boiler Plant - Convert Boilers to Variabel Flow (Cogent Study)	23,177	-	4,950	$ 6,341	$ 41,640	$ 9,522	$ 32,118	5.1
H3007	SANTA BARBARA	08C8225	ENG SCI	New gas Cabinet Exhaust System	99,100	11.0	-	$ 10,901	$ 171,970	$ 23,784	$ 148,186	13.6
H1014	SANTA BARBARA	08C8235	LIFESCI	AHU 3 - TOD Controls (w/o Spot Cooling) & Economizer	26,732	-	3,100	$ 5,421	$ 9,971	$ 9,516	$ 1,994	0.4
H1024	SANTA BARBARA	08C8251	PSYCH ADDITI	AH-B1, AH-R1 - TOD Controls (w/o Spot Cooling)	49,492	-	-	$ 5,444	$ 1,372	$ 11,878	$ 274	0.1
H1026	SANTA BARBARA	08C8503	ENGR 2	convert CAV to VAV - (7) AHUs and FH EF - S-1 thru S-7	1,449,523	134.0	54,774	$ 203,267	$ 2,750,000	$ 391,704	$ 2,358,296	11.6
H1023	SANTA BARBARA	08C8515	HSSB	FH Exhaust - add VFD & Autosash Closers	26,208	1.0	2,195	$ 4,639	$ 141,111	$ 8,046	$ 133,065	28.7
H3012	SANTA BARBARA	08C8516	RECCEN	Variable Speed Circulation Pump - Rec Center Pool Pump 2	61,268	-	-	$ 6,739	$ 32,642	$ 14,704	$ 17,938	2.7
H3011	SANTA BARBARA	08C8516	RECCEN	Variable Speed Circulation Pump - Rec Center Pool Pump 1	61,268	-	-	$ 6,739	$ 31,317	$ 14,704	$ 16,613	2.5
H1020	SANTA BARBARA	08C8525	DAVIDSON LIB (Main)	L4 - S1, S2 - CAV to VAV for RF only	163,921	26.0	-	$ 18,031	$ 22,983	$ 39,341	$ 4,597	0.3
H1019	SANTA BARBARA	08C8525	DAVIDSON LIB (Main)	L2 - S1 to 5 - CAV to VAV	574,182	20.0	13,255	$ 73,764	$ 187,989	$ 148,408	$ 39,581	0.5

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
H4009	SANTA BARBARA	08C8531	MUSIC	EE Motors	12,425	3.0	-	$ 1,367	$ 7,509	$ 2,982	$ 4,527	3.3
H1022	SANTA BARBARA	08C8531	MUSIC	1S2, 2S1, 2S2, AHU 3,4,5,6 - CAV to VAV and DCV	80,190	3.0	743	$ 9,415	$ 306,140	$ 19,840	$ 286,300	30.4
H1021	SANTA BARBARA	08C8531	MUSIC	1-S1 - CAV to VAV	28,394	-	8,003	$ 9,525	$ 27,816	$ 13,217	$ 14,599	1.5
H4013	SANTA BARBARA	08C8533	ROBERTSN GYM	EE Motors	10,111	2.0	-	$ 1,112	$ 4,685	$ 2,427	$ 2,258	2.0
H1001	SANTA BARBARA	08C8533	ROBERTSN GYM	S2, S3 - CAV to VAV	40,871	-	18,766	$ 19,509	$ 72,780	$ 24,822	$ 47,958	2.5
H4010	SANTA BARBARA	08C8535	NORTH HALL	EE Motors	1,121	-	-	$ 123	$ 2,015	$ 269	$ 1,746	14.2
H3018	SANTA BARBARA	08C8535	NORTH HALL	UCSB DATA Center Ventilation Project	144,268	-	-	$ 15,869	$ 275,326	$ 34,624	$ 240,702	15.2
H4012	SANTA BARBARA	08C8551	PSYCHOLOGY	VFD on Exhaust Fans	13,337	-	-	$ 1,467	$ 5,561	$ 3,201	$ 2,360	1.6
H1018	SANTA BARBARA	08C8551	PSYCHOLOGY	S4 - CAV to VAV	30,565	-	4,120	$ 6,658	$ 27,509	$ 10,632	$ 16,877	2.5
H1017	SANTA BARBARA	08C8551	PSYCHOLOGY	S3 - CAV to VAV for Exhaust Fan	2,469	-	1,000	$ 1,072	$ 3,955	$ 1,393	$ 2,562	2.4
H4002	SANTA BARBARA	08C8552	CHEADLE HALL	EE Motors	8,218	2.0	-	$ 904	$ 6,094	$ 1,972	$ 4,122	4.6
H1006	SANTA BARBARA	08C8552	CHEADLE HALL	S-1, 2 - CAV to VAV	373,645	6.0	12,388	$ 51,011	$ 78,985	$ 99,585	$ 15,797	0.3
H4006	SANTA BARBARA	08C8556	HAROLD FRANK	EE Motors	15,349	2.0	-	$ 1,688	$ 6,651	$ 3,684	$ 2,967	1.8
H1005	SANTA BARBARA	08C8556	HAROLD FRANK	HV 2 - CAV to VAV & Upgrade to DDC	43,156	-	12,946	$ 15,104	$ 397,299	$ 20,714	$ 376,585	24.9
H1004	SANTA BARBARA	08C8556	HAROLD FRANK	HV 1 - CAV to VAV & Upgrade to DDC	47,258	-	14,855	$ 17,082	$ 313,397	$ 23,226	$ 290,171	17.0
H1003	SANTA BARBARA	08C8556	HAROLD FRANK	S-2 - CAV to VAV & Upgrade to DDC	53,694	17.0	10,000	$ 13,906	$ 397,299	$ 20,887	$ 376,412	27.1
H1002	SANTA BARBARA	08C8556	HAROLD FRANK	AC 1 - CAV to VAV & Upgrade to DDC	121,580	15.0	25,985	$ 34,162	$ 397,299	$ 49,967	$ 347,332	10.2
H4017	SANTA BARBARA	08C8557	CHEMISTRY	Fume Hood Exhaust Fan Consolidation	17,735	-	-	$ 1,951	$ 8,598	$ 4,256	$ 4,342	2.2
H4003	SANTA BARBARA	08C8557	CHEMISTRY	EE Motors	30,020	3.0	-	$ 3,302	$ 18,282	$ 7,205	$ 11,077	3.4
H1013	SANTA BARBARA	08C8557	CHEMISTRY	4th Floor FH Exhaust - add VFD	37,927	(2.0)	10,740	$ 12,764	$ 378,940	$ 17,694	$ 361,246	28.3
H1012	SANTA BARBARA	08C8557	CHEMISTRY	AHU S4, S5 - CAV to VAV retrofit	594,604	4.0	64,831	$ 117,271	$ 543,034	$ 194,570	$ 348,464	3.0
H4014	SANTA BARBARA	08C8568	SAASB	EE Motors	2,879	1.0	-	$ 317	$ 5,981	$ 691	$ 5,290	16.7
H3187	SANTA BARBARA	08C8571	BIOLOGY 2	Bio2 Heating System Upgrade	-	-	41,724	$ 33,379	$ 619,616	$ 33,379	$ 586,237	17.6
H1010	SANTA BARBARA	08C8571	BIOLOGY 2	AHU SB1, SB2, SB3 - CAV to VAV retrofit	1,187,659	8.0	99,039	$ 209,874	$ 2,000,000	$ 364,269	$ 1,635,731	7.8
H1009	SANTA BARBARA	08C8572	BROIDA HALL (Physics)	FH - convert CAV to VAV - (2) Exh Fans & General EF	74,950	4.0	16,171	$ 21,182	$ 179,399	$ 30,925	$ 148,474	7.0
H1008	SANTA BARBARA	08C8572	BROIDA HALL (Physics)	S-1, S2, S3, S8 - CAV to VAV	134,035	3.0	17,603	$ 28,826	$ 506,637	$ 46,250	$ 460,387	16.0
H4011	SANTA BARBARA	08C8657	PSB NORTH	EE Motors	32,572	5.0	-	$ 3,583	$ 32,131	$ 7,817	$ 24,314	6.8
H1011	SANTA BARBARA	08C8657	PSB NORTH	AHU 1, 2, 3, 3B - CAV to VAV retrofit and AutoSash Closure	1,613,315	13.0	17,589	$ 191,536	$ 5,784,384	$ 401,267	$ 5,383,117	28.1
H1025	SANTA BARBARA	08CNEW1	STUDENT RESOURCES BLDG (BLDG 221)	AH 3 - SP Reset	889	-	-	$ 98	$ 1,372	$ 213	$ 1,159	11.9
H4001	SANTA BARBARA	08CWIDE	CAMPUSWIDE	VSD on (55) CHW, HW & CW Pumps	293,784	32.0	-	$ 32,316	$ 305,199	$ 70,508	$ 234,691	7.3
H3196	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Chilled Water Loop Extension	748,550	-	-	$ 82,341	$ 831,600	$ 179,652	$ 651,948	7.9
H3192	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Boiler and Heat Reclaim Projects	-	-	80,329	$ 64,263	$ 1,025,640	$ 64,263	$ 961,377	15.0
H3191	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Low Pressure Drop Filters	1,155,706	179.0	-	$ 127,128	$ 676,895	$ 277,369	$ 399,526	3.1
H3020	SANTA BARBARA	08CWIDE	CAMPUSWIDE	V-belt to Direct Drive Fan Energy Saving Calculations	1,393,288	188.0	-	$ 153,262	$ 1,661,655	$ 334,389	$ 1,327,266	8.7
H3008	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Fume Hood Sash Closers	976,601	-	69,731	$ 163,211	$ 1,129,999	$ 290,169	$ 839,830	5.1
I3012	IRVINE	09C9001	LANGSON LIB	Zone DDC Upgrade	50,636	13.0	6,156	$ 11,732	$ 539,877	$ 22,451	$ 517,426	44.1
I3011	IRVINE	09C9001	LANGSON LIB	Demand Control Ventilation	5,668	12.0	562	$ 1,209	$ 35,757	$ 2,721	$ 33,036	27.3
I1018	IRVINE	09C9001	LANGSON LIB	AHU-3 thru AHU 16 - CAV to VAV and Economizers	306,315	(2.0)	73,120	$ 100,392	$ 549,230	$ 172,837	$ 376,393	3.7
I3014	IRVINE	09C9003	ADMIN BLDG	Zone DDC Upgrade	33,904	9.0	4,122	$ 7,856	$ 359,918	$ 15,032	$ 344,886	43.9
I3013	IRVINE	09C9003	ADMIN BLDG	Demand Control Ventilation	3,795	8.0	377	$ 810	$ 6,704	$ 1,822	$ 4,882	6.0
I1003	IRVINE	09C9003	ADMIN BLDG	AHU-3 (AC-3) SP reset	11,037	-	1,850	$ 2,974	$ 26,956	$ 5,885	$ 21,071	7.1
I1002	IRVINE	09C9003	ADMIN BLDG	AHU-2 (S-2) SP reset	6,846	-	1,086	$ 1,794	$ 24,841	$ 3,624	$ 21,217	11.8
I1001	IRVINE	09C9003	ADMIN BLDG	AHU-1 (S-1) Spot Cooling and SP reset	128,757	-	25,611	$ 37,997	$ 179,023	$ 64,673	$ 114,350	3.0
I3300	IRVINE	09C9005	UCI STU CNTR	DM - 9 Complete Chilled Water AHU replacements	-	-	-	$ -	$ -	$ -	$ -	
I3299	IRVINE	09C9005	UCI STU CNTR	Replace 5 Rooftop DX units	12,500	-	1,241	$ 2,667	$ 34,650	$ 6,000	$ 28,650	10.7
I3015	IRVINE	09C9005	UCI STU CNTR	Demand Control Ventilation	6,162	13.0	612	$ 1,315	$ 6,704	$ 2,958	$ 3,746	2.8
I1060	IRVINE	09C9005	UCI STU CNTR	AHU 2,3 SP reset	43,780	-	7,857	$ 12,222	$ 5,494	$ 22,986	$ 1,099	0.1
I1059	IRVINE	09C9005	UCI STU CNTR	AHU 1 SP reset	25,343	-	4,214	$ 6,801	$ 2,747	$ 12,901	$ 549	0.1
I3016	IRVINE	09C9035	HIB	Demand Control Ventilation	2,783	6.0	276	$ 594	$ 6,704	$ 1,336	$ 5,368	9.0
I1015	IRVINE	09C9035	HIB	AHU 2H, 3H - SP Reset	37,491	-	8,953	$ 12,290	$ 2,747	$ 21,131	$ 549	0.0
I1014	IRVINE	09C9035	HIB	AHU 1H - CAV to VAV & SP Reset	12,241	-	3,275	$ 4,302	$ 69,996	$ 7,567	$ 62,429	14.5
I1064	IRVINE	09C9050	W SMITH HALL	AHU 1 - CAV to VAV	42,468	-	14,121	$ 17,185	$ 155,304	$ 33,681	$ 121,623	7.1
I3270	IRVINE	09C9051	CTB THEATRE	DDC Conversion	17,225	-	2,178	$ 4,060	$ 103,950	$ 7,500	$ 96,450	23.8
I1078	IRVINE	09C9051	CTB THEATRE	AHU-1 (AC-1) - SP reset	37,909	(1.0)	10,862	$ 13,911	$ 24,360	$ 22,367	$ 4,872	0.4
I1061	IRVINE	09C9052	SOTA DANCE	AHU-1 SP reset	8,055	-	2,152	$ 2,828	$ 20,803	$ 4,678	$ 16,125	5.7
I1053	IRVINE	09C9053	SOTA PROD ST	AHU 1 - CAV to VAV, DCV, SP Reset	13,334	1.0	2,255	$ 3,609	$ 40,476	$ 7,082	$ 33,394	9.3
I1052	IRVINE	09C9053	SOTA PROD ST	AHU 1 - CAV to VAV & DCV	6,464	-	816	$ 1,523	$ 39,486	$ 2,956	$ 36,530	24.0
I1051	IRVINE	09C9054	SOTA DRAMA	AHU-1- SP Reset	4,316	-	1,172	$ 1,531	$ 21,188	$ 2,515	$ 18,673	12.2
I1063	IRVINE	09C9055	UNIV ART GAL	AHU 1 - CAV to VAV, SP Reset and DCV	14,333	-	1,785	$ 3,356	$ 37,254	$ 7,658	$ 29,596	8.8
I1050	IRVINE	09C9056	SOTA ART STD	AHU-1- SP Reset	4,146	-	957	$ 1,332	$ 21,668	$ 2,223	$ 19,445	14.6
I6005	IRVINE	09C9073	SCILIBRARY	HHWP VFD Retrofit	3,619	-	359	$ 772	$ 6,180	$ 1,737	$ 4,443	5.8
I1075	IRVINE	09C9073	SCILIBRARY	AHU 1 thru 5 - SP Reset & DCV	191,945	(1.0)	42,195	$ 59,937	$ 27,493	$ 108,511	$ 5,499	0.1
I3364	IRVINE	09C9075	STEINHAUS H	Aircuity	263,000		32,348	$ 61,241	$ 425,000	$ 116,000	$ 309,000	5.0
I3018	IRVINE	09C9075	STEINHAUS H	Zone DDC Upgrade	36,086	9.0	4,387	$ 8,361	$ 382,770	$ 16,000	$ 366,770	43.9
I1058	IRVINE	09C9075	STEINHAUS H	AHU 1,2 - Reduce ACH from 7 to 6	412,265	70.0	73,304	$ 114,528	$ 942,678	$ 222,769	$ 719,909	6.3
I3356	IRVINE	09C9080	QURESHEY LAB	Exhaust Stack Discharge Reduction	35,175		4,897	$ 8,658	$ 115,000	$ 14,580	$ 100,420	11.6

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
I3355	IRVINE	09C9080	QURESHEY LAB	Aircuity	67,700		9,218	$ 16,495	$ 100,000	$ 28,400	$ 71,600	4.3
I3334	IRVINE	09C9081	BONNEY RES L	Exhaust Stack Discharge Reduction	40,650	-	4,347	$ 8,930	$ 75,000	$ 19,000	$ 56,000	6.3
I3333	IRVINE	09C9081	BONNEY RES L	CAV to VAV	213,000	-	27,386	$ 50,573	$ 500,000	$ 92,000	$ 408,000	8.1
I3332	IRVINE	09C9081	BONNEY RES L	Aircuity	157,250	-	20,291	$ 37,396	$ 230,000	$ 67,800	$ 162,200	4.3
I3315	IRVINE	09C9081	BONNEY RES L	Zone DDC Upgrade	21,181	6.0	2,575	$ 4,908	$ 180,180	$ 9,391	$ 170,789	34.8
I3277	IRVINE	09C9081	BONNEY RES L	AH Replacement (Deferred Maintenance)	-	-	-	$ -	$ -	$ -	$ -	
I3345	IRVINE	09C9082	GILLESPIE BLD	Exhaust Stack Discharge Reduction	44,150		4,694	$ 9,677	$ 105,000	$ 20,680	$ 84,320	8.7
I3344	IRVINE	09C9082	GILLESPIE BLD	CAV to VAV	105,632		11,108	$ 23,052	$ 175,000	$ 49,679	$ 125,321	5.4
I3343	IRVINE	09C9082	GILLESPIE BLD	Aircuity (Including Vivarium)	355,300		54,628	$ 91,695	$ 600,000	$ 138,800	$ 461,200	5.0
I3342	IRVINE	09C9082	GILLESPIE BLD	Zone DDC Controls (Lab Floors)	39,550	-	6,112	$ 10,232	$ 302,000	$ 15,400	$ 286,600	28.0
I3279	IRVINE	09C9082	GILLESPIE BLD	CAV to VAV Fume Hoods Proposed from Previous MBCx study by EMC	99,332	266.0	9,858	$ 21,195	$ 291,060	$ 47,679	$ 243,381	11.5
I3019	IRVINE	09C9082	GILLESPIE BLD	Demand Control Ventilation	3,115	7.0	309	$ 665	$ 4,470	$ 1,495	$ 2,975	4.5
I1011	IRVINE	09C9082	GILLESPIE BLD	AHU 1 - VAV Aircuity (4 ACH Occ & 2 Unocc)	462,904	61.0	83,524	$ 129,593	$ 180,740	$ 248,587	$ 36,148	0.3
I1010	IRVINE	09C9082	GILLESPIE BLD	AHU 2 - Reduce ACH from 15 to 8 for 5 Hoods in Vivarium	226,921	34.0	42,393	$ 64,716	$ 249,134	$ 115,767	$ 133,367	2.1
I3348	IRVINE	09C9084	MCGAUGH HALL	Vivarium Efficiency Measures	181,700		23,655	$ 43,382	$ 350,000	$ 78,000	$ 272,000	6.3
I3347	IRVINE	09C9084	MCGAUGH HALL	Lowflow Fume Hoods	181,500		21,136	$ 41,290	$ 1,000,000	$ 82,000	$ 918,000	22.2
I3346	IRVINE	09C9084	MCGAUGH HALL	Aircuity in Vivarium	237,800		27,348	$ 53,815	$ 325,000	$ 108,000	$ 217,000	4.0
I3022	IRVINE	09C9084	MCGAUGH HALL	Zone DDC Upgrade	71,723	18.0	8,720	$ 16,618	$ 762,684	$ 31,801	$ 730,883	44.0
I3021	IRVINE	09C9084	MCGAUGH HALL	Demand Control Ventilation	7,470	17.0	741	$ 1,594	$ 6,704	$ 3,585	$ 3,119	2.0
I3020	IRVINE	09C9084	MCGAUGH HALL	Aircuity - Reduce from 6 ACH to 4 ACH Occ & 2 Unocc	760,452	-	149,222	$ 222,741	$ 658,233	$ 387,607	$ 270,626	1.2
I1071	IRVINE	09C9084	MCGAUGH HALL	AHU 1, 2, 3 - Reduce ACH from 14 to 6	820,501	424.0	161,130	$ 240,433	$ 642,116	$ 473,658	$ 168,458	0.7
I3025	IRVINE	09C9087	SPRAGUE HALL	EF VFDs	281,400	32.0	27,926	$ 60,044	$ 58,265	$ 135,072	$ 11,653	0.2
I3024	IRVINE	09C9087	SPRAGUE HALL	Demand Control Ventilation	3,389	7.0	336	$ 723	$ 6,704	$ 1,626	$ 5,078	7.0
I3023	IRVINE	09C9087	SPRAGUE HALL	Aircuity - Reduce from 6 ACH to 4 ACH Occ & 2 Unocc	253,842	-	49,811	$ 74,352	$ 216,830	$ 129,383	$ 87,447	1.2
I1055	IRVINE	09C9087	SPRAGUE HALL	AHU 1,2- SP Reset & VFD exhaust	248,806	(4.0)	25,489	$ 53,743	$ 57,052	$ 120,706	$ 11,410	0.2
I1054	IRVINE	09C9087	SPRAGUE HALL	AHU 3 - SP Reset	14,391	-	2,536	$ 3,979	$ 2,747	$ 6,798	$ 549	0.1
I3226	IRVINE	09C9088	HEWITT HALL	EF VFDs	260,294	30.0	25,832	$ 55,541	$ 87,239	$ 124,941	$ 17,448	0.3
I3027	IRVINE	09C9088	HEWITT HALL	Demand Control Ventilation	2,963	6.0	294	$ 632	$ 6,704	$ 1,422	$ 5,282	8.4
I3026	IRVINE	09C9088	HEWITT HALL	Aircuity - Reduce Vivarium from 15 to 8 ACH, Labs from 6 ACH to 4 & 2 ACH	190,703	-	37,421	$ 55,858	$ 162,622	$ 97,201	$ 65,421	1.2
I1013	IRVINE	09C9088	HEWITT HALL	AHU 3 - SP Reset	13,580	-	3,038	$ 4,284	$ 2,747	$ 6,970	$ 549	0.1
I1012	IRVINE	09C9088	HEWITT HALL	AHU 1, 2 - Reduce ACH from 15 to 8 for 5 Hoods in Vivarium (Overall AHU goes from 8.36 to 6.52)	302,827	51.0	51,002	$ 81,795	$ 236,969	$ 152,572	$ 84,397	1.0
I3353	IRVINE	09C9090	NAT SCI 1	Exhaust Stack Discharge Reduction	47,678		4,997	$ 10,391	$ 135,000	$ 22,450	$ 112,550	10.8
I3352	IRVINE	09C9090	NAT SCI 1	Aircuity	404,750		60,473	$ 103,015	$ 650,000	$ 161,000	$ 489,000	4.7
I3028	IRVINE	09C9090	NAT SCI 1	Demand Control Ventilation	4,542	10.0	451	$ 969	$ 8,939	$ 2,180	$ 6,759	7.0
I1073	IRVINE	09C9090	NAT SCI 1	AHU 2,3,4 - SP Reset & VFD on Exhaust	274,702	53.0	28,198	$ 59,383	$ 39,866	$ 133,217	$ 7,973	0.1
I1033	IRVINE	09C9090	NAT SCI 1	AHU 1 - SP Reset	39,975	-	9,618	$ 13,163	$ 2,747	$ 23,105	$ 549	0.0
I3354	IRVINE	09C9091	NAT SCI 2	Exhaust Stack Discharge Reduction	47,678		4,997	$ 10,391	$ 135,000	$ 22,450	$ 112,550	10.8
I3227	IRVINE	09C9091	NAT SCI 2	EF VFDs	17,183	2.0	1,705	$ 3,666	$ 11,243	$ 8,248	$ 2,995	0.8
I3030	IRVINE	09C9091	NAT SCI 2	Demand Control Ventilation	5,120	11.0	508	$ 1,092	$ 8,939	$ 2,458	$ 6,481	5.9
I3029	IRVINE	09C9091	NAT SCI 2	Aircuity - Reduce from 6 ACH to 4 ACH Occ & 2 Unocc	384,708	-	75,490	$ 112,683	$ 332,989	$ 196,087	$ 136,902	1.2
I1074	IRVINE	09C9091	NAT SCI 2	AHU 1,2,4 - SP Reset & VFD on Exhaust	344,526	(5.0)	35,527	$ 74,609	$ 52,018	$ 167,531	$ 10,404	0.1
I1034	IRVINE	09C9091	NAT SCI 2	AHU 3 - SP Reset	60,862	-	13,881	$ 19,416	$ 2,747	$ 35,180	$ 549	0.0
I3360	IRVINE	09C9100	ROWLAND HALL	Aircuity	344,600		44,820	$ 82,239	$ 600,000	$ 148,000	$ 452,000	5.5
I3359	IRVINE	09C9100	ROWLAND HALL	Exhaust Stack Discharge Reduction	63,365		8,506	$ 15,339	$ 185,000	$ 26,780	$ 158,220	10.3
I1036	IRVINE	09C9100	ROWLAND HALL	AHU 1,2,3,4 - DDC Upgrade, CAV to VAV Fume Hoods & SP Reset	2,206,653	(1.0)	397,326	$ 617,086	$ 2,360,290	$ 1,137,405	$ 1,222,885	2.0
I3094	IRVINE	09C9107	BERKELEY PL	Replace air handlers in Berkeley Place (Deferred Maintenance, to be combined with other retrofits)	174,737	56.0	20,846	$ 40,159	$ 990,990	$ 78,129	$ 912,861	22.7
I3033	IRVINE	09C9107	BERKELEY PL	Zone DDC Upgrade	38,258	10.0	4,651	$ 8,864	$ 408,479	$ 16,963	$ 391,516	44.2
I3032	IRVINE	09C9107	BERKELEY PL	Demand Control Ventilation	4,283	9.0	425	$ 914	$ 17,878	$ 2,056	$ 15,822	17.3
I1040	IRVINE	09C9107	BERKELEY PL	North Wing -AC-2,3 SP Reset	31,412	-	4,972	$ 8,223	$ 43,144	$ 12,038	$ 31,106	3.8
I1039	IRVINE	09C9107	BERKELEY PL	North AC-1 SP Reset	10,545	-	1,698	$ 2,784	$ 21,572	$ 3,994	$ 17,578	6.3
I1038	IRVINE	09C9107	BERKELEY PL	South Wing -AC-2,3,4 SP Reset	19,060	-	3,025	$ 4,996	$ 63,563	$ 7,291	$ 56,272	11.3
I1037	IRVINE	09C9107	BERKELEY PL	AC-1 SP Reset	6,860	-	1,097	$ 1,805	$ 21,092	$ 2,611	$ 18,481	10.2
I3358	IRVINE	09C9108	REINES HALL	Exhaust Stack Discharge Reduction	62,050		8,345	$ 15,033	$ 175,000	$ 26,200	$ 148,800	9.9
I3357	IRVINE	09C9108	REINES HALL	Aircuity	297,550		37,964	$ 70,407	$ 480,000	$ 129,000	$ 351,000	5.0
I3036	IRVINE	09C9108	REINES HALL	EF VFDs	3,132	-	311	$ 668	$ 11,738	$ 1,503	$ 10,235	15.3
I3035	IRVINE	09C9108	REINES HALL	Zone DDC Upgrade	52,525	14.0	6,386	$ 12,170	$ 559,873	$ 23,289	$ 536,584	44.1
I3034	IRVINE	09C9108	REINES HALL	Demand Control Ventilation	5,880	13.0	583	$ 1,255	$ 4,470	$ 2,822	$ 1,648	1.3
I1035	IRVINE	09C9108	REINES HALL	AHU 1,2 - Reduce ACH from 8.5 to 6	1,005,529	169.0	179,844	$ 280,202	$ 5,766,132	$ 544,142	$ 5,221,990	18.6
I3038	IRVINE	09C9114	M SCI & TECH	Zone DDC Upgrade	21,181	6.0	2,575	$ 4,908	$ 225,663	$ 9,391	$ 216,272	44.1
I3037	IRVINE	09C9114	M SCI & TECH	Demand Control Ventilation	2,371	5.0	235	$ 506	$ 4,470	$ 1,138	$ 3,332	6.6
I1032	IRVINE	09C9114	M SCI & TECH	AHU 1,2 - VIV to VAV & SP Reset	73,976	5.0	17,313	$ 23,961	$ 36,396	$ 39,866	$ 7,279	0.3
I3336	IRVINE	09C9115	CROUL HALL	Additional Aircuity in Labs	113,000	-	17,462	$ 29,235	$ 150,000	$ 44,000	$ 106,000	3.6
I3335	IRVINE	09C9115	CROUL HALL	Exhaust Stack Discharge Reduction	45,650	-	4,843	$ 9,997	$ 85,000	$ 21,400	$ 63,600	6.4

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
I3225	IRVINE	09C9115	CROUL HALL	EF VFDs	187,610	21.0	18,618	$ 40,032	$ 48,707	$ 90,053	$ 9,741	0.2
I1004	IRVINE	09C9115	CROUL HALL	AHU 1 SP Reset	9,674	-	2,323	$ 3,182	$ 2,747	$ 5,717	$ 549	0.2
I3337	IRVINE	09C9125	ENG TOWER	Aircuity	339,000	-	52,386	$ 87,705	$ 450,000	$ 132,000	$ 318,000	3.6
I3042	IRVINE	09C9125	ENG TOWER	Zone DDC Upgrade	38,240	10.0	4,649	$ 8,860	$ 405,622	$ 16,955	$ 388,667	43.9
I3041	IRVINE	09C9125	ENG TOWER	Demand Control Ventilation	4,280	9.0	425	$ 913	$ 8,939	$ 2,054	$ 6,885	7.5
I1009	IRVINE	09C9125	ENG TOWER	AHU 10 and 20 - SP Reset	22,804	-	2,509	$ 5,068	$ 47,759	$ 10,910	$ 36,849	7.3
I1008	IRVINE	09C9125	ENG TOWER	AHU-1,2 - CAV to VAV, SP Reset & Add Economizer	140,595	-	60,456	$ 68,133	$ 1,718,777	$ 119,141	$ 1,599,636	23.5
I3044	IRVINE	09C9126	COMP SCI BLD	Zone DDC Upgrade	20,363	5.0	2,476	$ 4,718	$ 217,094	$ 9,029	$ 208,065	44.1
I3043	IRVINE	09C9126	COMP SCI BLD	Demand Control Ventilation	2,280	5.0	226	$ 486	$ 4,470	$ 1,094	$ 3,376	6.9
I1067	IRVINE	09C9126	COMP SCI BLD	AHU-2 SP reset & VIV to VAV & Add Economizer	11,148	-	3,158	$ 4,061	$ 26,710	$ 8,043	$ 18,667	4.6
I1066	IRVINE	09C9126	COMP SCI BLD	AHU-1 SP reset & Add Economizer Controls	22,610	-	8,073	$ 9,605	$ 75,878	$ 17,694	$ 58,184	6.1
I3361	IRVINE	09C9128	SOC ECOLOGY	Zone DDC Upgrade	33,170		3,854	$ 7,539	$ 300,000	$ 15,000	$ 285,000	37.8
I3045	IRVINE	09C9128	SOC ECOLOGY	Demand Control Ventilation	2,066	4.0	205	$ 441	$ 8,939	$ 992	$ 7,947	18.0
I1043	IRVINE	09C9128	SOC ECOLOGY	AHU 4 - Reduce ACH from 7 to 6	24,411	4.0	4,470	$ 6,888	$ 59,447	$ 13,292	$ 46,155	6.7
I1042	IRVINE	09C9128	SOC ECOLOGY	AHU 2,3 - SP Reset	2,608	-	384	$ 659	$ 5,494	$ 1,446	$ 4,048	6.1
I1041	IRVINE	09C9128	SOC ECOLOGY	AHU 1 - SP Reset	3,024	-	427	$ 749	$ 2,747	$ 1,648	$ 1,099	1.5
I3046	IRVINE	09C9132	IRVINE HALL	Zone DDC Upgrade	18,331	5.0	2,229	$ 4,247	$ 194,242	$ 8,127	$ 186,115	43.8
I1017	IRVINE	09C9132	IRVINE HALL	AHU 2,3,4A,4B, ATU 1,2,3 - SP Reset	80,164	-	13,361	$ 21,538	$ 303,270	$ 40,577	$ 262,693	12.2
I1016	IRVINE	09C9132	IRVINE HALL	AHU 1, 5, 6, 7, 8, - SP Reset	65,269	-	14,471	$ 20,481	$ 104,400	$ 35,063	$ 69,337	3.4
I3558	IRVINE	09C9140	ENG GATEWAY	Replace Old CRAC Units with New CRAC Units, Install Air Side Economizer & Separate Hot & Cold Aisle	45,552	-	4,521	$ 9,720	$ 138,600	$ 21,865	$ 116,735	12.0
I3341	IRVINE	09C9140	ENG GATEWAY	Aircuity	197,750	-	30,559	$ 51,161	$ 225,000	$ 77,000	$ 148,000	2.9
I3340	IRVINE	09C9140	ENG GATEWAY	Exhaust Stack Discharge Reduction	43,150	-	4,595	$ 9,463	$ 100,000	$ 20,200	$ 79,800	8.4
I3339	IRVINE	09C9140	ENG GATEWAY	CAV to VAV	505,350	-	77,954	$ 130,628	$ 1,500,000	$ 197,000	$ 1,303,000	10.0
I3048	IRVINE	09C9140	ENG GATEWAY	Zone DDC Upgrade	44,329	11.0	5,389	$ 10,271	$ 471,322	$ 19,655	$ 451,667	44.0
I1007	IRVINE	09C9140	ENG GATEWAY	AHU 10 SP Reset & DCV	571	-	40	$ 108	$ 2,235	$ 270	$ 1,965	18.2
I1006	IRVINE	09C9140	ENG GATEWAY	AHU 3 thru 8 - Reduce ACH from 7 to 6 for 20 Hoods	297,911	-	48,949	$ 79,463	$ 1,170,871	$ 154,586	$ 1,016,285	12.8
I1005	IRVINE	09C9140	ENG GATEWAY	AHU 1 and 2 - SP Reset	11,324	-	2,791	$ 3,784	$ 2,747	$ 6,697	$ 549	0.1
I3271	IRVINE	09C9202	SOCSCI HALL	Air Handler Replacement	19,420	-	2,490	$ 4,605	$ 166,320	$ 8,400	$ 157,920	34.3
I3050	IRVINE	09C9204	SOCSCI TOWER	Zone DDC Upgrade	28,137	7.0	3,421	$ 6,519	$ 299,932	$ 12,476	$ 287,456	44.1
I1049	IRVINE	09C9204	SOCSCI TOWER	AHU C1 - CAV to VAV, DCV, SP Reset	13,946	-	2,709	$ 4,062	$ 40,860	$ 7,717	$ 33,143	8.2
I1048	IRVINE	09C9204	SOCSCI TOWER	AHU-B3, B4 - SP Reset & Add Economizer	36,392	1.0	9,361	$ 12,480	$ 61,126	$ 21,680	$ 39,446	3.2
I1047	IRVINE	09C9204	SOCSCI TOWER	AHU-B1,B2,D1,D2 - SP Reset & Add Economizer	51,808	-	15,134	$ 19,249	$ 123,405	$ 33,801	$ 89,604	4.7
I3052	IRVINE	09C9212	SOC SCI PL A	Zone DDC Upgrade	15,600	4.0	1,897	$ 3,615	$ 165,677	$ 6,917	$ 158,760	43.9
I3051	IRVINE	09C9212	SOC SCI PL A	Demand Control Ventilation	1,746	4.0	173	$ 373	$ 2,235	$ 838	$ 1,397	3.7
I1045	IRVINE	09C9212	SOC SCI PL A	AHU 1 - SP Reset	21,232	-	2,714	$ 5,028	$ 25,130	$ 10,042	$ 15,088	3.0
I3054	IRVINE	09C9221	SOC SCI PL B	Zone DDC Upgrade	16,471	4.0	2,003	$ 3,816	$ 174,246	$ 7,303	$ 166,943	43.7
I3053	IRVINE	09C9221	SOC SCI PL B	Demand Control Ventilation	1,844	4.0	183	$ 393	$ 2,235	$ 885	$ 1,350	3.4
I1046	IRVINE	09C9221	SOC SCI PL B	AHU 2 - SP Reset	34,792	-	7,658	$ 10,872	$ 24,553	$ 19,363	$ 5,190	0.5
I3363	IRVINE	09C9222	SOC ECOLOGY2	Exhaust Stack Discharge Reduction	40,750		5,606	$ 9,976	$ 125,000	$ 17,000	$ 108,000	10.8
I3362	IRVINE	09C9222	SOC ECOLOGY2	Aircuity	152,350		21,055	$ 37,375	$ 275,000	$ 63,400	$ 211,600	5.7
I3055	IRVINE	09C9222	SOC ECOLOGY2	Demand Control Ventilation	1,437	3.0	143	$ 307	$ 4,470	$ 690	$ 3,780	12.3
I1076	IRVINE	09C9222	SOC ECOLOGY2	AHU 3H - Reduce ACH from 7 to 6	34,011	8.0	3,494	$ 7,354	$ 178,681	$ 16,225	$ 162,456	22.1
I1044	IRVINE	09C9222	SOC ECOLOGY2	AHU 3C - SP Reset	28,966	-	3,872	$ 6,998	$ 25,130	$ 13,441	$ 11,689	1.7
I1069	IRVINE	09C9300	CRAWFORD HAL	AHU 2 - CAV to VAV	3,820	-	548	$ 953	$ 30,988	$ 1,692	$ 29,296	30.7
I1068	IRVINE	09C9300	CRAWFORD HAL	DCV for a CAV system - AHU 1, 3 and 4	77,114	(1.0)	8,677	$ 17,294	$ 122,834	$ 36,155	$ 86,679	5.0
I6004	IRVINE	09C9302	CENTRL PLANT	CHW Primary VFD	112,210	-	11,136	$ 23,943	$ 29,563	$ 53,861	$ 5,913	0.2
I6003	IRVINE	09C9302	CENTRL PLANT	Condenser Water Reset	295,393	-	29,315	$ 63,030	$ 100,693	$ 141,788	$ 20,139	0.3
I3269	IRVINE	09C9302	CENTRL PLANT	Equipment Efficiency Upgrade	167,250	-	21,284	$ 39,530	$ 693,000	$ 72,600	$ 620,400	15.7
I6002	IRVINE	09C9314	BREN EVENTS	ECM- Install Air Curtain At Loading Dock (Bren Events Center)	4,008	-	935	$ 1,296	$ 16,342	$ 1,473	$ 14,869	11.5
I3074	IRVINE	09C9314	BREN EVENTS	Retrofit existing 1000-watt HIDs with fluorescent high bays, multiple switching	55,080	37.0	5,466	$ 11,753	$ 61,937	$ 26,438	$ 35,499	3.0
I3057	IRVINE	09C9314	BREN EVENTS	Zone DDC Upgrade	32,640	8.0	3,968	$ 7,562	$ 348,492	$ 14,472	$ 334,020	44.2
I1077	IRVINE	09C9314	BREN EVENTS	AHU 4 and 6 - VIV to VAV and SP reset	20,511	(1.0)	5,151	$ 6,932	$ 107,423	$ 12,888	$ 94,535	13.6
I1057	IRVINE	09C9314	BREN EVENTS	DCV for a CAV system - AHU 2 and AHU 5	22,046	-	3,293	$ 5,610	$ 73,167	$ 11,033	$ 62,134	11.1
I1056	IRVINE	09C9314	BREN EVENTS	AHU 1 and 3 - Convert to VAV and SP reset	307,545	(4.0)	70,585	$ 98,476	$ 570,110	$ 185,451	$ 384,659	3.9
I3058	IRVINE	09C9322	MED SCI C	Zone DDC Upgrade	18,746	5.0	2,279	$ 4,344	$ 199,955	$ 8,312	$ 191,643	44.1
I1024	IRVINE	09C9322	MED SCI C	AHU C2, C3 - Reduce ACH from 7 to 6	131,928	24.0	20,996	$ 34,631	$ 263,125	$ 69,396	$ 193,729	5.6
I1023	IRVINE	09C9322	MED SCI C	AHU C1 - SP Reset	14,372	-	3,051	$ 4,399	$ 21,668	$ 8,027	$ 13,641	3.1
I3060	IRVINE	09C9323	MED SCI D	Zone DDC Upgrade	24,150	6.0	2,936	$ 5,595	$ 257,084	$ 10,708	$ 246,376	44.0
I1026	IRVINE	09C9323	MED SCI D	AHU D2, D3 - Reduce ACH from 7 to 6	157,088	29.0	25,001	$ 41,236	$ 234,288	$ 82,629	$ 151,659	3.7
I1025	IRVINE	09C9323	MED SCI D	AHU D1 - SP Reset	15,888	-	3,417	$ 4,899	$ 21,957	$ 8,865	$ 13,092	2.7
I3062	IRVINE	09C9325	MED SCI A	Zone DDC Upgrade	4,503	1.0	547	$ 1,043	$ 48,560	$ 1,996	$ 46,564	44.6
I1019	IRVINE	09C9325	MED SCI A	AHU A1,A2, - Reduce ACH from 13.72 to 8	55,313	29.0	10,770	$ 16,133	$ 40,315	$ 31,841	$ 8,474	0.5
I3064	IRVINE	09C9328	MED SCI B	Zone DDC Upgrade	12,037	3.0	1,463	$ 2,789	$ 128,542	$ 5,337	$ 123,205	44.2
I1022	IRVINE	09C9328	MED SCI B	AHU B2, B3 - Reduce ACH from 7 to 6	108,100	20.0	17,204	$ 28,377	$ 120,776	$ 56,860	$ 63,916	2.3
I1021	IRVINE	09C9328	MED SCI B	AHU B1 - SP Reset	15,690	-	3,371	$ 4,835	$ 21,380	$ 8,833	$ 12,547	2.6

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
I3066	IRVINE	09C9329	MED SURG 2	Zone DDC Upgrade	20,217	5.0	2,458	$ 4,684	$ 214,237	$ 8,964	$ 205,273	43.8
I1031	IRVINE	09C9329	MED SURG 2	AHU 8 - SP reset	2,694	-	376	$ 664	$ 20,322	$ 1,274	$ 19,048	28.7
I1030	IRVINE	09C9329	MED SURG 2	AHU-7 - CAV to VAV and SP Reset	117,850	(1.0)	37,101	$ 45,979	$ 443,081	$ 82,170	$ 360,911	7.8
I1029	IRVINE	09C9329	MED SURG 2	AHU-4 - SP reset	7,398	-	1,586	$ 2,277	$ 20,803	$ 3,721	$ 17,082	7.5
I1028	IRVINE	09C9329	MED SURG 2	AHU-5 - SP reset	9,083	-	1,984	$ 2,826	$ 20,899	$ 4,835	$ 16,064	5.7
I1027	IRVINE	09C9329	MED SURG 2	AHU-3, 6 - SP reset	63,021	1.0	21,452	$ 25,910	$ 46,029	$ 44,685	$ 9,206	0.4
I3067	IRVINE	09CTBD1	BREN HALL	Demand Control Ventilation	5,559	12.0	552	$ 1,186	$ 4,470	$ 2,668	$ 1,802	1.5
I3351	IRVINE	09CWIDE	CAMPUSWIDE	Med Sci A-B-C-D Exhaust Stack Discharge Reduction	53,465		5,650	$ 11,690	$ 150,000	$ 25,100	$ 124,900	10.7
I3350	IRVINE	09CWIDE	CAMPUSWIDE	Med Sci A-B-C-D Aircuity	460,500		67,568	$ 116,191	$ 780,000	$ 185,200	$ 594,800	5.1
I3313	IRVINE	09CWIDE	CAMPUSWIDE	Retrofit All Cold Room Compressors to Energy Star Replacement units.	130,000	-	12,901	$ 27,739	$ 1,191,960	$ 62,400	$ 1,129,560	40.7
I3306	IRVINE	09CWIDE	CAMPUSWIDE	Replace Chilled Water Valves With Delta P Valves	137,500	-	13,646	$ 29,339	$ 457,380	$ 66,000	$ 391,380	13.3
I3305	IRVINE	09CWIDE	CAMPUSWIDE	Low Pressure Drop Filters (Additional)	125,000	-	12,405	$ 26,672	$ 207,900	$ 60,000	$ 147,900	5.5
I3268	IRVINE	09CWIDE	CAMPUSWIDE	DDC Conversion and Control Upgrade - Buildings < 50k GSF not in SEP	220,065	-	26,556	$ 50,825	$ 3,118,500	$ 97,900	$ 3,020,600	59.4
I3265	IRVINE	09CWIDE	CAMPUSWIDE	Install Efficient HTW Solution for Health Sciences	1,086,750	-	215,625	$ 320,264	$ 11,088,000	$ 345,000	$ 10,743,000	33.5
I3264	IRVINE	09CWIDE	CAMPUSWIDE	Chillers, heat exchangers, air-handlers, duct streamlining measures (e.g., radial ducts where right-angle transitions exist), pumps, controls, and motors with <10 year payback.	112,500	-	11,165	$ 24,005	$ 1,074,150	$ 54,000	$ 1,020,150	42.5
I3262	IRVINE	09CWIDE	CAMPUSWIDE	EMS Control Upgrade - Buildings < 50k GSF not in SEP	393,375	-	46,067	$ 89,701	$ 3,465,000	$ 177,300	$ 3,287,700	36.7
I3261	IRVINE	09CWIDE	CAMPUSWIDE	Upgrade and Enhance EMS as needed to manage, monitor, and maintain measures embodied in the SEP.	710,250	-	81,419	$ 160,517	$ 4,851,000	$ 323,000	$ 4,528,000	28.2
I3260	IRVINE	09CWIDE	CAMPUSWIDE	HVAC Efficiency Improvement - Buildings < 50k GSF not in SEP	377,250	-	57,744	$ 97,147	$ 2,425,500	$ 147,800	$ 2,277,700	23.4
I3258	IRVINE	09CWIDE	CAMPUSWIDE	Remove Sound Attenuators to Reduce Pressure Drop on Fan System	92,500	-	9,180	$ 19,737	$ 582,120	$ 44,400	$ 537,720	27.2
I3257	IRVINE	09CWIDE	CAMPUSWIDE	Reduce ACH Using Low Flow Fumehoods	354,800	-	48,331	$ 86,465	$ 2,079,000	$ 148,800	$ 1,930,200	22.3
I3254	IRVINE	09CWIDE	CAMPUSWIDE	Replace Stand Alone Packaged DX Units < 8 SEER	97,875	-	10,494	$ 21,525	$ 526,680	$ 45,700	$ 480,980	22.3
I3253	IRVINE	09CWIDE	CAMPUSWIDE	Replace Chillers, Heat Exchangers, Air Handlers, Pumps, Motors, and Controls with < 10 Yr. Payback.	387,500	-	38,456	$ 82,684	$ 2,079,000	$ 186,000	$ 1,893,000	22.9
I3251	IRVINE	09CWIDE	CAMPUSWIDE	Reduced Exhaust Stack Velocity and Eliminate Make Up Air in Lab Exhaust Systems	403,750	-	47,878	$ 92,555	$ 1,940,400	$ 181,000	$ 1,759,400	19.0
I3249	IRVINE	09CWIDE	CAMPUSWIDE	Data Center Energy Efficiency Project	38,500	-	3,821	$ 8,215	$ 152,460	$ 18,480	$ 133,980	16.3
I3247	IRVINE	09CWIDE	CAMPUSWIDE	Occupancy Based Ventilation Control	128,880	-	14,415	$ 28,832	$ 450,450	$ 59,200	$ 391,250	13.6
I3245	IRVINE	09CWIDE	CAMPUSWIDE	Implement Demand Control Ventilation - Buildings < 50k GSF not in SEP	244,925	-	27,274	$ 54,695	$ 665,280	$ 112,700	$ 552,580	10.1
I3243	IRVINE	09CWIDE	CAMPUSWIDE	Monitoring Based Commisioning - Buildings < 50k GSF not in SEP	732,700	-	90,832	$ 171,199	$ 1,212,750	$ 322,000	$ 890,750	5.2
I3241	IRVINE	09CWIDE	CAMPUSWIDE	Aircuity Installation as Applicable	-	-	-	$ -	$ -	$ -	$ -	
I3236	IRVINE	09CWIDE	CAMPUSWIDE	Chilled Beams or Fan Coil Units for Isolated Heat Loads	36,000	-	3,573	$ 7,682	$ 519,750	$ 17,280	$ 502,470	65.4
I3228	IRVINE	09CWIDE	CAMPUSWIDE	Auto-Sash Closers	410,250	-	51,647	$ 96,504	$ 1,178,100	$ 179,000	$ 999,100	10.4
I3158	IRVINE	09CWIDE	CAMPUSWIDE	Install brilliant white "cool roof" roofing material at the Bren Events Center and Med Sci A-C	4,108	-	408	$ 876	$ 1,187,543	$ 1,972	$ 1,185,571	1,352.7
I3157	IRVINE	09CWIDE	CAMPUSWIDE	Install occupancy sensor switches for restroom fans, and right size motors wherever cost-feasible campus wide.	131,743	30.0	13,074	$ 28,111	$ 342,342	$ 63,236	$ 279,106	9.9
I3156	IRVINE	09CWIDE	CAMPUSWIDE	Retrofit office trailers with high efficiency heat pumps and occupancy sensors for air-conditioning.	62,500	25.0	6,203	$ 13,336	$ 166,320	$ 30,000	$ 136,320	10.2
Subtotal, State Funded, HVAC Projects					**219,966,852**	**13,449.0**	**15,718,352**	**$ 33,444,240**	**$ 466,077,891**	**$ 68,890,241**	**$ 397,187,650**	**11.9**
Lighting Projects												
A3011	BERKELEY	01C1095	HEARST2195 (SRB1)	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts; Add Occupancy Sensors and Daylighting	115,014	29.0	-	$ 9,546	$ 152,701	$ 27,603	$ 125,098	13.1
A3026	BERKELEY	01C1210	SPROUL	Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	222,387	54.0	-	$ 18,458	$ 287,869	$ 53,373	$ 234,496	12.7
A3028	BERKELEY	01C1220	BIRGE	Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts; Add Occupancy Sensors and Daylighting	175,451	48.0	-	$ 14,562	$ 216,047	$ 42,108	$ 173,939	11.9
A3031	BERKELEY	01C1225	LS ADDITION	Add Occupancy Sensors and Daylighting	25,036	5.0	-	$ 2,078	$ 37,662	$ 6,009	$ 31,653	15.2
A3033	BERKELEY	01C1229	NW AN FACIL	Add Occupancy Sensors and Daylighting	6,049	1.0	-	$ 502	$ 9,120	$ 1,452	$ 7,668	15.3
A3040	BERKELEY	01C1234	HAAS STU BLD	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts	96,421	30.0	-	$ 8,003	$ 108,267	$ 23,141	$ 85,126	10.6
A3042	BERKELEY	01C1236	HAAS FAC BLD	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts; Add Occupancy Sensors and Daylighting	179,656	46.0	-	$ 14,911	$ 245,437	$ 43,117	$ 202,320	13.6

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
A3043	BERKELEY	01C1237	SODA	Add Daylighting	4,531	2.0	-	$ 376	$ 7,492	$ 1,087	$ 6,405	17.0
A3045	BERKELEY	01C1270	CALIFORNIA	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts; Add Occupancy Sensors and Daylighting	96,644	24.0	-	$ 8,021	$ 130,642	$ 23,195	$ 107,447	13.4
A3049	BERKELEY	01C1286	TANG CENTER	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts; Add Occupancy Sensors and Daylighting	106,790	28.0	-	$ 8,864	$ 128,497	$ 25,630	$ 102,867	11.6
A3051	BERKELEY	01C1292	LEWIS	Add Occupancy Sensors and Daylighting	14,132	3.0	-	$ 1,173	$ 21,378	$ 3,392	$ 17,986	15.3
A3053	BERKELEY	01C1295	DWINELLE	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts; Add Occupancy Sensors and Daylighting	470,515	124.0	-	$ 39,053	$ 621,600	$ 112,924	$ 508,676	13.0
A3055	BERKELEY	01C1297	GARDNERSTACK	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts; Add Occupancy Sensors and Daylighting	301,401	76.0	-	$ 25,016	$ 335,027	$ 72,336	$ 262,691	10.5
A3057	BERKELEY	01C1298	DOE ANNEX	Add Occupancy Sensors and Daylighting	76,299	15.0	-	$ 6,333	$ 116,315	$ 18,312	$ 98,003	15.5
A3059	BERKELEY	01C1299	MOFFITT	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts	131,387	41.0	-	$ 10,905	$ 147,710	$ 31,533	$ 116,177	10.7
A3061	BERKELEY	01C1301	DOE LIBRARY	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts; Add Occupancy Sensors and Daylighting	278,494	68.0	-	$ 23,115	$ 321,024	$ 66,839	$ 254,185	11.0
A3063	BERKELEY	01C1302	MINOR ADDITN	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts; Add Occupancy Sensors and Daylighting	88,794	22.0	-	$ 7,370	$ 85,141	$ 21,311	$ 63,830	8.7
A3065	BERKELEY	01C1318	EDWARDS FLD	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts; Add Occupancy Sensors and Daylighting	9,976	24.0	-	$ 828	$ 129,455	$ 2,394	$ 127,061	153.5
A3067	BERKELEY	01C1323	DAVIS	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts; Add Occupancy Sensors and Daylighting	198,136	52.0	-	$ 16,445	$ 241,373	$ 47,553	$ 193,820	11.8
A3068	BERKELEY	01C1325	CORY	Add Daylighting	6,175	3.0	-	$ 513	$ 10,210	$ 1,482	$ 8,728	17.0
A3070	BERKELEY	01C1346	MULFORD	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast	80,391	28.0	-	$ 6,672	$ 101,866	$ 19,294	$ 82,572	12.4
A3072	BERKELEY	01C1355	GIANNINI	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts; Add Occupancy Sensors and Daylighting	99,190	27.0	-	$ 8,233	$ 124,852	$ 23,806	$ 101,046	12.3
A3074	BERKELEY	01C1360	HAAS PAVIL	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	132,895	30.0	-	$ 11,030	$ 388,985	$ 31,895	$ 357,090	32.4
A3076	BERKELEY	01C1365	REC SPRT FAC	Add Occupancy Sensors and Daylighting	189,986	37.0	-	$ 15,769	$ 270,884	$ 45,597	$ 225,287	14.3
A3004	BERKELEY	01C1365	REC SPRT FAC	Replace existing HID fixtures with new fluorescent fixtures/sensors	35,533	3.0	-	$ 2,949	$ 59,123	$ 8,528	$ 50,595	17.2
A3078	BERKELEY	01C1371	HAVILAND	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts; Add Occupancy Sensors and Daylighting	82,825	21.0	-	$ 6,874	$ 109,049	$ 19,878	$ 89,171	13.0
A3080	BERKELEY	01C1372	HEARST GYM	Replace F40T12 MB w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	177,910	43.0	-	$ 14,767	$ 196,555	$ 42,698	$ 153,857	10.4
A3082	BERKELEY	01C1373	HEARST MIN	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast	155,473	44.0	-	$ 12,904	$ 159,354	$ 37,314	$ 122,040	9.5
A3084	BERKELEY	01C1376	HILGARD	Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	97,859	26.0	-	$ 8,122	$ 104,170	$ 23,486	$ 80,684	9.9
A3086	BERKELEY	01C1382	MORGAN	Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts; Add Occupancy Sensors and Daylighting	104,730	29.0	-	$ 8,693	$ 130,013	$ 25,135	$ 104,878	12.1
A3090	BERKELEY	01C1405	LE CONTE	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	197,174	53.0	-	$ 16,365	$ 242,328	$ 47,322	$ 195,006	11.9
A3092	BERKELEY	01C1406	VALLEY LSB	Add Occupancy Sensors and Daylighting	158,893	32.0	-	$ 13,188	$ 242,122	$ 38,134	$ 203,988	15.5
A3094	BERKELEY	01C1419	DONNER LAB	Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	68,829	19.0	-	$ 5,713	$ 75,232	$ 16,519	$ 58,713	10.3

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
A3096	BERKELEY	01C1486	KROEBER	Add Daylighting	3,303	2.0	-	$ 274	$ 4,916	$ 793	$ 4,123	15.0
A3098	BERKELEY	01C1488	STEPHENS	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts; Add Occupancy Sensors and Daylighting	98,804	25.0	-	$ 8,201	$ 132,984	$ 23,713	$ 109,271	13.3
A3102	BERKELEY	01C1520	UCB ART MUSE	Add Occupancy Sensors and Daylighting	34,197	6.0	-	$ 2,838	$ 51,164	$ 8,207	$ 42,957	15.1
A3104	BERKELEY	01C1552	WHEELER	Add Occupancy Sensors and Daylighting	88,188	19.0	-	$ 7,320	$ 137,627	$ 21,165	$ 116,462	15.9
A3106	BERKELEY	01C1594	UNIVERSITY	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	365,726	84.0	-	$ 30,355	$ 341,620	$ 87,774	$ 253,846	8.4
A3109	BERKELEY	01C1761	BARROWS	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Add Daylighting	176,311	63.0	-	$ 14,634	$ 232,627	$ 42,315	$ 190,312	13.0
A3112	BERKELEY	01C1774	TOLMAN	Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts; Add Occupancy Sensors and Daylighting	287,287	78.0	-	$ 23,845	$ 335,731	$ 68,949	$ 266,782	11.2
A3117	BERKELEY	01C1782	LATIMER	Add Daylighting	3,040	2.0	-	$ 252	$ 5,027	$ 730	$ 4,297	17.0
A3119	BERKELEY	01C1783	ETCHEVERRY	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts; Add Occupancy Sensors and Daylighting	236,029	63.0	-	$ 19,590	$ 276,861	$ 56,647	$ 220,214	11.2
A3121	BERKELEY	01C1784	CHAVEZ (Golden Bear)	Replace F40T12 MB w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	137,087	37.0	-	$ 11,378	$ 148,212	$ 32,901	$ 115,311	10.1
A3124	BERKELEY	01C1791	KING UNION	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts; Add Occupancy Sensors and Daylighting	154,854	43.0	-	$ 12,853	$ 151,324	$ 37,165	$ 114,159	8.9
A3126	BERKELEY	01C1793	BARKER	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	125,282	33.0	-	$ 10,398	$ 141,733	$ 30,068	$ 111,665	10.7
A3128	BERKELEY	01C1794	FULTON2223	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts; Add Occupancy Sensors and Daylighting	88,398	22.0	-	$ 7,337	$ 119,090	$ 21,216	$ 97,874	13.3
A3130	BERKELEY	01C1797	WURSTER	Add Daylighting	8,919	4.0	-	$ 740	$ 13,274	$ 2,141	$ 11,133	15.0
A3132	BERKELEY	01C1800	LAWRENCE	Add Occupancy Sensors and Daylighting	48,261	9.0	-	$ 4,006	$ 72,657	$ 11,583	$ 61,074	15.2
A3134	BERKELEY	01C1802	ZELLERBACH	Add Occupancy Sensors and Daylighting	85,431	14.0	-	$ 7,091	$ 127,021	$ 20,503	$ 106,518	15.0
A3136	BERKELEY	01C1808	TAN	Add Occupancy Sensors and Daylighting	12,505	2.0	-	$ 1,038	$ 18,831	$ 3,001	$ 15,830	15.3
A3138	BERKELEY	01C1809	HILDEBRAND	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts; Add Occupancy Sensors and Daylighting	163,903	44.0	-	$ 13,604	$ 184,654	$ 39,337	$ 145,317	10.7
A3141	BERKELEY	01CWIDE	CAMPUSWIDE	Phase 2: Replace 200 additional stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in campus buildings	70,000	-	-	$ 5,810	$ 74,012	$ 16,800	$ 57,212	9.8
A3002	BERKELEY	01CWIDE	CAMPUSWIDE	Parking Lots - Retrofit existing HID fixtures with new PSMH kits	16,206	-	-	$ 1,345	$ 21,543	$ 3,889	$ 17,654	13.1
A3001	BERKELEY	01CWIDE	CAMPUSWIDE	Ellsworth Structure: Replace existing HID fixtures with new fluorescent fixtures w/sensor	5,454	-	-	$ 453	$ 8,537	$ 1,309	$ 7,228	16.0
B3085	SAN FRANCISCO	02C2012	LIBRARY	Install occupancy and daylighting sensors in offices, conference rooms, and library areas, where appropriate	80,338	17.0	-	$ 10,444	$ 167,978	$ 19,281	$ 148,697	14.2
B3525	SAN FRANCISCO MC	02C2018	MTZ BLDG A	Retrofit T8 and T12 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy and Daylighting Sensors in Appropriate Areas	266,727	72.0	-	$ 34,675	$ 188,209	$ 64,014	$ 124,195	3.6
B3527	SAN FRANCISCO MC	02C2019	MTZ BLDG B	Retrofit T8 and T12 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy and Daylighting Sensors in Appropriate Areas	156,670	49.0	-	$ 20,367	$ 164,033	$ 37,601	$ 126,432	6.2
B3541	SAN FRANCISCO MC	02C2036	MTZ 1701 DIV (T Building)	Retrofit T8 and T12 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy and Daylighting Sensors in Appropriate Areas	95,421	27.0	-	$ 12,405	$ 72,798	$ 22,901	$ 49,897	4.0
B3087	SAN FRANCISCO	02C2212	MILLBERRY	Implement recommendations in 2007 ARUP Study and install additional occupancy and daylighting sensors	128,069	28.0	-	$ 16,649	$ 228,236	$ 30,737	$ 197,499	11.9
B3088	SAN FRANCISCO	02C2251	CLINICAL SCI	Implement recommendations in 2007 ARUP Study and install additional occupancy and daylighting sensors	233,603	55.0	-	$ 30,368	$ 523,554	$ 56,065	$ 467,489	15.4
B3089	SAN FRANCISCO	02C2252	MED SCIENCES	Implement recommendations in 2007 ARUP Study and install additional occupancy and daylighting sensors	712,329	99.0	-	$ 92,603	$ 884,959	$ 170,959	$ 714,000	7.7
B3543	SAN FRANCISCO MC	02C2274	MOFFITT HOSP	Retrofit T8 and T12 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy and Daylighting Sensors in Appropriate Areas	1,364,111	147.0	-	$ 177,334	$ 717,430	$ 327,387	$ 390,043	2.2

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
B3545	SAN FRANCISCO MC	02C2275	LONG HOSP	Retrofit T8 and T12 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy and Daylighting Sensors in Appropriate Areas	1,262,469	138.0	-	$ 164,121	$ 644,161	$ 302,993	$ 341,168	2.1
B3090	SAN FRANCISCO	02C2290	LPPI	Implement planned lamp and ballast retrofit, and install occupancy and daylighting sensors where appropriate	239,404	47.0	-	$ 31,123	$ 349,950	$ 57,457	$ 292,493	9.4
B3546	SAN FRANCISCO MC	02C2325	VISION RSCH (Koret Vision Center)	Implement recommendations in 2007 ARUP Study (Replace all T8 & T12 with 28W T8 lamps and RLO premium efficiency ballasts)	95,000	19.0	-	$ 12,350	$ 153,147	$ 22,800	$ 130,347	10.6
B3547	SAN FRANCISCO MC	02C2403	LAB OF RADIO	Retrofit T12 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy and Daylighting Sensors in Appropriate Areas	59,196	16.0	-	$ 7,695	$ 40,711	$ 14,207	$ 26,504	3.4
B3549	SAN FRANCISCO MC	02C2408	UC CLINICS (ACC)	Retrofit T8 and T12 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy and Daylighting Sensors in Appropriate Areas	1,051,278	135.0	-	$ 136,666	$ 502,994	$ 252,307	$ 250,687	1.8
B3091	SAN FRANCISCO	02C2410	NURSING	Retrofit T8 Fixtures with 28W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	158,728	40.0	-	$ 20,635	$ 489,897	$ 38,095	$ 451,802	21.9
B3092	SAN FRANCISCO	02C2412	DENTISTRY	Retrofit T8 Fixtures with 28W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	325,070	87.0	-	$ 42,259	$ 699,830	$ 78,017	$ 621,813	14.7
B3093	SAN FRANCISCO	02C2415	MISSION CTR	Retrofit T8 Fixtures with 28W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	449,716	123.0	-	$ 58,463	$ 599,402	$ 107,932	$ 491,470	8.4
B3094	SAN FRANCISCO	02C2418	OYSTER POINT	Retrofit T8 Fixtures with 28W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	120,793	48.0	-	$ 15,703	$ 200,593	$ 28,990	$ 171,603	10.9
B3561	SAN FRANCISCO	02C2450	LAUREL HTS	Replace existing 8' SL & HO fixtures fixtures with new fluorescent fixtures with sensors	244,146	20.0	-	$ 31,739	$ 315,166	$ 58,595	$ 256,571	8.1
B3095	SAN FRANCISCO	02C2450	LAUREL HTS	Retrofit T8 Fixtures with 28W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	597,354	158.0	-	$ 77,656	$ 815,015	$ 143,365	$ 671,650	8.6
B3551	SAN FRANCISCO MC	02C2971	2380 SUTTER	Retrofit T8 and T12 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy and Daylighting Sensors in Appropriate Areas	31,015	8.0	-	$ 4,032	$ 24,502	$ 7,444	$ 17,058	4.2
B3096	SAN FRANCISCO	02C3000	PSSRB	Retrofit T8 Fixtures with 28W T8 lamps and RLO ballasts	115,189	26.0	-	$ 14,975	$ 349,909	$ 27,645	$ 322,264	21.5
B3097	SAN FRANCISCO	02C3001	ROCK HALL	Retrofit T8 Fixtures with 28W T8 lamps and RLO ballasts, and Install daylighting sensors where appropriate	197,044	51.0	-	$ 25,616	$ 299,974	$ 47,291	$ 252,683	9.9
B3098	SAN FRANCISCO	02C3002	GENENTECH HA	Retrofit T8 Fixtures with 28W T8 lamps and RLO ballasts, and Install daylighting sensors where appropriate	1,119,952	133.0	-	$ 145,594	$ 587,576	$ 268,788	$ 318,788	2.2
B3099	SAN FRANCISCO	02C3003	COMMUNITY CE	Retrofit T8 Fixtures with 28W T8 lamps and RLO ballasts, and Install daylighting sensors where appropriate	234,376	62.0	-	$ 30,469	$ 599,918	$ 56,250	$ 543,668	17.8
B3555	SAN FRANCISCO MC	02C3006	CENTRAL PLAN	Implement recommendations in 2007 ARUP Study (Replace all T8 & T12 with 28W T8 lamps and RLO premium efficiency ballasts)	6,201	1.0	-	$ 806	$ 5,704	$ 1,488	$ 4,216	5.2
B3100	SAN FRANCISCO	02C3008	HSIR EAST	Implement recommendations in 2007 ARUP Study and install additional occupancy and daylighting sensors	511,148	94.0	-	$ 66,449	$ 549,658	$ 122,676	$ 426,982	6.4
B3101	SAN FRANCISCO	02C3009	HSIR WEST	Implement recommendations in 2007 ARUP Study and install additional occupancy and daylighting sensors	438,509	84.0	-	$ 57,006	$ 533,669	$ 105,242	$ 428,427	7.5
B3102	SAN FRANCISCO	02C3029	FRESNO MERC	Retrofit T8 Fixtures with 28W T8 lamps and RLO ballasts, and Install daylighting sensors where appropriate	105,786	27.0	-	$ 13,752	$ 170,701	$ 25,389	$ 145,312	10.6
B3043	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	Phase 2: Replace 200 additional stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in campus buildings	70,000	-	-	$ 9,100	$ 103,723	$ 16,800	$ 86,923	9.6
B3042	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	Phase 1: Replace 200 stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in campus buildings	70,000	-	-	$ 9,100	$ 103,723	$ 16,800	$ 86,923	9.6
C3164	DAVIS	03AJ114	K ACADEMIC-2	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	40,305	11.0	-	$ 3,587	$ 42,350	$ 9,673	$ 32,677	9.1
C3165	DAVIS	03C3201	WALKER	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Replace 32W T8fixtures w/ 28W T8 lamps & Prem Eff RLO Ballast in high light areas; Add Occupancy Sensors and Daylighting	72,462	18.0	-	$ 6,449	$ 59,699	$ 17,391	$ 42,308	6.6
C3166	DAVIS	03C3207	HART	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	118,308	31.0	-	$ 10,529	$ 139,840	$ 28,394	$ 111,446	10.6
C3167	DAVIS	03C3237	ROBBNS	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	113,405	30.0	-	$ 10,093	$ 115,772	$ 27,217	$ 88,555	8.8
C3168	DAVIS	03C3264	FAC SHOPS	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	38,352	10.0	-	$ 3,413	$ 38,255	$ 9,204	$ 29,051	8.5

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
C3169	DAVIS	03C3266	YOUNG	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	137,591	36.0	-	$ 12,246	$ 158,187	$ 33,022	$ 125,165	10.2
C3170	DAVIS	03C3275	SOUTH	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	47,936	12.0	-	$ 4,266	$ 60,749	$ 11,505	$ 49,244	11.5
C3171	DAVIS	03C3280	FAC SERVICES	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	53,710	13.0	-	$ 4,780	$ 67,223	$ 12,890	$ 54,333	11.4
C3172	DAVIS	03C3320	CRUESS	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	75,169	20.0	-	$ 6,690	$ 76,091	$ 18,041	$ 58,050	8.7
C3173	DAVIS	03C3331	HICKEY GYM	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	173,583	40.0	-	$ 15,449	$ 195,973	$ 41,660	$ 154,313	10.0
C3003	DAVIS	03C3331	HICKEY GYM	Replace Gym HIDs with fluroescent "high bays" with occupancy sensors	90,090	15.0	-	$ 8,018	$ 37,777	$ 21,622	$ 16,155	2.0
C3174	DAVIS	03C3350	EVERSN	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	67,521	18.0	-	$ 6,009	$ 70,480	$ 16,205	$ 54,275	9.0
C3175	DAVIS	03C3351	WICKSN	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	162,376	44.0	-	$ 14,451	$ 165,439	$ 38,970	$ 126,469	8.8
C3176	DAVIS	03C3390	LIB	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	1,066,998	176.0	-	$ 94,963	$ 726,557	$ 256,080	$ 470,477	5.0
C3177	DAVIS	03C3421	HUNT	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	100,509	26.0	-	$ 8,945	$ 113,949	$ 24,122	$ 89,827	10.0
C3178	DAVIS	03C3422	ASMDSN	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	38,314	10.0	-	$ 3,410	$ 41,534	$ 9,195	$ 32,339	9.5
C3179	DAVIS	03C3458	VMEYER	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	39,999	11.0	-	$ 3,560	$ 43,057	$ 9,600	$ 33,457	9.4
C3181	DAVIS	03C3460	MU	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	215,253	58.0	-	$ 19,158	$ 235,309	$ 51,661	$ 183,648	9.6
C3182	DAVIS	03C3493	HARING	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	222,343	60.0	-	$ 19,789	$ 233,710	$ 53,362	$ 180,348	9.1
C3183	DAVIS	03C3607	HOAGLD	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	83,985	22.0	-	$ 7,475	$ 97,734	$ 20,156	$ 77,578	10.4
C3184	DAVIS	03C3745	VRHIES	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	90,413	23.0	-	$ 8,047	$ 113,273	$ 21,699	$ 91,574	11.4
C3188	DAVIS	03C3773	FRBORN	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	95,874	24.0	-	$ 8,533	$ 116,885	$ 23,010	$ 93,875	11.0
C3189	DAVIS	03C3788	HUTCH	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	153,535	42.0	-	$ 13,665	$ 152,547	$ 36,848	$ 115,699	8.5
C3191	DAVIS	03C3803	OLSON	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	51,248	25.0	-	$ 4,561	$ 109,199	$ 12,300	$ 96,899	21.2
C3192	DAVIS	03C3814	CROC NUC LAB	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Replace 32W T8fixtures w/ 28W T8 lamps & Prem Eff RLO Ballast in high light areas; Add Occupancy Sensors and Daylighting	45,387	11.0	-	$ 4,039	$ 35,304	$ 10,893	$ 24,411	6.0
C3193	DAVIS	03C3815	SPROUL	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	92,486	23.0	-	$ 8,231	$ 114,941	$ 22,197	$ 92,744	11.3
C3194	DAVIS	03C3842	MRAK	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	171,056	43.0	-	$ 15,224	$ 215,153	$ 41,053	$ 174,100	11.4
C3195	DAVIS	03C3971	ART	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Replace 32W T8fixtures w/ 28W T8 lamps & Prem Eff RLO Ballast in high light areas; Add Occupancy Sensors and Daylighting	87,572	21.0	-	$ 7,794	$ 75,625	$ 21,017	$ 54,608	7.0
C3196	DAVIS	03C3972	WRIGHT HALL	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Replace 32W T8fixtures w/ 28W T8 lamps & Prem Eff RLO Ballast in high light areas; Add Occupancy Sensors and Daylighting	71,819	18.0	-	$ 6,392	$ 55,676	$ 17,237	$ 38,439	6.0
C3197	DAVIS	03C4004	BAINER	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	233,584	63.0	-	$ 20,789	$ 237,230	$ 56,060	$ 181,170	8.7
C3199	DAVIS	03C4050	WELLMN	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	89,615	23.0	-	$ 7,976	$ 115,411	$ 21,508	$ 93,903	11.8
C3200	DAVIS	03C4051	KING	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	261,835	42.0	-	$ 23,303	$ 184,113	$ 62,840	$ 121,273	5.2
C3201	DAVIS	03C4073	STORER	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	124,809	34.0	-	$ 11,108	$ 125,012	$ 29,954	$ 95,058	8.6
C3202	DAVIS	03C4098	SURGE 3	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	80,819	22.0	-	$ 7,193	$ 82,230	$ 19,397	$ 62,833	8.7
C3203	DAVIS	03C4243	PHY SCI LIB	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	85,119	14.0	-	$ 7,576	$ 56,885	$ 20,429	$ 36,456	4.8
C3204	DAVIS	03C4267	VMTH	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	111,471	30.0	-	$ 9,921	$ 109,294	$ 26,753	$ 82,541	8.3

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
C3205	DAVIS	03C4273	BRIGGS	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	263,518	71.0	-	$ 23,453	$ 261,004	$ 63,244	$ 197,760	8.4
C3207	DAVIS	03C4302	KERR	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	103,109	26.0	-	$ 9,177	$ 127,740	$ 24,746	$ 102,994	11.2
C3208	DAVIS	03C4427	TUPPER HALL	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	346,277	94.0	-	$ 30,819	$ 348,602	$ 83,106	$ 265,496	8.6
C3209	DAVIS	03C4428	MED SCI I B	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	130,903	22.0	-	$ 11,650	$ 87,991	$ 31,417	$ 56,574	4.9
C3210	DAVIS	03C4442	AOB 4	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	49,468	13.0	-	$ 4,403	$ 60,512	$ 11,872	$ 48,640	11.0
C3212	DAVIS	03C4447	FIRE&POLICE	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	46,767	12.0	-	$ 4,162	$ 55,561	$ 11,224	$ 44,337	10.7
C3213	DAVIS	03C4466	VET MED 2	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	60,430	16.0	-	$ 5,378	$ 60,237	$ 14,503	$ 45,734	8.5
C3214	DAVIS	03C4556	MEYER	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	284,975	77.0	-	$ 25,363	$ 287,812	$ 68,394	$ 219,418	8.7
C3216	DAVIS	03C4632	ACADMC SURGE	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	179,215	48.0	-	$ 15,950	$ 188,762	$ 43,012	$ 145,750	9.1
C3217	DAVIS	03C4633	KEMPER	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	284,678	76.0	-	$ 25,336	$ 303,556	$ 68,323	$ 235,233	9.3
C3218	DAVIS	03C4656	SOCSCI&HUMAN	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	255,111	65.0	-	$ 22,705	$ 314,088	$ 61,227	$ 252,861	11.1
C3219	DAVIS	03C4683	LIF-SCI ADN	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	181,905	49.0	-	$ 16,190	$ 181,656	$ 43,657	$ 137,999	8.5
C3221	DAVIS	03C4708	DUTTON HALL	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	76,141	19.0	-	$ 6,777	$ 95,529	$ 18,274	$ 77,255	11.4
C3223	DAVIS	03C4717	SWINE FAC	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	49,725	14.0	-	$ 4,426	$ 44,223	$ 11,934	$ 32,289	7.3
C3224	DAVIS	03C4722	CFA MONDAVI	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	199,896	48.0	-	$ 17,791	$ 244,385	$ 47,975	$ 196,410	11.0
C3225	DAVIS	03C4724	ENV SRV HQTR	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	66,400	16.0	-	$ 5,910	$ 82,437	$ 15,936	$ 66,501	11.3
C3226	DAVIS	03C4725	ENGINEER 3	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	97,697	26.0	-	$ 8,695	$ 103,641	$ 23,447	$ 80,194	9.2
C3227	DAVIS	03C4726	PLNT&ENV SCI	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	139,005	44.0	-	$ 12,371	$ 140,034	$ 33,361	$ 106,673	8.6
C3229	DAVIS	03C4792	SCIENCES LAB	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Replace 32W T8fixtures w/ 28W T8 lamps & Prem Eff RLO Ballast in high light areas; Add Occupancy Sensors and Daylighting	204,910	52.0	-	$ 18,237	$ 154,446	$ 49,178	$ 105,268	5.8
C3230	DAVIS	03C4795	VM LAB FAC	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	53,712	15.0	-	$ 4,780	$ 49,665	$ 12,891	$ 36,774	7.7
C3234	DAVIS	03C4805	CTR COMP ANM	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	47,018	13.0	-	$ 4,185	$ 48,352	$ 11,284	$ 37,068	8.9
C3237	DAVIS	03C4821	MATH SCI	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	64,708	24.0	-	$ 5,759	$ 79,232	$ 15,530	$ 63,702	11.1
C3238	DAVIS	03C4822	VALLEY	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	91,647	25.0	-	$ 8,157	$ 105,578	$ 21,995	$ 83,583	10.2
C3241	DAVIS	03C8083	DV 267 COUST	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	43,065	12.0	-	$ 3,833	$ 42,161	$ 10,336	$ 31,825	8.3
C3247	DAVIS	03C9544	UNIV EXT BLD	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	52,431	13.0	-	$ 4,666	$ 65,736	$ 12,583	$ 53,153	11.4
C3248	DAVIS	03C9556	UNIV SVCS BL	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	63,245	16.0	-	$ 5,629	$ 79,925	$ 15,179	$ 64,746	11.5
C3250	DAVIS	03C9912	NEUROSCI BLD	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	62,192	17.0	-	$ 5,535	$ 58,095	$ 14,926	$ 43,169	7.8
C3251	DAVIS	03C9968	DV 3820 CHLS	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	91,743	24.0	-	$ 8,165	$ 108,400	$ 22,018	$ 86,382	10.6
C3253	DAVIS	03CB103	BODEGA M LAB	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	41,153	11.0	-	$ 3,663	$ 38,981	$ 9,877	$ 29,104	7.9
C3254	DAVIS	03CB121	BML LAB WEST	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	49,432	13.0	-	$ 4,399	$ 58,953	$ 11,864	$ 47,089	10.7
C3103	DAVIS	03CWIDE	CAMPUSWIDE	Phase 2: Replace 200 additional stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in campus buildings	70,000	-	-	$ 6,230	$ 74,012	$ 16,800	$ 57,212	9.2
C3102	DAVIS	03CWIDE	CAMPUSWIDE	Phase 1: Replace 200 stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in campus buildings	70,000	-	-	$ 6,230	$ 74,012	$ 16,800	$ 57,212	9.2

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
C3006	DAVIS	03CWIDE	CAMPUSWIDE	West (Arc) Parking Garage: Replace existing HID fixtures with new fluorescent fixtures	735,665	72.0	-	$ 65,474	$ 473,755	$ 176,560	$ 297,195	4.5
C3005	DAVIS	03CWIDE	CAMPUSWIDE	South (Mondavi) Parking Garage: Replace existing HID fixtures with new fluorescent fixtures/sensors	416,465	37.0	-	$ 37,065	$ 236,878	$ 99,952	$ 136,926	3.7
D3210	LOS ANGELES	04C4204	PAULEY	Retrofit gym HID fixtures with Pulse Start Metal Halide lamps w/electronic ballasts	54,600	8.0	-	$ 4,805	$ 44,187	$ 13,104	$ 31,083	6.5
D3203	LOS ANGELES	04C4235	WOODEN/PS4	Replace high pressure sodium fixtures with induction fixtures and install photocell control where appropriate	397,003	45.0	-	$ 34,936	$ 286,838	$ 95,281	$ 191,557	5.5
D3194	LOS ANGELES	04C4261	FACULTY CTR	Retrofit kitchen fixtures from F40T12 lamps with magnetic ballasts to F32T8 (28-watt) lamps with RLO electronic ballasts	7,425	2.0	-	$ 653	$ 3,708	$ 1,782	$ 1,926	2.9
D3219	LOS ANGELES	04CWIDE	CAMPUSWIDE	Retrofit all F32T8 fixtures with 28W F32 T8 lamps and RLO ballasts, and install additional occupancy sensors	15,977,250	4,590.0	-	$ 1,405,998	$ 23,858,410	$ 3,834,540	$ 20,023,870	14.2
D3192	LOS ANGELES	04CWIDE	CAMPUSWIDE	Replace 600 additional stairwell light fixtures with bi-level fixtures with occupancy sensors in campus buildings	210,000	-	-	$ 18,480	$ 233,962	$ 50,400	$ 183,562	9.9
E3157	RIVERSIDE	05CP5186	BIOLOGIC SCI	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts	13,461	4.0	-	$ 1,010	$ 12,087	$ 3,231	$ 8,856	8.8
E3181	RIVERSIDE	05CP5205	UNIV OFC BLD	Retrofit T12 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; and install occupancy sensors where appropriate	66,218	17.0	-	$ 4,966	$ 43,481	$ 15,892	$ 27,589	5.6
E3184	RIVERSIDE	05CP5224	BOOKSTORE	Bookstore-Retrofit all 4-foot T12 fixtures with T8 lamps and reduced light output (RLO) electronic ballasts (28W T8 lamps in the 4-foot fixtures); Install occupancy sensors in offices.	37,998	12.0	-	$ 2,850	$ 20,317	$ 9,120	$ 11,197	3.9
E3104	RIVERSIDE	05CP5261	BOURNS	Replace LAB HIDs with new, linear fluorescent industrials; replace existing corridor HID recessed cans with new CFL cans	268,266	31.0	-	$ 20,120	$ 260,115	$ 64,384	$ 195,731	9.7
E3180	RIVERSIDE	05CP5263	UNIV LAB BLD	Retrofit T12 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; and install occupancy sensors where appropriate	35,221	10.0	-	$ 2,642	$ 13,784	$ 8,453	$ 5,331	2.0
E3154	RIVERSIDE	05CP5289	EAST I&Q FAC	Retrofit T12 and T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; and install occupancy sensors where appropriate	56,301	15.0	-	$ 4,223	$ 33,236	$ 13,512	$ 19,724	4.7
E3108	RIVERSIDE	05CP5295	CNTRL UTL PL	Retrofit or replace 2F96T12 SL industrials and strips with 4F32T8 3rd gen lamps and RLO premium ballasts	10,249	1.0	-	$ 769	$ 5,256	$ 2,460	$ 2,796	3.6
E3152	RIVERSIDE	05CP5307	HUM & SOC SC	Retrofit T12 and T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; and install occupancy sensors and daylighting controls where appropriate	248,756	61.0	-	$ 18,657	$ 224,446	$ 59,701	$ 164,745	8.8
E3122	RIVERSIDE	05CP5316	LIFE SCIENCE	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts, and install occupancy sensors where appropriate	56,776	16.0	-	$ 4,258	$ 55,098	$ 13,626	$ 41,472	9.7
E3141	RIVERSIDE	05CP5322	RIVERA LIB	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts, and install additional occupancy sensors and daylighting controls where appropriate	311,360	77.0	-	$ 23,352	$ 334,402	$ 74,726	$ 259,676	11.1
E3144	RIVERSIDE	05CP5323	SPIETH	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts, and install additional occupancy sensors where appropriate	121,350	33.0	-	$ 9,101	$ 116,267	$ 29,124	$ 87,143	9.6
E3114	RIVERSIDE	05CP5325	ANDERSON 1	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts	23,013	8.0	-	$ 1,726	$ 25,571	$ 5,523	$ 20,048	11.6
E3107	RIVERSIDE	05CP5334	PE	Replace Gym MH high bays with fluorescent high bays plus occupancy sensors	132,149	16.0	-	$ 9,911	$ 47,735	$ 31,716	$ 16,019	1.6
E3148	RIVERSIDE	05CP5341	BOYCE	Retrofit T12 and T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; and install occupancy sensors where appropriate	157,182	42.0	-	$ 11,789	$ 143,723	$ 37,724	$ 105,999	9.0
E3150	RIVERSIDE	05CP5342	WEBBER	Retrofit T12 and T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; and install occupancy sensors where appropriate	61,716	17.0	-	$ 4,629	$ 55,973	$ 14,812	$ 41,161	8.9
E3149	RIVERSIDE	05CP5354	WATKINS	Retrofit T12 and T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; and install occupancy sensors and daylighting controls where appropriate	107,093	25.0	-	$ 8,032	$ 123,317	$ 25,702	$ 97,615	12.2
E3115	RIVERSIDE	05CP5357	ANDERSON 2	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts	11,979	3.0	-	$ 898	$ 10,562	$ 2,875	$ 7,687	8.6
E3117	RIVERSIDE	05CP5380	CAMPUS SURGE	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; and install occupancy sensors and daylighting controls where appropriate	76,273	23.0	-	$ 5,720	$ 85,500	$ 18,306	$ 67,194	11.7
E3142	RIVERSIDE	05CP5416	SCIENCE LAB1	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts, and install additional occupancy sensors where appropriate	53,154	15.0	-	$ 3,987	$ 49,629	$ 12,757	$ 36,872	9.2

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
E3118	RIVERSIDE	05CP5417	ENTOMOLOGY	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; and install additional occupancy sensors where appropriate	82,299	23.0	-	$ 6,172	$ 79,282	$ 19,752	$ 59,530	9.6
E3143	RIVERSIDE	05CP5418	SCIENCE LIB	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts, and install additional occupancy sensors and daylighting controls where appropriate	254,148	63.0	-	$ 19,061	$ 290,245	$ 60,996	$ 229,249	12.0
E3119	RIVERSIDE	05CP5480	HINDERAKER	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; and install occupancy sensors and daylighting controls where appropriate	82,630	19.0	-	$ 6,197	$ 101,677	$ 19,831	$ 81,846	13.2
E3123	RIVERSIDE	05CP5497	OLMSTED	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; and install additional occupancy sensors and daylighting controls where appropriate	130,510	33.0	-	$ 9,788	$ 138,938	$ 31,322	$ 107,616	11.0
E3120	RIVERSIDE	05CP5498	HUMANITIES	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; and install additional occupancy sensors where appropriate	50,724	12.0	-	$ 3,804	$ 59,490	$ 12,174	$ 47,316	12.4
E3116	RIVERSIDE	05CP5501	BATCHELOR	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts, and install daylighting controls where appropriate	111,102	33.0	-	$ 8,333	$ 102,799	$ 26,664	$ 76,135	9.1
E3139	RIVERSIDE	05CP5504	PHYSICS	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts, and install additional occupancy sensors and daylighting controls where appropriate	120,553	31.0	-	$ 9,041	$ 122,861	$ 28,933	$ 93,928	10.4
E3140	RIVERSIDE	05CP5508	PIERCE	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts, and install additional occupancy sensors where appropriate	155,571	44.0	-	$ 11,668	$ 137,475	$ 37,337	$ 100,138	8.6
E3145	RIVERSIDE	05CP5523	SPROUL	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts, and install additional occupancy sensors and daylighting controls where appropriate	122,818	30.0	-	$ 9,211	$ 141,049	$ 29,476	$ 111,573	12.1
E3113	RIVERSIDE	05CP5530	BELLTOWER	Retrofit T12 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts	8,844	4.0	-	$ 663	$ 5,314	$ 2,123	$ 3,191	4.8
E3146	RIVERSIDE	05CP5588	STAT COMP	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts, and install daylighting controls where appropriate	42,032	13.0	-	$ 3,152	$ 42,654	$ 10,088	$ 32,566	10.3
E3161	RIVERSIDE	05CP5593	BANNOCK D	Retrofit T12 and T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; incandescents with compact fluorescents; and install occupancy sensors where appropriate	10,818	3.0	-	$ 811	$ 8,055	$ 2,596	$ 5,459	6.7
E3163	RIVERSIDE	05CP5595	BANNOCK F	Retrofit T12 and T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; incandescents with compact fluorescents; and install occupancy sensors where appropriate	9,107	3.0	-	$ 683	$ 9,652	$ 2,186	$ 7,466	10.9
E3164	RIVERSIDE	05CP5596	BANNOCK G	Retrofit T12 and T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; incandescents with compact fluorescents; and install occupancy sensors where appropriate	8,952	3.0	-	$ 671	$ 9,380	$ 2,148	$ 7,232	10.8
E3165	RIVERSIDE	05CP5597	BANNOCK H	Retrofit T12 and T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; incandescents with compact fluorescents; and install occupancy sensors where appropriate	9,198	3.0	-	$ 690	$ 9,800	$ 2,208	$ 7,592	11.0
E3166	RIVERSIDE	05CP5598	BANNOCK I	Retrofit T12 and T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; incandescents with compact fluorescents; and install occupancy sensors where appropriate	7,740	3.0	-	$ 581	$ 7,428	$ 1,858	$ 5,570	9.6
E3178	RIVERSIDE	05CP5720	CA MUS PHOTO	Retrofit T12 and T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; and install occupancy sensors and daylighting controls where appropriate	17,787	5.0	-	$ 1,334	$ 19,064	$ 4,269	$ 14,795	11.1
E3105	RIVERSIDE	05CP5722	UCR EXTEN CT	Replace fire stair fixtures with bi-level fixtures; retrofit classroom fixtures with 28W T8 lamps and RLO ballasts; retrofit café fixtures with CFL; install occupancy sensors where appropriate	173,573	45.0	-	$ 13,018	$ 86,598	$ 41,658	$ 44,940	3.5
E3155	RIVERSIDE	05CTBD5	FALKIRK STUDENT APTS	Retrofit T12 and T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; incandescents with compact fluorescents; and install occupancy sensors where appropriate	174,717	66.0	-	$ 13,104	$ 168,407	$ 41,932	$ 126,475	9.7
E3106	RIVERSIDE	05CWIDE	CAMPUSWIDE	Retrofit existing HPS walkway pole lights with Pulse Start Metal Halide (PSMH) lamps and MH electronic ballasts	157,154	36.0	-	$ 11,787	$ 137,204	$ 37,717	$ 99,487	8.4
F3011	SAN DIEGO	06C6119	MTF	Install occupancy sensors in classrooms, offices, and appropriate library aras, as well as photocell sensors where appropriate	49,125	7.0	-	$ 3,832	$ 42,000	$ 11,790	$ 30,210	7.9

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
F3014	SAN DIEGO	06C6129	CMRR	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	42,495	11.0	-	$ 3,315	$ 63,263	$ 10,199	$ 53,064	16.0
F3017	SAN DIEGO	06C6132	ENG UNIT 2	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	145,493	39.0	-	$ 11,348	$ 149,660	$ 34,918	$ 114,742	10.1
F3019	SAN DIEGO	06C6135	CENT MOL GEN	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	33,805	9.0	-	$ 2,637	$ 49,481	$ 8,113	$ 41,368	15.7
F3022	SAN DIEGO	06C6143	CMM WEST	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	124,224	24.0	-	$ 9,689	$ 89,033	$ 29,814	$ 59,219	6.1
F3024	SAN DIEGO	06C6156	CLIN SCI BLD	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	112,211	30.0	-	$ 8,752	$ 113,873	$ 26,931	$ 86,942	9.9
F3501	SAN DIEGO MC	06C6157	PERLMAN HOSP	Retrofit T8 Fixtures with 28 watt T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	114,805	19.0	-	$ 8,955	$ 79,602	$ 27,553	$ 52,049	5.8
F3502	SAN DIEGO MC	06C6159	SHILEY EYE	Retrofit T8 and T12 Fixtures with 28 watt T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	162,226	28.0	-	$ 12,654	$ 65,114	$ 38,934	$ 26,180	2.1
F3504	SAN DIEGO MC	06C6162	THORNTON HSP	Retrofit T8 Fixtures with 28 watt T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	435,169	74.0	-	$ 33,943	$ 289,160	$ 104,441	$ 184,719	5.4
F3026	SAN DIEGO	06C6172	WAR LEC HALL	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	113,933	27.0	-	$ 8,887	$ 120,854	$ 27,344	$ 93,510	10.5
F3194	SAN DIEGO	06C6206	HUBBS HALL	Lighting Controls	27,693	-	-	$ 2,160	$ 17,781	$ 6,646	$ 11,135	5.2
F3202	SAN DIEGO	06C6210	SIO AQUARIUM (BIRCH)	Lighting Controls	4,654	-	-	$ 363	$ 5,142	$ 1,117	$ 4,025	11.1
F3201	SAN DIEGO	06C6210	SIO AQUARIUM (BIRCH)	Lighting Replacement	61,441	20.0	-	$ 4,792	$ 35,094	$ 14,746	$ 20,348	4.2
F3218	SAN DIEGO	06C6218	NIERENBERG	Lighting Controls	16,550	-	-	$ 1,291	$ 5,462	$ 3,972	$ 1,490	1.2
F3033	SAN DIEGO	06C6246	NIEREN ANNEX	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	9,557	3.0	-	$ 745	$ 16,023	$ 2,294	$ 13,729	18.4
F3212	SAN DIEGO	06C6285	RITTER HALL	Lighting Controls	21,892	-	-	$ 1,708	$ 11,247	$ 5,254	$ 5,993	3.5
F3211	SAN DIEGO	06C6285	RITTER HALL	Lighting Replacement	19,624	8.0	-	$ 1,531	$ 9,317	$ 4,710	$ 4,607	3.0
F3036	SAN DIEGO	06C6328	SVERDRUP	Install occupancy sensors in classrooms, offices, and appropriate library aras, as well as photocell sensors where appropriate	16,232	2.0	-	$ 1,266	$ 13,697	$ 3,896	$ 9,801	7.7
F3001	SAN DIEGO	06C6329	BACHMAN BLDG	Replace existing HID fixtures with new fluorescent fixtures/sensors and retrofit existing fixtures	30,901	2.0	-	$ 2,410	$ 26,460	$ 7,416	$ 19,044	7.9
F3039	SAN DIEGO	06C6335	CENT UTLTIES	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	93,256	23.0	-	$ 7,274	$ 112,006	$ 22,381	$ 89,625	12.3
F3042	SAN DIEGO	06C6336	UREY HALL	Install occupancy sensors in classrooms, offices, and appropriate library aras, as well as photocell sensors where appropriate	48,837	7.0	-	$ 3,809	$ 40,823	$ 11,721	$ 29,102	7.6
F3044	SAN DIEGO	06C6352	MAYER HALL	Install occupancy sensors in classrooms, offices, and appropriate library aras, as well as photocell sensors where appropriate	34,093	5.0	-	$ 2,659	$ 28,752	$ 8,182	$ 20,570	7.7
F3046	SAN DIEGO	06C6353	BONNER HALL	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	134,474	37.0	-	$ 10,489	$ 131,159	$ 32,274	$ 98,885	9.4
F3050	SAN DIEGO	06C6357	GALBRTH HALL	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	147,379	40.0	-	$ 11,496	$ 168,036	$ 35,371	$ 132,665	11.5
F3219	SAN DIEGO	06C6360	SCHOLANDER	Lighting Controls	2,542	-	-	$ 198	$ 2,249	$ 610	$ 1,639	8.3
F3217	SAN DIEGO	06C6360	SCHOLANDER	Lighting Replacement	9,752	4.0	-	$ 761	$ 5,019	$ 2,340	$ 2,679	3.5
F3052	SAN DIEGO	06C6361	YORK HALL	Install occupancy sensors in classrooms, offices, and appropriate library aras, as well as photocell sensors where appropriate	32,957	5.0	-	$ 2,571	$ 28,352	$ 7,910	$ 20,442	8.0
F3054	SAN DIEGO	06C6365	TOR PINE NOR	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	196,778	55.0	-	$ 15,349	$ 70,265	$ 47,227	$ 23,038	1.5
F3056	SAN DIEGO	06C6367	TOR PIN CTR	Install occupancy sensors in offices, and appropriate library areas, as well as photocell sensors where appropriate	80,209	6.0	-	$ 6,256	$ 182,623	$ 19,250	$ 163,373	26.1
F3058	SAN DIEGO	06C6371	7835 TRADE	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts	52,667	53.0	-	$ 4,108	$ 172,885	$ 12,640	$ 160,245	39.0
F3060	SAN DIEGO	06C6405	CENTER HALL	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	67,883	18.0	-	$ 5,295	$ 111,907	$ 16,292	$ 95,615	18.1
F3063	SAN DIEGO	06C6461	BAS SCI BLDG	Install occupancy sensors in classrooms, offices, and appropriate library areas, as well as photocell sensors where appropriate	141,197	22.0	-	$ 11,013	$ 123,856	$ 33,887	$ 89,969	8.2
F3067	SAN DIEGO	06C6510	GYMNASIUM	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	76,293	19.0	-	$ 5,951	$ 122,826	$ 18,310	$ 104,516	17.6
F3069	SAN DIEGO	06C6548	EBU 3B	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	120,767	25.0	-	$ 9,420	$ 121,248	$ 28,984	$ 92,264	9.8
F3074	SAN DIEGO	06C6598	MANDEVILLE	Install occupancy sensors in classrooms, offices, and appropriate library aras, as well as photocell sensors where appropriate	76,049	10.0	-	$ 5,932	$ 62,279	$ 18,252	$ 44,027	7.4

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
F3076	SAN DIEGO	06C6599	GEISEL LIB	Install occupancy sensors in conference rooms, study rooms, offices, and on appropriate library stacks, as well as photocell sensors where appropriate	210,914	40.0	-	$ 16,451	$ 300,267	$ 50,619	$ 249,648	15.2
F3078	SAN DIEGO	06C6600	AP M BLDG	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	267,932	69.0	-	$ 20,899	$ 308,127	$ 64,304	$ 243,823	11.7
F3081	SAN DIEGO	06C6601	BIOLOGY BLDG	Install occupancy sensors in classrooms, offices, and appropriate library aras, as well as photocell sensors where appropriate	17,259	2.0	-	$ 1,346	$ 14,463	$ 4,142	$ 10,321	7.7
F3083	SAN DIEGO	06C6602	MCGILL/MANDLER BLDG	Install occupancy sensors in classrooms, offices, and appropriate library aras, as well as photocell sensors where appropriate	26,920	4.0	-	$ 2,100	$ 22,469	$ 6,461	$ 16,008	7.6
F3085	SAN DIEGO	06C6603	H SS BLDG	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	133,924	33.0	-	$ 10,446	$ 173,049	$ 32,142	$ 140,907	13.5
F3092	SAN DIEGO	06C6611	CHEM RES BLD	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	47,117	12.0	-	$ 3,675	$ 69,040	$ 11,308	$ 57,732	15.7
F3094	SAN DIEGO	06C6612	COG SCI BLDG	Install occupancy sensors in classrooms, offices, and appropriate library aras, as well as photocell sensors where appropriate	49,898	7.0	-	$ 3,892	$ 43,040	$ 11,976	$ 31,064	8.0
F3098	SAN DIEGO MC	06C6657	MULTIPURPOSE (Hillcrest)	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	120,292	29.0	-	$ 9,383	$ 170,936	$ 28,870	$ 142,066	15.1
F3101	SAN DIEGO	06C6670	UCMC LIBRARY	Implement Recommendations in March 2006 SDREO Lighting Feasibility Report	11,458	2.0	-	$ 894	$ 14,811	$ 2,750	$ 12,061	13.5
F3103	SAN DIEGO	06C6701	PRICE CTR	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	225,728	58.0	-	$ 17,607	$ 254,695	$ 54,175	$ 200,520	11.4
F3105	SAN DIEGO	06C6783	PEPCYNHALL	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	74,014	23.0	-	$ 5,773	$ 93,211	$ 17,763	$ 75,448	13.1
F3107	SAN DIEGO	06C6811	SOC SCI BLDG	Install occupancy sensors in classrooms, offices, and appropriate library aras, as well as photocell sensors where appropriate	89,461	12.0	-	$ 6,978	$ 76,872	$ 21,471	$ 55,401	7.9
F3508	SAN DIEGO MC	06C6916	UH WEST WING	Implement Recommendations in March 2006 SDREO Lighting Feasilibity Report and Install Occupancy Sensors	43,719	4.0	-	$ 3,410	$ 26,574	$ 10,493	$ 16,081	4.7
F3511	SAN DIEGO MC	06C6974	U HOSPITAL	Implement Recommendations in March 2006 SDREO Lighting Feasilibity Report and Install Occupancy Sensors in Offices and Storage Areas without them	397,909	65.0	-	$ 31,037	$ 358,818	$ 95,498	$ 263,320	8.5
F3513	SAN DIEGO MC	06C6976	UH OUTPT CTR	Retrofit T8 Fixtures with 28 watt T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	130,889	22.0	-	$ 10,209	$ 89,951	$ 31,413	$ 58,538	5.7
F3110	SAN DIEGO MC	06C6977	CTF (Hillcrest)	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	143,273	38.0	-	$ 11,175	$ 164,769	$ 34,386	$ 130,383	11.7
F3135	SAN DIEGO	06CWIDE	CAMPUSWIDE	Phase 2: Replace 200 additional stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in campus buildings	70,000	-	-	$ 5,460	$ 74,012	$ 16,800	$ 57,212	10.5
F3134	SAN DIEGO	06CWIDE	CAMPUSWIDE	Phase 1: Replace 200 stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in campus buildings	70,000	-	-	$ 5,460	$ 74,012	$ 16,800	$ 57,212	10.5
F3003	SAN DIEGO	06CWIDE	CAMPUSWIDE	Replace existng street/area lights with induction fitters	624,873	-	-	$ 48,740	$ 1,538,420	$ 149,970	$ 1,388,450	28.5
G3101	SANTA CRUZ	07C7115	HAHN STUD SV	Replace Gen1 T8 w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	65,473	16.0	-	$ 7,006	$ 75,309	$ 15,714	$ 59,595	8.5
G3102	SANTA CRUZ	07C7116	THIMANN LAB	Replace Gen1 T8 w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	133,783	32.0	-	$ 14,315	$ 133,174	$ 32,108	$ 101,066	7.1
G3103	SANTA CRUZ	07C7119	FIELD HSE E	Add Occupancy Sensors and Daylighting	23,787	5.0	-	$ 2,545	$ 47,463	$ 5,709	$ 41,754	16.4
G3104	SANTA CRUZ	07C7134	CL COLL COM (Dining)	Replace Gen1 T8 w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	51,521	14.0	-	$ 5,513	$ 64,571	$ 12,365	$ 52,206	9.5
G3105	SANTA CRUZ	07C7175	COMM. BLDG	Replace Gen1 T8 w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	59,996	15.0	-	$ 6,420	$ 67,623	$ 14,399	$ 53,224	8.3
G3106	SANTA CRUZ	07C7179	NAT SCI 2	Add Occupancy Sensors and Daylighting	7,849	2.0	-	$ 840	$ 16,514	$ 1,884	$ 14,630	17.4
G3109	SANTA CRUZ	07C7194	J BASKIN ENG	Add Occupancy Sensors and Daylighting	53,255	9.0	-	$ 5,698	$ 101,247	$ 12,781	$ 88,466	15.5
G3111	SANTA CRUZ	07C7304	PORTER HSE B	Replace F40T12 w/ 28W T8 & Prem Eff RLO Ballast; Replace incandescent bulb with CFL; Replace Circlelite w/ CFL; Add Occupancy Sensors and Daylighting	115,339	45.0	-	$ 12,341	$ 150,003	$ 27,681	$ 122,322	9.9
G3112	SANTA CRUZ	07C7305	PORTER DIN C	Replace Gen1 T8 w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	23,855	9.0	-	$ 2,552	$ 41,914	$ 5,725	$ 36,189	14.2
G3113	SANTA CRUZ	07C7306	PORTER ACAD D	Add Occupancy Sensors and Daylighting	10,769	2.0	-	$ 1,152	$ 23,147	$ 2,585	$ 20,562	17.8
G3114	SANTA CRUZ	07C7311	TA MAINSTAGE	Add Occupancy Sensors and Daylighting	15,645	3.0	-	$ 1,674	$ 32,559	$ 3,755	$ 28,804	17.2
G3115	SANTA CRUZ	07C7376	KERR HALL	Replace Gen1 T8 w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	158,846	38.0	-	$ 16,997	$ 183,831	$ 38,123	$ 145,708	8.6
G3116	SANTA CRUZ	07C7416	OAK ACAD BLD	Add Occupancy Sensors and Daylighting	15,104	3.0	-	$ 1,616	$ 32,920	$ 3,625	$ 29,295	18.1

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
G3117	SANTA CRUZ	07C7744	SINSHEIMR LB	Replace Gen1 T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	137,569	37.0	-	$ 14,720	$ 160,298	$ 33,017	$ 127,281	8.6
G3118	SANTA CRUZ	07C7775	EARTH MAR SC	Add Occupancy Sensors and Daylighting	23,808	5.0	-	$ 2,547	$ 50,425	$ 5,714	$ 44,711	17.6
G3119	SANTA CRUZ	07C7782	SCI &ENG LIB	Add Occupancy Sensors and Daylighting	28,078	7.0	-	$ 3,004	$ 56,655	$ 6,739	$ 49,916	16.6
G3120	SANTA CRUZ	07C7920	SOC SCI 1	Add Occupancy Sensors and Daylighting	17,209	4.0	-	$ 1,841	$ 36,698	$ 4,130	$ 32,568	17.7
G3121	SANTA CRUZ	07C7921	SOC SCI 2	Add Occupancy Sensors and Daylighting	19,303	4.0	-	$ 2,065	$ 41,077	$ 4,633	$ 36,444	17.6
G3122	SANTA CRUZ	07C7922	MUSIC CTR	Add Occupancy Sensors and Daylighting	6,256	1.0	-	$ 669	$ 11,860	$ 1,501	$ 10,359	15.5
G3128	SANTA CRUZ	07C7937	COL 10 RES 5	Replace F40T12 w/ 28W T8 & Prem Eff RLO Ballast; Replace incandescent bulb with CFL; Replace Circlelite w/ CFL; Add Occupancy Sensors and Daylighting	60,011	24.0	-	$ 6,421	$ 78,071	$ 14,403	$ 63,668	9.9
G3130	SANTA CRUZ	07C7940	ENGINEER BLD	Add Occupancy Sensors and Daylighting	34,291	7.0	-	$ 3,669	$ 72,736	$ 8,230	$ 64,506	17.6
G3052	SANTA CRUZ	07CWIDE	CAMPUSWIDE	Phase 3: Replace 50 additional stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in campus buildings	17,500	-	-	$ 1,873	$ 20,185	$ 4,200	$ 15,985	8.5
G3051	SANTA CRUZ	07CWIDE	CAMPUSWIDE	Phase 2: Replace 200 additional stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in campus buildings	70,000	-	-	$ 7,490	$ 80,741	$ 16,800	$ 63,941	8.5
G3021	SANTA CRUZ	07CWIDE	CAMPUSWIDE	Retrofit existing HID pole lights with CF and PSMH	274,863	-	-	$ 29,410	$ 646,913	$ 65,967	$ 580,946	19.8
H3118	SANTA BARBARA	08C8225	ENG SCI	Replace Gen2 T8 w/ T8 dimmables; Add Occupancy Sensors	113,705	27.0	-	$ 12,508	$ 238,866	$ 27,289	$ 211,577	16.9
H3119	SANTA BARBARA	08C8235	LIFESCI	Replace Gen2 T8 w/ T8 dimmables; Add Occupancy Sensors	98,322	23.0	-	$ 10,815	$ 207,479	$ 23,597	$ 183,882	17.0
H3121	SANTA BARBARA	08C8251	PSYCH ADDITI	Replace Gen1 T8 w/ T8 dimmables; Add Occupancy Sensors	66,484	17.0	-	$ 7,313	$ 86,540	$ 15,956	$ 70,584	9.7
H3123	SANTA BARBARA	08C8503	ENGR 2	Replace Gen1 T8 w/ T8 dimmables; Add Occupancy Sensors	316,252	68.0	-	$ 34,788	$ 365,436	$ 75,900	$ 289,536	8.3
H3126	SANTA BARBARA	08C8515	HSSB	Replace Gen2 T8 w/ T8 dimmables; Add Occupancy Sensors	254,695	51.0	-	$ 28,016	$ 476,287	$ 61,127	$ 415,160	14.8
H3127	SANTA BARBARA	08C8516	RECCEN	Replace Gen1 T8 w/ T8 dimmables; Add Occupancy Sensors	190,314	39.0	-	$ 20,935	$ 227,994	$ 45,675	$ 182,319	8.7
H3129	SANTA BARBARA	08C8521	BREN	Replace Gen2 T8 w/ T8 dimmables; Add Occupancy Sensors	108,773	26.0	-	$ 11,965	$ 232,309	$ 26,106	$ 206,203	17.2
H3130	SANTA BARBARA	08C8525	DAVIDSON LIB (Main)	Replace Gen2 T8 w/ T8 dimmables; Add Occupancy Sensors	528,122	110.0	-	$ 58,093	$ 1,005,402	$ 126,749	$ 878,653	15.1
H3131	SANTA BARBARA	08C8526	WEBB HALL	Replace Gen2 T8 w/ T8 dimmables; Add Occupancy Sensors	69,879	14.0	-	$ 7,687	$ 132,577	$ 16,771	$ 115,806	15.1
H3133	SANTA BARBARA	08C8528	SOUTH HALL	Replace Gen2 T8 w/ T8 dimmables; Add Occupancy Sensors	237,879	47.0	-	$ 26,167	$ 440,274	$ 57,091	$ 383,183	14.6
H3134	SANTA BARBARA	08C8531	MUSIC	Replace Gen2 T8 w/ T8 dimmables; Add Occupancy Sensors	127,113	26.0	-	$ 13,982	$ 240,630	$ 30,507	$ 210,123	15.0
H3135	SANTA BARBARA	08C8533	ROBERTSN GYM	Replace Gen2 T8 w/ T8 dimmables; Add Occupancy Sensors	142,378	28.0	-	$ 15,662	$ 261,973	$ 34,171	$ 227,802	14.5
H3136	SANTA BARBARA	08C8534	ARTS	Replace Gen2 T8 w/ T8 dimmables; Add Occupancy Sensors	119,131	25.0	-	$ 13,104	$ 229,238	$ 28,591	$ 200,647	15.3
H3137	SANTA BARBARA	08C8535	NORTH HALL	Replace Gen1 T8 w/ T8 dimmables; Add Occupancy Sensors	46,287	10.0	-	$ 5,092	$ 212,907	$ 11,109	$ 201,798	39.6
H3138	SANTA BARBARA	08C8544	NOBLE HALL	Replace Gen1 T8 w/ T8 dimmables; Add Occupancy Sensors	104,837	23.0	-	$ 11,532	$ 119,123	$ 25,161	$ 93,962	8.1
H3142	SANTA BARBARA	08C8551	PSYCHOLOGY	Replace Gen2 T8 w/ T8 dimmables; Add Occupancy Sensors	72,996	15.0	-	$ 8,030	$ 140,450	$ 17,519	$ 122,931	15.3
H3143	SANTA BARBARA	08C8552	CHEADLE HALL	Replace Gen2 T8 w/ T8 dimmables; Add Occupancy Sensors	128,696	25.0	-	$ 14,157	$ 236,436	$ 30,887	$ 205,549	14.5
H3145	SANTA BARBARA	08C8554	SNIDECOR HLL	Replace Gen1 T8 w/ T8 dimmables; Add Occupancy Sensors	91,554	19.0	-	$ 10,071	$ 108,110	$ 21,973	$ 86,137	8.6
H3146	SANTA BARBARA	08C8555	MAR BIO LAB	Replace Gen1 T8 w/ T8 dimmables; Add Occupancy Sensors	85,720	19.0	-	$ 9,429	$ 97,987	$ 20,573	$ 77,414	8.2
H3147	SANTA BARBARA	08C8556	HAROLD FRANK	Replace Gen2 T8 w/ T8 dimmables; Add Occupancy Sensors	157,439	33.0	-	$ 17,318	$ 299,932	$ 37,785	$ 262,147	15.1
H3148	SANTA BARBARA	08C8557	CHEMISTRY	Replace Gen2 T8 w/ T8 dimmables; Add Occupancy Sensors	142,590	30.0	-	$ 15,685	$ 275,751	$ 34,222	$ 241,529	15.4
H3150	SANTA BARBARA	08C8560	PHELPS HALL	Replace Gen1 T8 w/ T8 dimmables; Add Occupancy Sensors	357,121	74.0	-	$ 39,283	$ 421,696	$ 85,709	$ 335,987	8.6
H3152	SANTA BARBARA	08C8563	ELLISON HALL	Replace Gen2 T8 w/ T8 dimmables; Add Occupancy Sensors	190,765	39.0	-	$ 20,984	$ 358,103	$ 45,784	$ 312,319	14.9
H3153	SANTA BARBARA	08C8564	GIRVETZ HALL	Replace Gen2 T8 w/ T8 dimmables; Add Occupancy Sensors	85,097	17.0	-	$ 9,361	$ 157,236	$ 20,423	$ 136,813	14.6

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
H3155	SANTA BARBARA	08C8568	SAASB	Replace Gen1 T8 w/ T8 dimmables; Add Occupancy Sensors	230,307	47.0	-	$ 25,334	$ 275,656	$ 55,274	$ 220,382	8.7
H3156	SANTA BARBARA	08C8571	BIOLOGY 2	Replace Gen2 T8 w/ T8 dimmables; Add Occupancy Sensors	183,963	40.0	-	$ 20,236	$ 358,977	$ 44,151	$ 314,826	15.6
H3157	SANTA BARBARA	08C8572	BROIDA HALL (Physics)	Replace Gen2 T8 w/ T8 dimmables; Add Occupancy Sensors	201,858	43.0	-	$ 22,204	$ 389,184	$ 48,446	$ 340,738	15.3
H3158	SANTA BARBARA	08C8580	HARDER STAD	Replace Gen1 T8 w/ T8 dimmables; Add Occupancy Sensors	78,364	16.0	-	$ 8,620	$ 92,167	$ 18,807	$ 73,360	8.5
H3161	SANTA BARBARA	08C8588	STDNT HLTH	Replace Gen1 T8 w/ T8 dimmables; Add Occupancy Sensors	106,070	22.0	-	$ 11,668	$ 123,596	$ 25,457	$ 98,139	8.4
H3162	SANTA BARBARA	08C8591	KERR HALL	Replace Gen1 T8 w/ T8 dimmables; Add Occupancy Sensors	100,070	22.0	-	$ 11,008	$ 115,582	$ 24,017	$ 91,565	8.3
H3164	SANTA BARBARA	08C8657	PSB NORTH	Replace Gen1 T8 w/ T8 dimmables; Add Occupancy Sensors	235,019	51.0	-	$ 25,852	$ 269,072	$ 56,405	$ 212,667	8.2
H3166	SANTA BARBARA	08C8943	HRC	Replace Gen2 T8 w/ T8 dimmables; Add Occupancy Sensors	75,886	15.0	-	$ 8,347	$ 139,597	$ 18,213	$ 121,384	14.5
H3169	SANTA BARBARA	08C8997	ENG RSH LAB	Replace Gen2 T8 w/ T8 dimmables; Add Occupancy Sensors	84,462	18.0	-	$ 9,291	$ 163,732	$ 20,271	$ 143,461	15.4
H3170	SANTA BARBARA	08CNEW1	STUDENT RESOURCES BLDG (BLDG 221)	Replace Gen2 T8 w/ T8 dimmables	93,384	20.0	-	$ 10,272	$ 183,921	$ 22,412	$ 161,509	15.7
H3004	SANTA BARBARA	08CTBD2	FUTURE BUILDING	Replace existing gym HIDs with fluorescent "high bays" with sensors (Pavilion Gym)	85,675	15.0	-	$ 9,424	$ 59,195	$ 20,562	$ 38,633	4.1
H3005	SANTA BARBARA	08CTBD3	FUTURE BUILDING	Replace existing gym HIDs with fluorescent high bays with sensors (Thunderdome Gym)	324,249	53.0	-	$ 35,667	$ 159,001	$ 77,820	$ 81,181	2.3
H3087	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Phase 3: Replace 50 additional stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in campus buildings	17,500	-	-	$ 1,925	$ 18,503	$ 4,200	$ 14,303	7.4
H3086	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Phase 2: Replace 200 additional stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in campus buildings	70,000	-	-	$ 7,700	$ 74,012	$ 16,800	$ 57,212	7.4
H3010	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Replace HPS Street Lights with LED Street Lights	188,467	-	-	$ 20,731	$ 878,599	$ 45,232	$ 833,367	40.2
I3320	IRVINE	09C9001	LANGSON LIB	Replace stairwell light fixtures with bi-level fixtures with occupancy sensors	3,150	-	313	$ 672	$ 8,265	$ 1,512	$ 6,753	10.0
I3185	IRVINE	09C9001	LANGSON LIB	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	67,167	36.0	6,666	$ 14,332	$ 147,810	$ 32,240	$ 115,570	8.1
I3318	IRVINE	09C9003	ADMIN BLDG	Replace stairwell light fixtures with bi-level fixtures with occupancy sensors	3,150	-	313	$ 672	$ 8,265	$ 1,512	$ 6,753	10.0
I3186	IRVINE	09C9003	ADMIN BLDG	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	59,120	28.0	5,867	$ 12,615	$ 158,333	$ 28,377	$ 129,956	10.3
I3331	IRVINE	09C9005	UCI STU CNTR	Replace stairwell light fixtures with bi-level fixtures with occupancy sensors	2,100	-	208	$ 448	$ 5,510	$ 1,008	$ 4,502	10.0
I3187	IRVINE	09C9005	UCI STU CNTR	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	122,661	64.0	12,173	$ 26,173	$ 91,968	$ 58,877	$ 33,091	1.3
I3188	IRVINE	09C9035	HIB	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	64,761	33.0	6,427	$ 13,818	$ 158,781	$ 31,085	$ 127,696	9.2
I3189	IRVINE	09C9050	W SMITH HALL	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	7,632	4.0	757	$ 1,628	$ 14,130	$ 3,663	$ 10,467	6.4
I3190	IRVINE	09C9051	CTB THEATRE	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	16,004	8.0	1,588	$ 3,415	$ 7,834	$ 7,682	$ 1,567	0.5
I3017	IRVINE	09C9052	SOTA DANCE	Retrofit 400W MH Low bays with 200W ceramic EHID low bays w/daylight controls	15,500	8.0	1,538	$ 3,307	$ 24,936	$ 7,440	$ 17,496	5.3
I3191	IRVINE	09C9053	SOTA PROD ST	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	1,827	1.0	181	$ 390	$ 2,146	$ 877	$ 1,269	3.3
I3192	IRVINE	09C9054	SOTA DRAMA	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	5,285	2.0	524	$ 1,128	$ 14,407	$ 2,537	$ 11,870	10.5
I3193	IRVINE	09C9055	UNIV ART GAL	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	5,244	3.0	520	$ 1,119	$ 9,052	$ 2,517	$ 6,535	5.8
I3194	IRVINE	09C9056	SOTA ART STD	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	4,022	2.0	399	$ 858	$ 5,498	$ 1,931	$ 3,567	4.2
I3195	IRVINE	09C9057	SOTA SCULPTR	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	3,984	2.0	395	$ 850	$ 5,056	$ 1,912	$ 3,144	3.7
I3196	IRVINE	09C9073	SCILIBRARY	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	87,236	47.0	8,657	$ 18,614	$ 198,291	$ 41,873	$ 156,418	8.4

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
I3197	IRVINE	09C9075	STEINHAUS H	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	40,016	21.0	3,971	$ 8,538	$ 69,568	$ 19,208	$ 50,360	5.9
I3321	IRVINE	09C9084	MCGAUGH HALL	Replace stairwell light fixtures with bi-level fixtures with occupancy sensors	3,150	-	313	$ 672	$ 8,265	$ 1,512	$ 6,753	10.0
I3198	IRVINE	09C9084	MCGAUGH HALL	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	72,269	38.0	7,172	$ 15,420	$ 107,349	$ 34,689	$ 72,660	4.7
I3330	IRVINE	09C9087	SPRAGUE HALL	Replace stairwell light fixtures with bi-level fixtures with occupancy sensors	2,100	-	208	$ 448	$ 5,510	$ 1,008	$ 4,502	10.0
I3199	IRVINE	09C9088	HEWITT HALL	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install daylighting sensors where appropriate	13,446	-	1,334	$ 2,869	$ 44,688	$ 6,454	$ 38,234	13.3
I3200	IRVINE	09C9090	NAT SCI 1	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	80,111	44.0	7,950	$ 17,094	$ 152,182	$ 38,453	$ 113,729	6.7
I3327	IRVINE	09C9091	NAT SCI 2	Replace stairwell light fixtures with bi-level fixtures with occupancy sensors	2,625	-	261	$ 560	$ 6,888	$ 1,260	$ 5,628	10.0
I3201	IRVINE	09C9091	NAT SCI 2	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	52,994	33.0	5,259	$ 11,308	$ 101,720	$ 25,437	$ 76,283	6.7
I3202	IRVINE	09C9100	ROWLAND HALL	Retrofit T12 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	280,174	158.0	27,804	$ 59,783	$ 250,127	$ 134,484	$ 115,643	1.9
I3203	IRVINE	09C9107	BERKELEY PL	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	29,080	21.0	2,886	$ 6,205	$ 45,956	$ 13,958	$ 31,998	5.2
I3204	IRVINE	09C9108	REINES HALL	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	55,111	29.0	5,469	$ 11,759	$ 87,876	$ 26,453	$ 61,423	5.2
I3326	IRVINE	09C9114	M SCI & TECH	Replace stairwell light fixtures with bi-level fixtures with occupancy sensors	1,050	-	104	$ 224	$ 2,755	$ 504	$ 2,251	10.0
I3205	IRVINE	09C9114	M SCI & TECH	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	52,693	25.0	5,229	$ 11,243	$ 101,569	$ 25,292	$ 76,277	6.8
I3206	IRVINE	09C9115	CROUL HALL	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	16,270	10.0	1,615	$ 3,472	$ 30,833	$ 7,810	$ 23,023	6.6
I3208	IRVINE	09C9125	ENG TOWER	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	42,984	22.0	4,266	$ 9,172	$ 76,170	$ 20,632	$ 55,538	6.1
I3209	IRVINE	09C9126	COMP SCI BLD	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	30,096	15.0	2,987	$ 6,422	$ 71,786	$ 14,446	$ 57,340	8.9
I3210	IRVINE	09C9128	SOC ECOLOGY	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	26,902	13.0	2,670	$ 5,740	$ 63,199	$ 12,913	$ 50,286	8.8
I3211	IRVINE	09C9132	IRVINE HALL	Install occupancy and daylighting sensors where appropriate	8,786	3.0	872	$ 1,875	$ 39,780	$ 4,217	$ 35,563	19.0
I3212	IRVINE	09C9140	ENG GATEWAY	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	51,875	27.0	5,148	$ 11,069	$ 96,962	$ 24,900	$ 72,062	6.5
I3213	IRVINE	09C9204	SOCSCI TOWER	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	37,435	19.0	3,715	$ 7,988	$ 81,202	$ 17,969	$ 63,233	7.9
I3328	IRVINE	09C9212	SOC SCI PL A	Replace stairwell light fixtures with bi-level fixtures with occupancy sensors	2,625	-	261	$ 560	$ 6,888	$ 1,260	$ 5,628	10.0
I3214	IRVINE	09C9212	SOC SCI PL A	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	40,635	21.0	4,033	$ 8,671	$ 99,741	$ 19,505	$ 80,236	9.3
I3329	IRVINE	09C9221	SOC SCI PL B	Replace stairwell light fixtures with bi-level fixtures with occupancy sensors	2,625	-	261	$ 560	$ 6,888	$ 1,260	$ 5,628	10.0
I3215	IRVINE	09C9221	SOC SCI PL B	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	43,195	22.0	4,287	$ 9,217	$ 106,345	$ 20,734	$ 85,611	9.3
I3216	IRVINE	09C9222	SOC ECOLOGY2	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	27,763	14.0	2,755	$ 5,924	$ 61,400	$ 13,326	$ 48,074	8.1
I3557	IRVINE MC	09C9244	BECKMAN LASR	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	55,179	18.0	-	$ 7,284	$ 59,887	$ 13,243	$ 46,644	6.4
I3319	IRVINE	09C9300	CRAWFORD HAL	Replace stairwell light fixtures with bi-level fixtures with occupancy sensors	1,575	-	156	$ 336	$ 4,133	$ 756	$ 3,377	10.0
I3218	IRVINE	09C9300	CRAWFORD HAL	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	35,384	17.0	3,512	$ 7,550	$ 99,615	$ 16,984	$ 82,631	10.9
I3056	IRVINE	09C9300	CRAWFORD HAL	Gym Lighting Retrofit - Implement recommendations in AEI Lighting Survey, with occupancy sensors	38,640	10.0	3,835	$ 8,245	$ 22,484	$ 18,547	$ 4,497	0.5
I3219	IRVINE	09C9314	BREN EVENTS	Retrofit T12 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	28,242	13.0	2,803	$ 6,026	$ 65,414	$ 13,556	$ 51,858	8.6

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
I3324	IRVINE	09C9322	MED SCI C	Replace stairwell light fixtures with bi-level fixtures with occupancy sensors	1,575	-	156	$ 336	$ 4,133	$ 756	$ 3,377	10.0
I3220	IRVINE	09C9322	MED SCI C	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	4,531	2.0	450	$ 967	$ 20,382	$ 2,175	$ 18,207	18.8
I3325	IRVINE	09C9323	MED SCI D	Replace stairwell light fixtures with bi-level fixtures with occupancy sensors	2,100	-	208	$ 448	$ 5,510	$ 1,008	$ 4,502	10.0
I3221	IRVINE	09C9323	MED SCI D	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	5,536	2.0	549	$ 1,181	$ 24,923	$ 2,657	$ 22,266	18.9
I3322	IRVINE	09C9325	MED SCI A	Replace stairwell light fixtures with bi-level fixtures with occupancy sensors	1,050	-	104	$ 224	$ 2,755	$ 504	$ 2,251	10.0
I3323	IRVINE	09C9328	MED SCI B	Replace stairwell light fixtures with bi-level fixtures with occupancy sensors	1,575	-	156	$ 336	$ 4,133	$ 756	$ 3,377	10.0
I3222	IRVINE	09C9328	MED SCI B	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	2,494	1.0	247	$ 532	$ 11,216	$ 1,197	$ 10,019	18.8
I3223	IRVINE	09C9329	MED SURG 2	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	40,239	22.0	3,993	$ 8,586	$ 75,415	$ 19,315	$ 56,100	6.5
I3502	IRVINE MC	09C9335	GOTSHALK PLZ	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; Add Occupancy Sensors and Daylighting	88,778	21.0	-	$ 11,719	$ 73,705	$ 21,307	$ 52,398	4.5
I3546	IRVINE MC	09C9912	5201 CALIF	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Add Daylighting	44,774	20.0	-	$ 5,910	$ 58,383	$ 10,746	$ 47,637	8.1
I3547	IRVINE MC	09C9915	101 ACADEMY	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; Add Occupancy Sensors and Daylighting	12,578	3.0	-	$ 1,660	$ 10,509	$ 3,019	$ 7,490	4.5
I3224	IRVINE	09CTBD1	BREN HALL	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install daylighting sensors where appropriate	75,609	54.0	7,503	$ 16,133	$ 164,283	$ 36,292	$ 127,991	7.9
I3309	IRVINE	09CWIDE	CAMPUSWIDE	Install Photo Sensors and Astronomical Time clocks to Control all exterior lighting.	62,500	-	6,203	$ 13,336	$ 69,300	$ 30,000	$ 39,300	2.9
I3308	IRVINE	09CWIDE	CAMPUSWIDE	Lighting Efficiency Improvement - Buildings < 50k GSF not in SEP	550,000	-	54,582	$ 117,357	$ 609,840	$ 264,000	$ 345,840	2.9
I3280	IRVINE	09CWIDE	CAMPUSWIDE	Daylighting controls-MED SCI A,B,C,D	17,500	-	1,737	$ 3,734	$ 69,300	$ 8,400	$ 60,900	16.3
I3250	IRVINE	09CWIDE	CAMPUSWIDE	Path, Area, and Parking Lot Lighting Upgrade to LED, High Efficiency Lighting Systems	392,500	-	38,952	$ 83,750	$ 1,663,200	$ 188,400	$ 1,474,800	17.6
Subtotal, State Funded, Lighting Projects					**62,831,813**	**14,647.0**	**272,503**	**$ 6,357,258**	**$ 80,721,457**	**$ 15,738,663**	**$ 64,982,794**	**10.2**
Other Projects												
A3200	BERKELEY	01CTBD3	FUTURE BUILDING	Solar Pool Water Heater - Golden Bear Pool	-	-	5,739	$ 4,459	$ 63,208	$ 4,591	$ 58,617	13.1
A3202	BERKELEY	01CTBD4	FUTURE BUILDING	Solar Pool Water Heater - Strawberry Canyon Pool	-	-	8,693	$ 6,754	$ 149,479	$ 6,954	$ 142,525	21.1
A3206	BERKELEY	01CTBD5	FUTURE BUILDING	Pool Covers - Spieker Pool	-	-	68,848	$ 53,495	$ 88,213	$ 55,078	$ 33,135	0.6
A3203	BERKELEY	01CTBD5	FUTURE BUILDING	Solar Pool Water Heater - Spieker Pool	-	-	24,718	$ 19,205	$ 261,054	$ 19,774	$ 241,280	12.6
A3205	BERKELEY	01CTBD6	FUTURE BUILDING	Pool Covers - Hearst Pools	-	-	42,256	$ 32,833	$ 88,213	$ 33,805	$ 54,408	1.7
A3204	BERKELEY	01CTBD6	FUTURE BUILDING	Solar Pool Water Heater - Hearst Pool	-	-	14,043	$ 10,911	$ 152,895	$ 11,234	$ 141,661	13.0
A3195	BERKELEY	01CWIDE	CAMPUSWIDE	Server Virtualization Phase 4 of 4: 10 VM Installations	280,000	35.0	-	$ 23,240	$ 291,060	$ 67,200	$ 223,860	9.6
A3194	BERKELEY	01CWIDE	CAMPUSWIDE	Server Virtualization Phase 3 of 4: 10 VM Installations	280,000	35.0	-	$ 23,240	$ 291,060	$ 67,200	$ 223,860	9.6
A3193	BERKELEY	01CWIDE	CAMPUSWIDE	Server Virtualization Phase 2 of 4: 10 VM Installations	280,000	35.0	-	$ 23,240	$ 291,060	$ 67,200	$ 223,860	9.6
A3192	BERKELEY	01CWIDE	CAMPUSWIDE	Server Virtualization Phase 1 of 4: 10 VM Installations	280,000	35.0	-	$ 23,240	$ 291,060	$ 67,200	$ 223,860	9.6
A3191	BERKELEY	01CWIDE	CAMPUSWIDE	LCD Phase 8 of 8: 300 Verdiem (PC Power Management) Installations and 13 CRT Replacements	64,139	8.0	-	$ 5,324	$ 20,949	$ 15,393	$ 5,556	1.0
A3190	BERKELEY	01CWIDE	CAMPUSWIDE	LCD Phase 7 of 8: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 17,745	$ 68,191	$ 51,311	$ 16,880	1.0
A3189	BERKELEY	01CWIDE	CAMPUSWIDE	LCD Phase 6 of 8: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 17,745	$ 68,191	$ 51,311	$ 16,880	1.0
A3188	BERKELEY	01CWIDE	CAMPUSWIDE	LCD Phase 5 of 8: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 17,745	$ 68,191	$ 51,311	$ 16,880	1.0
A3187	BERKELEY	01CWIDE	CAMPUSWIDE	LCD Phase 4 of 8: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 17,745	$ 68,191	$ 51,311	$ 16,880	1.0
A3186	BERKELEY	01CWIDE	CAMPUSWIDE	LCD Phase 3 of 8: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 17,745	$ 68,191	$ 51,311	$ 16,880	1.0
A3185	BERKELEY	01CWIDE	CAMPUSWIDE	LCD Phase 2 of 8: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 17,745	$ 68,191	$ 51,311	$ 16,880	1.0
A3184	BERKELEY	01CWIDE	CAMPUSWIDE	LCD Phase 1 of 8: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 17,745	$ 68,191	$ 51,311	$ 16,880	1.0

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
A3183	BERKELEY	01CWIDE	CAMPUSWIDE	Refrigerators Phase 6 of 6: 94 Energy Star Refrigerator Replacements	210,842	24.0	-	$ 17,500	$ 90,938	$ 50,602	$ 40,336	2.3
A3182	BERKELEY	01CWIDE	CAMPUSWIDE	Refrigerators Phase 5 of 6: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 18,617	$ 96,743	$ 53,832	$ 42,911	2.3
A3181	BERKELEY	01CWIDE	CAMPUSWIDE	Refrigerators Phase 4 of 6: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 18,617	$ 96,743	$ 53,832	$ 42,911	2.3
A3180	BERKELEY	01CWIDE	CAMPUSWIDE	Refrigerators Phase 3 of 6: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 18,617	$ 96,743	$ 53,832	$ 42,911	2.3
A3179	BERKELEY	01CWIDE	CAMPUSWIDE	Refrigerators Phase 2 of 6: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 18,617	$ 96,743	$ 53,832	$ 42,911	2.3
A3178	BERKELEY	01CWIDE	CAMPUSWIDE	Refrigerators Phase 1 of 6: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 18,617	$ 96,743	$ 53,832	$ 42,911	2.3
A3177	BERKELEY	01CWIDE	CAMPUSWIDE	Refrigerators Phase 5 of 5: 20 Energy Star Refrigerator Replacements	44,860	5.0	-	$ 3,723	$ 19,349	$ 10,766	$ 8,583	2.3
A3176	BERKELEY	01CWIDE	CAMPUSWIDE	Refrigerators Phase 4 of 5: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 18,617	$ 96,743	$ 53,832	$ 42,911	2.3
A3175	BERKELEY	01CWIDE	CAMPUSWIDE	Refrigerators Phase 3 of 5: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 18,617	$ 96,743	$ 53,832	$ 42,911	2.3
A3174	BERKELEY	01CWIDE	CAMPUSWIDE	Refrigerators Phase 2 of 5: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 18,617	$ 96,743	$ 53,832	$ 42,911	2.3
A3173	BERKELEY	01CWIDE	CAMPUSWIDE	Refrigerators Phase 1 of 5: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 18,617	$ 96,743	$ 53,832	$ 42,911	2.3
A3172	BERKELEY	01CWIDE	CAMPUSWIDE	Lab Freezers Phase 3 of 3: 19 Lab Freezer Replacements	73,416	8.0	-	$ 6,094	$ 368,676	$ 17,620	$ 351,056	57.6
A3171	BERKELEY	01CWIDE	CAMPUSWIDE	Lab Freezers Phase 2 of 3: 20 Lab Freezer Replacements	77,280	9.0	-	$ 6,414	$ 388,080	$ 18,547	$ 369,533	57.6
A3170	BERKELEY	01CWIDE	CAMPUSWIDE	Lab Freezers Phase 1 of 3: 20 Lab Freezer Replacements	77,280	9.0	-	$ 6,414	$ 388,080	$ 18,547	$ 369,533	57.6
B3030	SAN FRANCISCO MC	02C3006	CENTRAL PLAN	Condensate Return System Bypass Renewal	-	-	41,095	$ 31,232	$ 1,031,940	$ 32,876	$ 999,064	32.0
B3084	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	5 VM Installations	140,000	18.0	-	$ 18,200	$ 203,999	$ 33,600	$ 170,399	9.4
B3083	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 27,793	$ 204,301	$ 51,311	$ 152,990	5.5
B3082	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	Refrigerators Phase 3 of 3: 25 Energy Star Refrigerator Replacements	56,075	6.0	-	$ 7,290	$ 59,346	$ 13,458	$ 45,888	6.3
B3081	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	Refrigerators Phase 2 of 3: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 29,159	$ 237,384	$ 53,832	$ 183,552	6.3
B3080	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	Refrigerators Phase 1 of 3: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 29,159	$ 237,384	$ 53,832	$ 183,552	6.3
B3079	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	54 Energy Star Refrigerator Replacements	121,122	14.0	-	$ 15,746	$ 128,187	$ 29,069	$ 99,118	6.3
B3078	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	8 Lab Freezer Replacements	30,912	4.0	-	$ 4,019	$ 213,252	$ 7,419	$ 205,833	51.2
B3005	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	Solar Pool Water Heater - Mission Bay Outdoor Pool	-	-	5,695	$ 4,328	$ 83,479	$ 5,695	$ 77,784	18.0
B3004	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	Solar Pool Water Heater - Mission Bay Indoor Pool	-	-	4,747	$ 3,608	$ 83,479	$ 4,747	$ 78,732	21.8
B3007	SAN FRANCISCO	02CWIDEP	CAMPUSWIDE	Solar Pool Water Heater - Parnassus Indoor Pool	-	-	3,714	$ 2,822	$ 43,554	$ 2,971	$ 40,583	14.4
C3259	DAVIS	03C3331	HICKEY GYM	Solar Pool Water Heater - Hickey Pool	-	-	6,809	$ 5,992	$ 58,398	$ 5,447	$ 52,951	8.8
C3262	DAVIS	03CTBD10	REC POOL	Pool Covers - Recreation Pool	-	-	29,663	$ 26,103	$ 73,684	$ 23,730	$ 49,954	1.9
C3260	DAVIS	03CTBD10	REC POOL	Solar Pool Water Heater - Recreation Pool	-	-	18,074	$ 15,905	$ 214,888	$ 14,459	$ 200,429	12.6
C3261	DAVIS	03CTBD11	SHELL POOL	Solar Pool Water Heater - Shell Pool	-	-	35,595	$ 31,324	$ 305,326	$ 28,476	$ 276,850	8.8
C3278	DAVIS	03CWIDE	CAMPUSWIDE	Install controller on vending machine (e.g. Vending Miser)	250,460	-	-	$ 22,291	$ 54,443	$ 60,110	$ 10,889	0.5
C3276	DAVIS	03CWIDE	CAMPUSWIDE	SSLS-5 and existing Pipe Improvement	784,831	45.0	-	$ 69,850	$ 1,936,242	$ 188,359	$ 1,747,883	25.0
C3275	DAVIS	03CWIDE	CAMPUSWIDE	Utility Well #3 Replacement	898,876	51.0	-	$ 80,000	$ 3,326,400	$ 215,730	$ 3,110,670	38.9
C3272	DAVIS	03CWIDE	CAMPUSWIDE	Utility Well #7 Replacement	898,876	51.0	-	$ 80,000	$ 3,326,400	$ 215,730	$ 3,110,670	38.9
C3271	DAVIS	03CWIDE	CAMPUSWIDE	Service Transformer Replacement & Duct bank Improvement	187,266	11.0	-	$ 16,667	$ 346,500	$ 44,944	$ 301,556	18.1
C3270	DAVIS	03CWIDE	CAMPUSWIDE	SSLS-11 and Hopkins Pipe Upgrade	103,371	6.0	-	$ 9,200	$ 255,024	$ 24,809	$ 230,215	25.0
C3269	DAVIS	03CWIDE	CAMPUSWIDE	SSLS-10 Upgrade	140,449	8.0	-	$ 12,500	$ 346,500	$ 33,708	$ 312,792	25.0
C3267	DAVIS	03CWIDE	CAMPUSWIDE	Domestic Well #4 Replacement	918,352	52.0	-	$ 81,733	$ 3,398,472	$ 220,404	$ 3,178,068	38.9
C3163	DAVIS	03CWIDE	CAMPUSWIDE	Server Virtualization Phase 4 of 4: 5 VM Installations	140,000	18.0	-	$ 12,460	$ 145,530	$ 33,600	$ 111,930	9.0
C3162	DAVIS	03CWIDE	CAMPUSWIDE	Server Virtualization Phase 3 of 4: 10 VM Installations	280,000	35.0	-	$ 24,920	$ 291,060	$ 67,200	$ 223,860	9.0
C3161	DAVIS	03CWIDE	CAMPUSWIDE	Server Virtualization Phase 2 of 4: 10 VM Installations	280,000	35.0	-	$ 24,920	$ 291,060	$ 67,200	$ 223,860	9.0
C3160	DAVIS	03CWIDE	CAMPUSWIDE	Server Virtualization Phase 1 of 4: 10 VM Installations	280,000	35.0	-	$ 24,920	$ 291,060	$ 67,200	$ 223,860	9.0
C3159	DAVIS	03CWIDE	CAMPUSWIDE	LCD Phase 7 of 7: 556 Verdiem (PC Power Management) Installations and 23 CRT Replacements	118,870	15.0	-	$ 10,579	$ 38,288	$ 28,529	$ 9,759	0.9
C3158	DAVIS	03CWIDE	CAMPUSWIDE	LCD Phase 6 of 7: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 19,028	$ 68,191	$ 51,311	$ 16,880	0.9
C3157	DAVIS	03CWIDE	CAMPUSWIDE	LCD Phase 5 of 7: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 19,028	$ 68,191	$ 51,311	$ 16,880	0.9
C3156	DAVIS	03CWIDE	CAMPUSWIDE	LCD Phase 4 of 7: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 19,028	$ 68,191	$ 51,311	$ 16,880	0.9
C3155	DAVIS	03CWIDE	CAMPUSWIDE	LCD Phase 3 of 7: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 19,028	$ 68,191	$ 51,311	$ 16,880	0.9
C3154	DAVIS	03CWIDE	CAMPUSWIDE	LCD Phase 2 of 7: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 19,028	$ 68,191	$ 51,311	$ 16,880	0.9

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
C3153	DAVIS	03CWIDE	CAMPUSWIDE	LCD Phase 1 of 7: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 19,028	$ 68,191	$ 51,311	$ 16,880	0.9
C3152	DAVIS	03CWIDE	CAMPUSWIDE	Refrigerators Phase 5 of 5: 80 Energy Star Refrigerator Replacements	179,440	20.0	-	$ 15,970	$ 77,394	$ 43,066	$ 34,328	2.1
C3151	DAVIS	03CWIDE	CAMPUSWIDE	Refrigerators Phase 4 of 5: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 19,963	$ 96,743	$ 53,832	$ 42,911	2.1
C3150	DAVIS	03CWIDE	CAMPUSWIDE	Refrigerators Phase 3 of 5: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 19,963	$ 96,743	$ 53,832	$ 42,911	2.1
C3149	DAVIS	03CWIDE	CAMPUSWIDE	Refrigerators Phase 2 of 5: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 19,963	$ 96,743	$ 53,832	$ 42,911	2.1
C3148	DAVIS	03CWIDE	CAMPUSWIDE	Refrigerators Phase 1 of 5: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 19,963	$ 96,743	$ 53,832	$ 42,911	2.1
C3147	DAVIS	03CWIDE	CAMPUSWIDE	Refrigerators Phase 4 of 4: 77 Energy Star Refrigerator Replacements	172,711	20.0	-	$ 15,371	$ 74,492	$ 41,451	$ 33,041	2.1
C3146	DAVIS	03CWIDE	CAMPUSWIDE	Refrigerators Phase 3 of 4: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 19,963	$ 96,743	$ 53,832	$ 42,911	2.1
C3145	DAVIS	03CWIDE	CAMPUSWIDE	Refrigerators Phase 2 of 4: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 19,963	$ 96,743	$ 53,832	$ 42,911	2.1
C3144	DAVIS	03CWIDE	CAMPUSWIDE	Refrigerators Phase 1 of 4: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 19,963	$ 96,743	$ 53,832	$ 42,911	2.1
C3143	DAVIS	03CWIDE	CAMPUSWIDE	Lab Freezers Phase 3 of 3: 13 Lab Freezer Replacements	50,232	6.0	-	$ 4,471	$ 252,252	$ 12,056	$ 240,196	53.7
C3142	DAVIS	03CWIDE	CAMPUSWIDE	Lab Freezers Phase 2 of 3: 20 Lab Freezer Replacements	77,280	9.0	-	$ 6,878	$ 388,080	$ 18,547	$ 369,533	53.7
C3141	DAVIS	03CWIDE	CAMPUSWIDE	Lab Freezers Phase 1 of 3: 20 Lab Freezer Replacements	77,280	9.0	-	$ 6,878	$ 388,080	$ 18,547	$ 369,533	53.7
D3216	LOS ANGELES	04CWIDE	CAMPUSWIDE	Future Million-Gallon Pool at Sunset Canyon: Variable Speed Circulation Pumps	156,488	-	-	$ 13,771	$ 75,954	$ 37,557	$ 38,397	2.8
D3215	LOS ANGELES	04CWIDE	CAMPUSWIDE	Sunset Canyon Diving & Family Pools: Variable Speed Circulation Pumps	71,539	-	-	$ 6,295	$ 25,331	$ 17,169	$ 8,162	1.3
D3214	LOS ANGELES	04CWIDE	CAMPUSWIDE	Sunset Canyon Park Pool: Variable Speed Circulation Pumps	132,655	-	-	$ 11,674	$ 64,507	$ 31,837	$ 32,670	2.8
D3213	LOS ANGELES	04CWIDE	CAMPUSWIDE	North Pool: Variable Speed Circulation Pumps	54,089	-	-	$ 4,760	$ 17,033	$ 12,981	$ 4,052	0.9
D3212	LOS ANGELES	04CWIDE	CAMPUSWIDE	SAC Pool: Solar Pool Water Heater	78,711	-	-	$ 6,927	$ 113,913	$ 12,614	$ 101,299	14.6
D3211	LOS ANGELES	04CWIDE	CAMPUSWIDE	SAC Pool: Variable Speed Circulation Pumps	36,809	-	-	$ 3,239	$ 21,205	$ 8,834	$ 12,371	3.8
D3122	LOS ANGELES	04CWIDE	CAMPUSWIDE	Server Virtualization Phase 5 of 5: 5 VM Installations	140,000	18.0	-	$ 12,320	$ 145,530	$ 33,600	$ 111,930	9.1
D3121	LOS ANGELES	04CWIDE	CAMPUSWIDE	Server Virtualization Phase 4 of 5: 10 VM Installations	280,000	35.0	-	$ 24,640	$ 291,060	$ 67,200	$ 223,860	9.1
D3120	LOS ANGELES	04CWIDE	CAMPUSWIDE	Server Virtualization Phase 3 of 5: 10 VM Installations	280,000	35.0	-	$ 24,640	$ 291,060	$ 67,200	$ 223,860	9.1
D3119	LOS ANGELES	04CWIDE	CAMPUSWIDE	Server Virtualization Phase 2 of 5: 10 VM Installations	280,000	35.0	-	$ 24,640	$ 291,060	$ 67,200	$ 223,860	9.1
D3118	LOS ANGELES	04CWIDE	CAMPUSWIDE	Server Virtualization Phase 1 of 5: 10 VM Installations	280,000	35.0	-	$ 24,640	$ 291,060	$ 67,200	$ 223,860	9.1
D3117	LOS ANGELES	04CWIDE	CAMPUSWIDE	LCD Phase 9 of 9: 222 Verdiem (PC Power Management) Installations and 9 CRT Replacements	47,463	6.0	-	$ 4,177	$ 27,990	$ 11,391	$ 16,599	4.0
D3116	LOS ANGELES	04CWIDE	CAMPUSWIDE	LCD Phase 8 of 9: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 18,814	$ 68,191	$ 51,311	$ 16,880	0.9
D3115	LOS ANGELES	04CWIDE	CAMPUSWIDE	LCD Phase 7 of 9: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 18,814	$ 68,191	$ 51,311	$ 16,880	0.9
D3114	LOS ANGELES	04CWIDE	CAMPUSWIDE	LCD Phase 6 of 9: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 18,814	$ 68,191	$ 51,311	$ 16,880	0.9
D3113	LOS ANGELES	04CWIDE	CAMPUSWIDE	LCD Phase 5 of 9: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 18,814	$ 68,191	$ 51,311	$ 16,880	0.9
D3112	LOS ANGELES	04CWIDE	CAMPUSWIDE	LCD Phase 4 of 9: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 18,814	$ 68,191	$ 51,311	$ 16,880	0.9
D3111	LOS ANGELES	04CWIDE	CAMPUSWIDE	LCD Phase 3 of 9: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 18,814	$ 68,191	$ 51,311	$ 16,880	0.9
D3110	LOS ANGELES	04CWIDE	CAMPUSWIDE	LCD Phase 2 of 9: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 18,814	$ 68,191	$ 51,311	$ 16,880	0.9
D3109	LOS ANGELES	04CWIDE	CAMPUSWIDE	LCD Phase 1 of 9: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 18,814	$ 68,191	$ 51,311	$ 16,880	0.9
D3108	LOS ANGELES	04CWIDE	CAMPUSWIDE	Refrigerators Phase 7 of 7: 69 Energy Star Refrigerator Replacements	154,767	18.0	-	$ 13,619	$ 66,753	$ 37,144	$ 29,609	2.2
D3107	LOS ANGELES	04CWIDE	CAMPUSWIDE	Refrigerators Phase 6 of 7: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 19,738	$ 96,743	$ 53,832	$ 42,911	2.2
D3106	LOS ANGELES	04CWIDE	CAMPUSWIDE	Refrigerators Phase 5 of 7: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 19,738	$ 96,743	$ 53,832	$ 42,911	2.2
D3105	LOS ANGELES	04CWIDE	CAMPUSWIDE	Refrigerators Phase 4 of 7: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 19,738	$ 96,743	$ 53,832	$ 42,911	2.2
D3104	LOS ANGELES	04CWIDE	CAMPUSWIDE	Refrigerators Phase 3 of 7: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 19,738	$ 96,743	$ 53,832	$ 42,911	2.2
D3103	LOS ANGELES	04CWIDE	CAMPUSWIDE	Refrigerators Phase 2 of 7: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 19,738	$ 96,743	$ 53,832	$ 42,911	2.2

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
D3102	LOS ANGELES	04CWIDE	CAMPUSWIDE	Refrigerators Phase 1 of 7: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 19,738	$ 96,743	$ 53,832	$ 42,911	2.2
D3101	LOS ANGELES	04CWIDE	CAMPUSWIDE	Refrigerators Phase 5 of 5: 73 Energy Star Refrigerator Replacements	163,739	19.0	-	$ 14,409	$ 70,622	$ 39,297	$ 31,325	2.2
D3100	LOS ANGELES	04CWIDE	CAMPUSWIDE	Refrigerators Phase 4 of 5: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 19,738	$ 96,743	$ 53,832	$ 42,911	2.2
D3099	LOS ANGELES	04CWIDE	CAMPUSWIDE	Refrigerators Phase 3 of 5: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 19,738	$ 96,743	$ 53,832	$ 42,911	2.2
D3098	LOS ANGELES	04CWIDE	CAMPUSWIDE	Refrigerators Phase 2 of 5: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 19,738	$ 96,743	$ 53,832	$ 42,911	2.2
D3097	LOS ANGELES	04CWIDE	CAMPUSWIDE	Refrigerators Phase 1 of 5: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 19,738	$ 96,743	$ 53,832	$ 42,911	2.2
D3096	LOS ANGELES	04CWIDE	CAMPUSWIDE	Lab Freezers Phase 4 of 4: 6 Lab Freezer Replacements	23,184	3.0	-	$ 2,040	$ 116,424	$ 5,564	$ 110,860	54.3
D3095	LOS ANGELES	04CWIDE	CAMPUSWIDE	Lab Freezers Phase 3 of 4: 20 Lab Freezer Replacements	77,280	9.0	-	$ 6,801	$ 388,080	$ 18,547	$ 369,533	54.3
D3094	LOS ANGELES	04CWIDE	CAMPUSWIDE	Lab Freezers Phase 2 of 4: 20 Lab Freezer Replacements	77,280	9.0	-	$ 6,801	$ 388,080	$ 18,547	$ 369,533	54.3
D3093	LOS ANGELES	04CWIDE	CAMPUSWIDE	Lab Freezers Phase 1 of 4: 20 Lab Freezer Replacements	77,280	9.0	-	$ 6,801	$ 388,080	$ 18,547	$ 369,533	54.3
E3189	RIVERSIDE	05CWIDE	CAMPUSWIDE	Install 10,000 sf Window Film (5th Increment of 5)	152,700	30.0	(613)	$ 10,932	$ 51,696	$ 36,158	$ 15,538	1.4
E3188	RIVERSIDE	05CWIDE	CAMPUSWIDE	Install 10,000 sf Window Film (4th Increment of 5)	152,700	30.0	(613)	$ 10,932	$ 51,696	$ 36,158	$ 15,538	1.4
E3187	RIVERSIDE	05CWIDE	CAMPUSWIDE	Install 10,000 sf Window Film (3rd Increment of 5)	152,700	30.0	(613)	$ 10,932	$ 51,696	$ 36,158	$ 15,538	1.4
E3186	RIVERSIDE	05CWIDE	CAMPUSWIDE	Install 10,000 sf Window Film (2nd Increment of 5)	152,700	30.0	(613)	$ 10,932	$ 51,696	$ 36,158	$ 15,538	1.4
E3185	RIVERSIDE	05CWIDE	CAMPUSWIDE	Install 10,000 sf Window Film (1st Increment of 5)	152,700	30.0	(613)	$ 10,932	$ 51,696	$ 36,158	$ 15,538	1.4
E3112	RIVERSIDE	05CWIDE	CAMPUSWIDE	Variable Speed Circulation Pump	23,078	-	-	$ 1,731	$ 12,360	$ 5,539	$ 6,821	3.9
E3111	RIVERSIDE	05CWIDE	CAMPUSWIDE	Pool Cover with Powered Winder	-	-	28,800	$ 24,480	$ 55,567	$ 23,040	$ 32,527	1.3
E3110	RIVERSIDE	05CWIDE	CAMPUSWIDE	Solar Pool Water Heater	-	-	17,368	$ 14,762	$ 168,629	$ 13,894	$ 154,735	10.5
E3076	RIVERSIDE	05CWIDE	CAMPUSWIDE	Server Virtualization Phase 2 of 2: 10 VM Installations	280,000	35.0	-	$ 21,000	$ 291,060	$ 67,200	$ 223,860	10.7
E3075	RIVERSIDE	05CWIDE	CAMPUSWIDE	Server Virtualization Phase 1 of 2: 10 VM Installations	280,000	35.0	-	$ 21,000	$ 291,060	$ 67,200	$ 223,860	10.7
E3074	RIVERSIDE	05CWIDE	CAMPUSWIDE	LCD Phase 4 of 4: 630 Verdiem (PC Power Management) Installations and 25 CRT Replacements	134,691	17.0	-	$ 10,102	$ 42,862	$ 32,326	$ 10,536	1.0
E3073	RIVERSIDE	05CWIDE	CAMPUSWIDE	LCD Phase 3 of 4: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 16,035	$ 68,191	$ 51,311	$ 16,880	1.1
E3072	RIVERSIDE	05CWIDE	CAMPUSWIDE	LCD Phase 2 of 4: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 16,035	$ 68,191	$ 51,311	$ 16,880	1.1
E3071	RIVERSIDE	05CWIDE	CAMPUSWIDE	LCD Phase 1 of 4: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 16,035	$ 68,191	$ 51,311	$ 16,880	1.1
E3070	RIVERSIDE	05CWIDE	CAMPUSWIDE	Refrigerators Phase 3 of 3: 95 Energy Star Refrigerator Replacements	213,085	24.0	-	$ 15,981	$ 91,906	$ 51,140	$ 40,766	2.6
E3069	RIVERSIDE	05CWIDE	CAMPUSWIDE	Refrigerators Phase 2 of 3: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 16,823	$ 96,743	$ 53,832	$ 42,911	2.6
E3068	RIVERSIDE	05CWIDE	CAMPUSWIDE	Refrigerators Phase 1 of 3: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 16,823	$ 96,743	$ 53,832	$ 42,911	2.6
E3067	RIVERSIDE	05CWIDE	CAMPUSWIDE	Refrigerators Phase 3 of 3: 9 Energy Star Refrigerator Replacements	20,187	2.0	-	$ 1,514	$ 8,707	$ 4,845	$ 3,862	2.6
E3066	RIVERSIDE	05CWIDE	CAMPUSWIDE	Refrigerators Phase 2 of 3: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 16,823	$ 96,743	$ 53,832	$ 42,911	2.6
E3065	RIVERSIDE	05CWIDE	CAMPUSWIDE	Refrigerators Phase 1 of 3: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 16,823	$ 96,743	$ 53,832	$ 42,911	2.6
E3064	RIVERSIDE	05CWIDE	CAMPUSWIDE	Lab Freezers Phase 2 of 2: 9 Lab Freezer Replacements	34,776	4.0	-	$ 2,608	$ 174,636	$ 8,346	$ 166,290	63.8
E3063	RIVERSIDE	05CWIDE	CAMPUSWIDE	Lab Freezers Phase 1 of 2: 20 Lab Freezer Replacements	77,280	9.0	-	$ 5,796	$ 388,080	$ 18,547	$ 369,533	63.8
E3002	RIVERSIDE	05CWIDE	CAMPUSWIDE	Pool Covers - UCR Pool	-	-	31,580	$ 26,843	$ 56,766	$ 25,264	$ 31,502	1.2
E3001	RIVERSIDE	05CWIDE	CAMPUSWIDE	Solar Pool Water Heater - UCR Pool	-	-	12,998	$ 11,048	$ 111,250	$ 10,398	$ 100,852	9.1
F3016	SAN DIEGO	06C6131	ENG UNIT 1	Implement Recommendations in Kuhn & Kuhn Study 2003	621,635	90.0	-	$ 48,488	$ 435,480	$ 149,192	$ 286,288	5.9
F3021	SAN DIEGO	06C6137	SUPERCOMPUTR	Implement Recommendations in Kuhn & Kuhn Study 2003	59,583	18.0	-	$ 4,647	$ 43,870	$ 14,300	$ 29,570	6.4
F3210	SAN DIEGO	06C6210	SIO AQUARIUM (BIRCH)	Walk-in Cooler Evaporator Fan Controls	3,611	-	-	$ 282	$ 1,213	$ 867	$ 346	1.2
F3208	SAN DIEGO	06C6210	SIO AQUARIUM (BIRCH)	Compressed Air System Upgrade	65,777	8.0	-	$ 5,131	$ 27,720	$ 15,786	$ 11,934	2.3
F3207	SAN DIEGO	06C6210	SIO AQUARIUM (BIRCH)	Process Pumping Improvements	233,720	-	-	$ 18,230	$ 33,611	$ 56,093	$ 6,722	0.4
F3227	SAN DIEGO	06C6218	NIERENBERG	Walk-in Cooler Evaporator Fan Controls	14,444	2.0	-	$ 1,127	$ 4,848	$ 3,467	$ 1,381	1.2
F3216	SAN DIEGO	06C6285	RITTER HALL	Walk-in Cooler Evaporator Fan Controls	7,222	1.0	-	$ 563	$ 2,424	$ 1,733	$ 691	1.2
F3048	SAN DIEGO	06C6355	PACIFIC HALL	Implement Recommendations in Kuhn & Kuhn Study 2003	552,534	73.0	-	$ 43,098	$ 441,655	$ 132,608	$ 309,047	7.2
F3228	SAN DIEGO	06C6360	SCHOLANDER	Walk-in Cooler Evaporator Fan Controls	14,444	2.0	-	$ 1,127	$ 4,848	$ 3,467	$ 1,381	1.2
F3007	SAN DIEGO	06CTBD15	FUTURE BUILDING	Solar Pool Water Heater - Natatorium Pool	43,634	-	-	$ 3,403	$ 58,676	$ 6,926	$ 51,750	15.2
F3230	SAN DIEGO	06CWIDE	CAMPUSWIDE	Solar Pool Water Heater	106,331	-	-	$ 8,294	$ 220,135	$ 16,878	$ 203,257	24.5
F3189	SAN DIEGO	06CWIDE	CAMPUSWIDE	Server Virtualization Phase 5 of 5: 2 VM Installations	70,000	9.0	-	$ 5,460	$ 58,212	$ 16,800	$ 41,412	7.6
F3188	SAN DIEGO	06CWIDE	CAMPUSWIDE	Server Virtualization Phase 3 of 5: 10 VM Installations	280,000	35.0	-	$ 21,840	$ 291,060	$ 67,200	$ 223,860	10.3
F3187	SAN DIEGO	06CWIDE	CAMPUSWIDE	Server Virtualization Phase 2 of 5: 10 VM Installations	280,000	35.0	-	$ 21,840	$ 291,060	$ 67,200	$ 223,860	10.3
F3186	SAN DIEGO	06CWIDE	CAMPUSWIDE	Server Virtualization Phase 1 of 5: 10 VM Installations	280,000	35.0	-	$ 21,840	$ 291,060	$ 67,200	$ 223,860	10.3
F3185	SAN DIEGO	06CWIDE	CAMPUSWIDE	LCD Phase 6 of 6: 780 Verdiem (PC Power Management) Installations and 32 CRT Replacements	166,761	21.0	-	$ 13,007	$ 53,583	$ 40,023	$ 13,560	1.0

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
F3184	SAN DIEGO	06CWIDE	CAMPUSWIDE	LCD Phase 5 of 6: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 16,676	$ 68,191	$ 51,311	$ 16,880	1.0
F3183	SAN DIEGO	06CWIDE	CAMPUSWIDE	LCD Phase 4 of 6: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 16,676	$ 68,191	$ 51,311	$ 16,880	1.0
F3182	SAN DIEGO	06CWIDE	CAMPUSWIDE	LCD Phase 3 of 6: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 16,676	$ 68,191	$ 51,311	$ 16,880	1.0
F3181	SAN DIEGO	06CWIDE	CAMPUSWIDE	LCD Phase 2 of 6: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 16,676	$ 68,191	$ 51,311	$ 16,880	1.0
F3180	SAN DIEGO	06CWIDE	CAMPUSWIDE	LCD Phase 1 of 6: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 16,676	$ 68,191	$ 51,311	$ 16,880	1.0
F3179	SAN DIEGO	06CWIDE	CAMPUSWIDE	Refrigerators Phase 3 of 3: 76 Energy Star Refrigerator Replacements	170,468	20.0	-	$ 13,297	$ 73,525	$ 40,912	$ 32,613	2.5
F3178	SAN DIEGO	06CWIDE	CAMPUSWIDE	Refrigerators Phase 2 of 3: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 17,495	$ 96,743	$ 53,832	$ 42,911	2.5
F3177	SAN DIEGO	06CWIDE	CAMPUSWIDE	Refrigerators Phase 1 of 3: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 17,495	$ 96,743	$ 53,832	$ 42,911	2.5
F3176	SAN DIEGO	06CWIDE	CAMPUSWIDE	Refrigerators Phase 4 of 4: 33 Energy Star Refrigerator Replacements	74,019	8.0	-	$ 5,773	$ 31,925	$ 17,765	$ 14,160	2.5
F3175	SAN DIEGO	06CWIDE	CAMPUSWIDE	Refrigerators Phase 3 of 4: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 17,495	$ 96,743	$ 53,832	$ 42,911	2.5
F3174	SAN DIEGO	06CWIDE	CAMPUSWIDE	Refrigerators Phase 2 of 4: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 17,495	$ 96,743	$ 53,832	$ 42,911	2.5
F3173	SAN DIEGO	06CWIDE	CAMPUSWIDE	Refrigerators Phase 1 of 4: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 17,495	$ 96,743	$ 53,832	$ 42,911	2.5
F3172	SAN DIEGO	06CWIDE	CAMPUSWIDE	Lab Freezers Phase 3 of 3: 7 Lab Freezer Replacements	27,048	3.0	-	$ 2,110	$ 135,828	$ 6,492	$ 129,336	61.3
F3171	SAN DIEGO	06CWIDE	CAMPUSWIDE	Lab Freezers Phase 2 of 3: 20 Lab Freezer Replacements	77,280	9.0	-	$ 6,028	$ 388,080	$ 18,547	$ 369,533	61.3
F3170	SAN DIEGO	06CWIDE	CAMPUSWIDE	Lab Freezers Phase 1 of 3: 20 Lab Freezer Replacements	77,280	9.0	-	$ 6,028	$ 388,080	$ 18,547	$ 369,533	61.3
G3140	SANTA CRUZ	07C7700	LML DOLPHNRM	Caisson System Cleaning Improvements	50,500	-	-	$ 5,404	$ 302,400	$ 12,120	$ 290,280	53.7
G3136	SANTA CRUZ	07C7700	LML DOLPHNRM	VFD install on SeaWater Primary Pumps	76,042	30.0	-	$ 8,136	$ 37,800	$ 18,250	$ 19,550	2.4
G3100	SANTA CRUZ	07CWIDE	CAMPUSWIDE	Server Virtualization Phase 2 of 2: 8 VM Installations	210,000	26.0	-	$ 22,470	$ 254,016	$ 50,400	$ 203,616	9.1
G3099	SANTA CRUZ	07CWIDE	CAMPUSWIDE	Server Virtualization Phase 1 of 2: 10 VM Installations	280,000	35.0	-	$ 29,960	$ 317,520	$ 67,200	$ 250,320	8.4
G3098	SANTA CRUZ	07CWIDE	CAMPUSWIDE	LCD Phase 4 of 4: 305 Verdiem (PC Power Management) Installations and 12 CRT Replacements	65,208	8.0	-	$ 6,977	$ 22,582	$ 15,650	$ 6,932	1.0
G3097	SANTA CRUZ	07CWIDE	CAMPUSWIDE	LCD Phase 3 of 4: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 22,876	$ 74,390	$ 51,311	$ 23,079	1.0
G3096	SANTA CRUZ	07CWIDE	CAMPUSWIDE	LCD Phase 2 of 4: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 22,876	$ 74,390	$ 51,311	$ 23,079	1.0
G3095	SANTA CRUZ	07CWIDE	CAMPUSWIDE	LCD Phase 1 of 4: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 22,876	$ 74,390	$ 51,311	$ 23,079	1.0
G3094	SANTA CRUZ	07CWIDE	CAMPUSWIDE	Refrigerators Phase 2 of 2: 58 Energy Star Refrigerator Replacements	130,094	15.0	-	$ 13,920	$ 61,212	$ 31,223	$ 29,989	2.2
G3093	SANTA CRUZ	07CWIDE	CAMPUSWIDE	Refrigerators Phase 1 of 2: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 24,000	$ 105,538	$ 53,832	$ 51,706	2.2
G3092	SANTA CRUZ	07CWIDE	CAMPUSWIDE	Refrigerators Phase 2 of 2: 90 Energy Star Refrigerator Replacements	201,870	23.0	-	$ 21,600	$ 94,984	$ 48,449	$ 46,535	2.2
G3091	SANTA CRUZ	07CWIDE	CAMPUSWIDE	Refrigerators Phase 1 of 2: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 24,000	$ 105,538	$ 53,832	$ 51,706	2.2
G3090	SANTA CRUZ	07CWIDE	CAMPUSWIDE	Lab Freezers Phase 2 of 2: 7 Lab Freezer Replacements	27,048	3.0	-	$ 2,894	$ 148,176	$ 6,492	$ 141,684	49.0
G3089	SANTA CRUZ	07CWIDE	CAMPUSWIDE	Lab Freezers Phase 1 of 2: 20 Lab Freezer Replacements	77,280	9.0	-	$ 8,269	$ 423,360	$ 18,547	$ 404,813	49.0
G3025	SANTA CRUZ	07CWIDE	CAMPUSWIDE	Install controller on vending machine (e.g. Vending Miser)	95,745	-	-	$ 10,245	$ 22,187	$ 22,979	$ 4,437	0.4
G3023	SANTA CRUZ	07CWIDE	CAMPUSWIDE	Pool Covers - East Field House Pool	-	-	81,108	$ 63,264	$ 89,818	$ 64,886	$ 24,932	0.4
G3022	SANTA CRUZ	07CWIDE	CAMPUSWIDE	Solar Pool Water Heater - East Field House Pool	-	-	26,146	$ 20,394	$ 302,720	$ 20,917	$ 281,803	13.8
H3013	SANTA BARBARA	08C8516	RECCEN	Solar Pool Water Heater - Rec Center Pools	-	-	50,408	$ 40,326	$ 400,901	$ 40,326	$ 360,575	8.9
H3015	SANTA BARBARA	08CTBD4	FUTURE BUILDING	Pool Covers - Campus Pool	-	-	66,781	$ 53,425	$ 74,172	$ 53,425	$ 20,747	0.4
H3014	SANTA BARBARA	08CTBD4	FUTURE BUILDING	Solar Pool Water Heater - Campus Pool	-	-	29,811	$ 23,849	$ 237,092	$ 23,849	$ 213,243	8.9
H3194	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Server Virtualization & LCD Monitors - Campus IT Department Generated Specifics Group B	268,855	31.0	-	$ 29,574	$ 252,668	$ 64,525	$ 188,143	6.4
H3193	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Server Virtualization & LCD Monitors - Campus IT Department Generated Specifics Group A	268,855	31.0	-	$ 29,574	$ 252,668	$ 64,525	$ 188,143	6.4
H3186	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Server Virtualization Phase 3 of 3: 5 VM Installations	140,000	18.0	-	$ 15,400	$ 145,530	$ 33,600	$ 111,930	7.3
H3185	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Server Virtualization Phase 2 of 3: 10 VM Installations	280,000	35.0	-	$ 30,800	$ 291,060	$ 67,200	$ 223,860	7.3
H3184	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Server Virtualization Phase 1 of 3: 10 VM Installations	280,000	35.0	-	$ 30,800	$ 291,060	$ 67,200	$ 223,860	7.3
H3183	SANTA BARBARA	08CWIDE	CAMPUSWIDE	LCD Phase 5 of 5: 535 Verdiem (PC Power Management) Installations and 22 CRT Replacements	114,381	15.0	-	$ 12,582	$ 36,778	$ 27,451	$ 9,327	0.7
H3182	SANTA BARBARA	08CWIDE	CAMPUSWIDE	LCD Phase 4 of 5: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 23,518	$ 68,191	$ 51,311	$ 16,880	0.7
H3181	SANTA BARBARA	08CWIDE	CAMPUSWIDE	LCD Phase 3 of 5: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 23,518	$ 68,191	$ 51,311	$ 16,880	0.7

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
H3180	SANTA BARBARA	08CWIDE	CAMPUSWIDE	LCD Phase 2 of 5: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 23,518	$ 68,191	$ 51,311	$ 16,880	0.7
H3179	SANTA BARBARA	08CWIDE	CAMPUSWIDE	LCD Phase 1 of 5: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	213,796	27.0	-	$ 23,518	$ 68,191	$ 51,311	$ 16,880	0.7
H3178	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Refrigerators Phase 3 of 3: 34 Energy Star Refrigerator Replacements	76,262	9.0	-	$ 8,389	$ 32,893	$ 18,303	$ 14,590	1.7
H3177	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Refrigerators Phase 2 of 3: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 24,673	$ 96,743	$ 53,832	$ 42,911	1.7
H3176	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Refrigerators Phase 1 of 3: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 24,673	$ 96,743	$ 53,832	$ 42,911	1.7
H3175	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Refrigerators Phase 3 of 3: 61 Energy Star Refrigerator Replacements	136,823	16.0	-	$ 15,051	$ 59,013	$ 32,838	$ 26,175	1.7
H3174	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Refrigerators Phase 2 of 3: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 24,673	$ 96,743	$ 53,832	$ 42,911	1.7
H3173	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Refrigerators Phase 1 of 3: 100 Energy Star Refrigerator Replacements	224,300	26.0	-	$ 24,673	$ 96,743	$ 53,832	$ 42,911	1.7
H3172	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Lab Freezers Phase 2 of 2: 17 Lab Freezer Replacements	65,688	8.0	-	$ 7,226	$ 329,868	$ 15,765	$ 314,103	43.5
H3171	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Lab Freezers Phase 1 of 2: 20 Lab Freezer Replacements	77,280	9.0	-	$ 8,501	$ 388,080	$ 18,547	$ 369,533	43.5
I3001	IRVINE	09C9073	SCILIBRARY	Elevator Retrofit - MG to VVVF	28,208	20.0	2,799	$ 6,019	$ 866,668	$ 13,540	$ 853,128	141.7
I3002	IRVINE	09C9075	STEINHAUS H	Elevator Retrofit - MG to VVVF	10,250	10.0	1,017	$ 2,187	$ 433,334	$ 4,920	$ 428,414	195.9
I3369	IRVINE	09C9084	MCGAUGH HALL	Air Curtain at Loading Dock	6,300		1,250	$ 1,857	$ 18,000	$ 2,000	$ 16,000	8.6
I3368	IRVINE	09C9300	CRAWFORD HAL	Pool Covers	25,200		5,000	$ 7,426	$ 140,000	$ 8,000	$ 132,000	17.8
I3365	IRVINE	09C9300	CRAWFORD HAL	Solar Hot Water for Showers and Laundry	31,500		6,250	$ 9,283	$ 120,000	$ 10,000	$ 110,000	11.8
I3555	IRVINE	09CWIDE	CAMPUSWIDE	Install controller on vending machine (e.g. Vending Miser)	2,621	-	260	$ 559	$ 22,586	$ 1,258	$ 21,328	38.1
I3314	IRVINE	09CWIDE	CAMPUSWIDE	Lab Freezer Replace Remaining ULT Freezers	325,000	-	32,253	$ 69,347	$ 4,365,900	$ 156,000	$ 4,209,900	60.7
I3312	IRVINE	09CWIDE	CAMPUSWIDE	Replace existing Ice Machines with Energy Star Units	28,500	-	2,828	$ 6,081	$ 200,970	$ 13,680	$ 187,290	30.8
I3311	IRVINE	09CWIDE	CAMPUSWIDE	Replace Copiers with Energy Star w/ Quick Standby Recovery Features	34,000	-	3,374	$ 7,255	$ 166,320	$ 16,320	$ 150,000	20.7
I3310	IRVINE	09CWIDE	CAMPUSWIDE	Replace -20/-30 Lab Freezers with Energy Star Units	608,580	-	60,395	$ 129,857	$ 2,546,775	$ 292,118	$ 2,254,657	17.4
I3184	IRVINE	09CWIDE	CAMPUSWIDE	Server Virtualization Phase 3 of 3: 10 VM Installations	140,000	35.0	13,894	$ 29,873	$ 291,060	$ 67,200	$ 223,860	7.5
I3183	IRVINE	09CWIDE	CAMPUSWIDE	Server Virtualization Phase 2 of 3: 10 VM Installations	140,000	35.0	13,894	$ 29,873	$ 291,060	$ 67,200	$ 223,860	7.5
I3182	IRVINE	09CWIDE	CAMPUSWIDE	Server Virtualization Phase 1 of 3: 10 VM Installations	140,000	35.0	13,894	$ 29,873	$ 291,060	$ 67,200	$ 223,860	7.5
I3181	IRVINE	09CWIDE	CAMPUSWIDE	LCD Phase 6 of 6: 565 Verdiem (PC Power Management) Installations and 23 CRT Replacements	60,398	15.0	5,994	$ 12,887	$ 38,725	$ 28,991	$ 9,734	0.8
I3180	IRVINE	09CWIDE	CAMPUSWIDE	LCD Phase 5 of 6: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	106,898	27.0	10,609	$ 22,810	$ 68,191	$ 51,311	$ 16,880	0.7
I3179	IRVINE	09CWIDE	CAMPUSWIDE	LCD Phase 4 of 6: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	106,898	27.0	10,609	$ 22,810	$ 68,191	$ 51,311	$ 16,880	0.7
I3178	IRVINE	09CWIDE	CAMPUSWIDE	LCD Phase 3 of 6: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	106,898	27.0	10,609	$ 22,810	$ 68,191	$ 51,311	$ 16,880	0.7
I3177	IRVINE	09CWIDE	CAMPUSWIDE	LCD Phase 2 of 6: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	106,898	27.0	10,609	$ 22,810	$ 68,191	$ 51,311	$ 16,880	0.7
I3176	IRVINE	09CWIDE	CAMPUSWIDE	LCD Phase 1 of 6: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	106,898	27.0	10,609	$ 22,810	$ 68,191	$ 51,311	$ 16,880	0.7
I3175	IRVINE	09CWIDE	CAMPUSWIDE	Refrigerators Phase 6 of 6: 9 Energy Star Refrigerator Replacements	10,094	2.0	1,002	$ 2,154	$ 8,707	$ 4,845	$ 3,862	1.8
I3174	IRVINE	09CWIDE	CAMPUSWIDE	Refrigerators Phase 5 of 6: 100 Energy Star Refrigerator Replacements	112,150	26.0	11,130	$ 23,930	$ 96,743	$ 53,832	$ 42,911	1.8
I3173	IRVINE	09CWIDE	CAMPUSWIDE	Refrigerators Phase 4 of 6: 100 Energy Star Refrigerator Replacements	112,150	26.0	11,130	$ 23,930	$ 96,743	$ 53,832	$ 42,911	1.8
I3172	IRVINE	09CWIDE	CAMPUSWIDE	Refrigerators Phase 3 of 6: 100 Energy Star Refrigerator Replacements	112,150	26.0	11,130	$ 23,930	$ 96,743	$ 53,832	$ 42,911	1.8
I3171	IRVINE	09CWIDE	CAMPUSWIDE	Refrigerators Phase 2 of 6: 100 Energy Star Refrigerator Replacements	112,150	26.0	11,130	$ 23,930	$ 96,743	$ 53,832	$ 42,911	1.8
I3170	IRVINE	09CWIDE	CAMPUSWIDE	Refrigerators Phase 1 of 6: 100 Energy Star Refrigerator Replacements	112,150	26.0	11,130	$ 23,930	$ 96,743	$ 53,832	$ 42,911	1.8
I3169	IRVINE	09CWIDE	CAMPUSWIDE	Refrigerators Phase 4 of 4: 20 Energy Star Refrigerator Replacements	22,430	5.0	2,226	$ 4,786	$ 19,349	$ 10,766	$ 8,583	1.8
I3168	IRVINE	09CWIDE	CAMPUSWIDE	Refrigerators Phase 3 of 4: 100 Energy Star Refrigerator Replacements	112,150	26.0	11,130	$ 23,930	$ 96,743	$ 53,832	$ 42,911	1.8
I3167	IRVINE	09CWIDE	CAMPUSWIDE	Refrigerators Phase 2 of 4: 100 Energy Star Refrigerator Replacements	112,150	26.0	11,130	$ 23,930	$ 96,743	$ 53,832	$ 42,911	1.8
I3166	IRVINE	09CWIDE	CAMPUSWIDE	Refrigerators Phase 1 of 4: 100 Energy Star Refrigerator Replacements	112,150	26.0	11,130	$ 23,930	$ 96,743	$ 53,832	$ 42,911	1.8
I3165	IRVINE	09CWIDE	CAMPUSWIDE	Lab Freezers Phase 3 of 3: 5 Lab Freezer Replacements	9,660	2.0	959	$ 2,061	$ 97,020	$ 4,637	$ 92,383	44.8
I3164	IRVINE	09CWIDE	CAMPUSWIDE	Lab Freezers Phase 2 of 3: 20 Lab Freezer Replacements	38,640	9.0	3,835	$ 8,245	$ 388,080	$ 18,547	$ 369,533	44.8
I3163	IRVINE	09CWIDE	CAMPUSWIDE	Lab Freezers Phase 1 of 3: 20 Lab Freezer Replacements	38,640	9.0	3,835	$ 8,245	$ 388,080	$ 18,547	$ 369,533	44.8
I3073	IRVINE	09CWIDE	CAMPUSWIDE	Install controller on vending machine (e.g. Vending Miser)	46,362	-	4,601	$ 9,893	$ 20,551	$ 22,254	$ 4,110	0.4

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
I3071	IRVINE	09CWIDE	CAMPUSWIDE	Solar Pool Water Heater - Crawford Pool	87,617	-	17,384	$ 25,821	$ 287,531	$ 27,815	$ 259,716	10.1
I3307	IRVINE	09CWIDE	CAMPUSWIDE	Wavelength Selective Window film	28,500	-	2,828	$ 6,081	$ 103,950	$ 13,680	$ 90,270	14.8
I3256	IRVINE	09CWIDE	CAMPUSWIDE	Compressed and Vacuum Air System Efficiency Retrofit	175,000	-	17,367	$ 37,341	$ 970,200	$ 84,000	$ 886,200	23.7
I3239	IRVINE	09CWIDE	CAMPUSWIDE	Cool Roof Replacement on Select Buildings as they become available	-	-	-	$ -	$ -	$ -	$ -	
I3237	IRVINE	09CWIDE	CAMPUSWIDE	Extend 12KV Campus Primary Grid to Middle Earth and East Campus Housing	750,000	-	74,430	$ 160,033	$ 14,553,000	$ 360,000	$ 14,193,000	88.7
I3231	IRVINE	09CWIDE	CAMPUSWIDE	Install Power Factor Correction with < 10 YR. Payback.	117,500	-	11,661	$ 25,072	$ 485,100	$ 56,400	$ 428,700	17.1
Subtotal, State Funded, Other Projects					**40,131,864**	**4,549.0**	**1,096,932**	**$ 4,659,542**	**$ 69,506,254**	**$ 11,152,888**	**$ 58,353,366**	**12.5**
Savings by Design (SBD) - Deferred Maintenance & Capital Renewal Projects												
A3159	BERKELEY	01CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2014	-	-	35,511	$ 27,592	$ 346,500	$ 28,409	$ 318,091	11.5
A3158	BERKELEY	01CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2014	454,550	52.0	-	$ 37,728	$ 693,000	$ 109,092	$ 583,908	15.5
A3157	BERKELEY	01CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2014	454,550	52.0	-	$ 37,728	$ 693,000	$ 109,092	$ 583,908	15.5
A3156	BERKELEY	01CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2013	-	-	35,511	$ 27,592	$ 346,500	$ 28,409	$ 318,091	11.5
A3155	BERKELEY	01CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2013	454,550	52.0	-	$ 37,728	$ 693,000	$ 109,092	$ 583,908	15.5
A3154	BERKELEY	01CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2013	454,550	52.0	-	$ 37,728	$ 693,000	$ 109,092	$ 583,908	15.5
A3153	BERKELEY	01CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2012	-	-	35,511	$ 27,592	$ 346,500	$ 28,409	$ 318,091	11.5
A3152	BERKELEY	01CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2012	454,550	52.0	-	$ 37,728	$ 693,000	$ 109,092	$ 583,908	15.5
A3151	BERKELEY	01CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2012	454,550	52.0	-	$ 37,728	$ 693,000	$ 109,092	$ 583,908	15.5
A3150	BERKELEY	01CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2011	-	-	35,511	$ 27,592	$ 346,500	$ 28,409	$ 318,091	11.5
A3149	BERKELEY	01CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2011	454,550	52.0	-	$ 37,728	$ 693,000	$ 109,092	$ 583,908	15.5
A3148	BERKELEY	01CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2011	454,550	52.0	-	$ 37,728	$ 693,000	$ 109,092	$ 583,908	15.5
A3147	BERKELEY	01CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2010	-	-	35,511	$ 27,592	$ 346,500	$ 28,409	$ 318,091	11.5
A3146	BERKELEY	01CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2010	454,550	52.0	-	$ 37,728	$ 693,000	$ 109,092	$ 583,908	15.5
A3145	BERKELEY	01CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2010	454,550	52.0	-	$ 37,728	$ 693,000	$ 109,092	$ 583,908	15.5
A3144	BERKELEY	01CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2009	-	-	35,511	$ 27,592	$ 346,500	$ 28,409	$ 318,091	11.5
A3143	BERKELEY	01CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2009	454,550	52.0	-	$ 37,728	$ 693,000	$ 109,092	$ 583,908	15.5
A3142	BERKELEY	01CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2009	454,550	52.0	-	$ 37,728	$ 693,000	$ 109,092	$ 583,908	15.5
B3061	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2014	-	-	28,409	$ 21,591	$ 485,099	$ 28,409	$ 456,690	21.2
B3060	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2014	454,550	52.0	-	$ 59,092	$ 970,197	$ 109,092	$ 861,105	14.6
B3059	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2014	454,550	52.0	-	$ 59,092	$ 970,197	$ 109,092	$ 861,105	14.6
B3058	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2013	-	-	28,409	$ 21,591	$ 485,099	$ 28,409	$ 456,690	21.2
B3057	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2013	454,550	52.0	-	$ 59,092	$ 970,197	$ 109,092	$ 861,105	14.6
B3056	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2013	454,550	52.0	-	$ 59,092	$ 970,197	$ 109,092	$ 861,105	14.6
B3055	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2012	-	-	28,409	$ 21,591	$ 485,099	$ 28,409	$ 456,690	21.2
B3054	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2012	454,550	52.0	-	$ 59,092	$ 970,197	$ 109,092	$ 861,105	14.6
B3053	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2012	454,550	52.0	-	$ 59,092	$ 970,197	$ 109,092	$ 861,105	14.6
B3052	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2011	-	-	28,409	$ 21,591	$ 485,099	$ 28,409	$ 456,690	21.2
B3051	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2011	454,550	52.0	-	$ 59,092	$ 970,197	$ 109,092	$ 861,105	14.6
B3050	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2011	454,550	52.0	-	$ 59,092	$ 970,197	$ 109,092	$ 861,105	14.6
B3049	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2010	-	-	28,409	$ 21,591	$ 485,099	$ 28,409	$ 456,690	21.2
B3048	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2010	454,550	52.0	-	$ 59,092	$ 970,197	$ 109,092	$ 861,105	14.6
B3047	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2010	454,550	52.0	-	$ 59,092	$ 970,197	$ 109,092	$ 861,105	14.6
B3046	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2009	-	-	28,409	$ 21,591	$ 485,099	$ 28,409	$ 456,690	21.2

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
B3045	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2009	454,550	52.0	-	$ 59,092	$ 970,197	$ 109,092	$ 861,105	14.6
B3044	SAN FRANCISCO	02CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2009	454,550	52.0	-	$ 59,092	$ 970,197	$ 109,092	$ 861,105	14.6
C3121	DAVIS	03CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2014	-	-	35,511	$ 31,250	$ 346,500	$ 28,409	$ 318,091	10.2
C3120	DAVIS	03CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2014	454,550	52.0	-	$ 40,455	$ 693,000	$ 109,092	$ 583,908	14.4
C3119	DAVIS	03CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2014	454,550	52.0	-	$ 40,455	$ 693,000	$ 109,092	$ 583,908	14.4
C3118	DAVIS	03CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2013	-	-	35,511	$ 31,250	$ 346,500	$ 28,409	$ 318,091	10.2
C3117	DAVIS	03CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2013	454,550	52.0	-	$ 40,455	$ 693,000	$ 109,092	$ 583,908	14.4
C3116	DAVIS	03CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2013	454,550	52.0	-	$ 40,455	$ 693,000	$ 109,092	$ 583,908	14.4
C3115	DAVIS	03CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2012	-	-	35,511	$ 31,250	$ 346,500	$ 28,409	$ 318,091	10.2
C3114	DAVIS	03CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2012	454,550	52.0	-	$ 40,455	$ 693,000	$ 109,092	$ 583,908	14.4
C3113	DAVIS	03CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2012	454,550	52.0	-	$ 40,455	$ 693,000	$ 109,092	$ 583,908	14.4
C3112	DAVIS	03CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2011	-	-	35,511	$ 31,250	$ 346,500	$ 28,409	$ 318,091	10.2
C3111	DAVIS	03CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2011	454,550	52.0	-	$ 40,455	$ 693,000	$ 109,092	$ 583,908	14.4
C3110	DAVIS	03CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2011	454,550	52.0	-	$ 40,455	$ 693,000	$ 109,092	$ 583,908	14.4
C3109	DAVIS	03CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2010	-	-	35,511	$ 31,250	$ 346,500	$ 28,409	$ 318,091	10.2
C3108	DAVIS	03CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2010	454,550	52.0	-	$ 40,455	$ 693,000	$ 109,092	$ 583,908	14.4
C3107	DAVIS	03CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2010	454,550	52.0	-	$ 40,455	$ 693,000	$ 109,092	$ 583,908	14.4
C3106	DAVIS	03CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2009	-	-	35,511	$ 31,250	$ 346,500	$ 28,409	$ 318,091	10.2
C3105	DAVIS	03CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2009	454,550	52.0	-	$ 40,455	$ 693,000	$ 109,092	$ 583,908	14.4
C3104	DAVIS	03CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2009	454,550	52.0	-	$ 40,455	$ 693,000	$ 109,092	$ 583,908	14.4
D3075	LOS ANGELES	04CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2014	177,272	-	-	$ 15,600	$ 346,500	$ 28,409	$ 318,091	20.4
D3074	LOS ANGELES	04CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2014	454,550	52.0	-	$ 40,000	$ 693,000	$ 109,092	$ 583,908	14.6
D3073	LOS ANGELES	04CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2014	454,550	52.0	-	$ 40,000	$ 693,000	$ 109,092	$ 583,908	14.6
D3072	LOS ANGELES	04CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2013	177,272	-	-	$ 15,600	$ 346,500	$ 28,409	$ 318,091	20.4
D3071	LOS ANGELES	04CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2013	454,550	52.0	-	$ 40,000	$ 693,000	$ 109,092	$ 583,908	14.6
D3070	LOS ANGELES	04CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2013	454,550	52.0	-	$ 40,000	$ 693,000	$ 109,092	$ 583,908	14.6
D3069	LOS ANGELES	04CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2012	177,272	-	-	$ 15,600	$ 346,500	$ 28,409	$ 318,091	20.4
D3068	LOS ANGELES	04CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2012	454,550	52.0	-	$ 40,000	$ 693,000	$ 109,092	$ 583,908	14.6
D3067	LOS ANGELES	04CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2012	454,550	52.0	-	$ 40,000	$ 693,000	$ 109,092	$ 583,908	14.6
D3066	LOS ANGELES	04CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2011	177,272	-	-	$ 15,600	$ 346,500	$ 28,409	$ 318,091	20.4
D3065	LOS ANGELES	04CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2011	454,550	52.0	-	$ 40,000	$ 693,000	$ 109,092	$ 583,908	14.6
D3064	LOS ANGELES	04CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2011	454,550	52.0	-	$ 40,000	$ 693,000	$ 109,092	$ 583,908	14.6
D3063	LOS ANGELES	04CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2010	177,272	-	-	$ 15,600	$ 346,500	$ 28,409	$ 318,091	20.4
D3062	LOS ANGELES	04CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2010	454,550	52.0	-	$ 40,000	$ 693,000	$ 109,092	$ 583,908	14.6
D3061	LOS ANGELES	04CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2010	454,550	52.0	-	$ 40,000	$ 693,000	$ 109,092	$ 583,908	14.6
D3060	LOS ANGELES	04CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2009	177,272	-	-	$ 15,600	$ 346,500	$ 28,409	$ 318,091	20.4
D3059	LOS ANGELES	04CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2009	454,550	52.0	-	$ 40,000	$ 693,000	$ 109,092	$ 583,908	14.6
D3058	LOS ANGELES	04CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2009	454,550	52.0	-	$ 40,000	$ 693,000	$ 109,092	$ 583,908	14.6
E3052	RIVERSIDE	05CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2014	-	-	35,511	$ 30,185	$ 346,500	$ 28,409	$ 318,091	10.5
E3051	RIVERSIDE	05CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2014	454,550	52.0	-	$ 34,091	$ 693,000	$ 109,092	$ 583,908	17.1

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
E3050	RIVERSIDE	05CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2014	454,550	52.0	-	$ 34,091	$ 693,000	$ 109,092	$ 583,908	17.1
E3049	RIVERSIDE	05CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2013	-	-	35,511	$ 30,185	$ 346,500	$ 28,409	$ 318,091	10.5
E3048	RIVERSIDE	05CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2013	454,550	52.0	-	$ 34,091	$ 693,000	$ 109,092	$ 583,908	17.1
E3047	RIVERSIDE	05CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2013	454,550	52.0	-	$ 34,091	$ 693,000	$ 109,092	$ 583,908	17.1
E3046	RIVERSIDE	05CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2012	-	-	35,511	$ 30,185	$ 346,500	$ 28,409	$ 318,091	10.5
E3045	RIVERSIDE	05CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2012	454,550	52.0	-	$ 34,091	$ 693,000	$ 109,092	$ 583,908	17.1
E3044	RIVERSIDE	05CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2012	454,550	52.0	-	$ 34,091	$ 693,000	$ 109,092	$ 583,908	17.1
E3043	RIVERSIDE	05CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2011	-	-	35,511	$ 30,185	$ 346,500	$ 28,409	$ 318,091	10.5
E3042	RIVERSIDE	05CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2011	454,550	52.0	-	$ 34,091	$ 693,000	$ 109,092	$ 583,908	17.1
E3041	RIVERSIDE	05CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2011	454,550	52.0	-	$ 34,091	$ 693,000	$ 109,092	$ 583,908	17.1
E3040	RIVERSIDE	05CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2010	-	-	35,511	$ 30,185	$ 346,500	$ 28,409	$ 318,091	10.5
E3039	RIVERSIDE	05CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2010	454,550	52.0	-	$ 34,091	$ 693,000	$ 109,092	$ 583,908	17.1
E3038	RIVERSIDE	05CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2010	454,550	52.0	-	$ 34,091	$ 693,000	$ 109,092	$ 583,908	17.1
E3037	RIVERSIDE	05CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2009	-	-	35,511	$ 30,185	$ 346,500	$ 28,409	$ 318,091	10.5
E3036	RIVERSIDE	05CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2009	454,550	52.0	-	$ 34,091	$ 693,000	$ 109,092	$ 583,908	17.1
E3035	RIVERSIDE	05CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2009	454,550	52.0	-	$ 34,091	$ 693,000	$ 109,092	$ 583,908	17.1
F3153	SAN DIEGO	06CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2014	178,977	-	-	$ 13,960	$ 346,500	$ 28,409	$ 318,091	22.8
F3152	SAN DIEGO	06CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2014	454,550	52.0	-	$ 35,455	$ 693,000	$ 109,092	$ 583,908	16.5
F3151	SAN DIEGO	06CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2014	454,550	52.0	-	$ 35,455	$ 693,000	$ 109,092	$ 583,908	16.5
F3150	SAN DIEGO	06CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2013	178,977	-	-	$ 13,960	$ 346,500	$ 28,409	$ 318,091	22.8
F3149	SAN DIEGO	06CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2013	454,550	52.0	-	$ 35,455	$ 693,000	$ 109,092	$ 583,908	16.5
F3148	SAN DIEGO	06CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2013	454,550	52.0	-	$ 35,455	$ 693,000	$ 109,092	$ 583,908	16.5
F3147	SAN DIEGO	06CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2012	178,977	-	-	$ 13,960	$ 346,500	$ 28,409	$ 318,091	22.8
F3146	SAN DIEGO	06CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2012	454,550	52.0	-	$ 35,455	$ 693,000	$ 109,092	$ 583,908	16.5
F3145	SAN DIEGO	06CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2012	454,550	52.0	-	$ 35,455	$ 693,000	$ 109,092	$ 583,908	16.5
F3144	SAN DIEGO	06CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2011	178,977	-	-	$ 13,960	$ 346,500	$ 28,409	$ 318,091	22.8
F3143	SAN DIEGO	06CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2011	454,550	52.0	-	$ 35,455	$ 693,000	$ 109,092	$ 583,908	16.5
F3142	SAN DIEGO	06CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2011	454,550	52.0	-	$ 35,455	$ 693,000	$ 109,092	$ 583,908	16.5
F3141	SAN DIEGO	06CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2010	178,977	-	-	$ 13,960	$ 346,500	$ 28,409	$ 318,091	22.8
F3140	SAN DIEGO	06CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2010	454,550	52.0	-	$ 35,455	$ 693,000	$ 109,092	$ 583,908	16.5
F3139	SAN DIEGO	06CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2010	454,550	52.0	-	$ 35,455	$ 693,000	$ 109,092	$ 583,908	16.5
F3138	SAN DIEGO	06CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2009	178,977	-	-	$ 13,960	$ 346,500	$ 28,409	$ 318,091	22.8
F3137	SAN DIEGO	06CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2009	454,550	52.0	-	$ 35,455	$ 693,000	$ 109,092	$ 583,908	16.5
F3136	SAN DIEGO	06CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2009	454,550	52.0	-	$ 35,455	$ 693,000	$ 109,092	$ 583,908	16.5
G3070	SANTA CRUZ	07CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2014	-	-	35,511	$ 27,699	$ 378,000	$ 28,409	$ 349,591	12.6
G3069	SANTA CRUZ	07CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2014	454,550	52.0	-	$ 48,637	$ 756,000	$ 109,092	$ 646,908	13.3
G3068	SANTA CRUZ	07CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2014	454,550	52.0	-	$ 48,637	$ 756,000	$ 109,092	$ 646,908	13.3
G3067	SANTA CRUZ	07CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2013	-	-	35,511	$ 27,699	$ 378,000	$ 28,409	$ 349,591	12.6
G3066	SANTA CRUZ	07CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2013	454,550	52.0	-	$ 48,637	$ 756,000	$ 109,092	$ 646,908	13.3
G3065	SANTA CRUZ	07CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2013	454,550	52.0	-	$ 48,637	$ 756,000	$ 109,092	$ 646,908	13.3
G3064	SANTA CRUZ	07CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2012	-	-	35,511	$ 27,699	$ 378,000	$ 28,409	$ 349,591	12.6

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
G3063	SANTA CRUZ	07CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2012	454,550	52.0	-	$ 48,637	$ 756,000	$ 109,092	$ 646,908	13.3
G3062	SANTA CRUZ	07CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2012	454,550	52.0	-	$ 48,637	$ 756,000	$ 109,092	$ 646,908	13.3
G3061	SANTA CRUZ	07CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2011	-	-	35,511	$ 27,699	$ 378,000	$ 28,409	$ 349,591	12.6
G3060	SANTA CRUZ	07CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2011	454,550	52.0	-	$ 48,637	$ 756,000	$ 109,092	$ 646,908	13.3
G3059	SANTA CRUZ	07CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2011	454,550	52.0	-	$ 48,637	$ 756,000	$ 109,092	$ 646,908	13.3
G3058	SANTA CRUZ	07CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2010	-	-	35,511	$ 27,699	$ 378,000	$ 28,409	$ 349,591	12.6
G3057	SANTA CRUZ	07CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2010	454,550	52.0	-	$ 48,637	$ 756,000	$ 109,092	$ 646,908	13.3
G3056	SANTA CRUZ	07CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2010	454,550	52.0	-	$ 48,637	$ 756,000	$ 109,092	$ 646,908	13.3
G3055	SANTA CRUZ	07CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2009	-	-	35,511	$ 27,699	$ 378,000	$ 28,409	$ 349,591	12.6
G3054	SANTA CRUZ	07CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2009	454,550	52.0	-	$ 48,637	$ 756,000	$ 109,092	$ 646,908	13.3
G3053	SANTA CRUZ	07CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2009	454,550	52.0	-	$ 48,637	$ 756,000	$ 109,092	$ 646,908	13.3
H3105	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2014	-	-	35,511	$ 28,409	$ 346,500	$ 28,409	$ 318,091	11.2
H3104	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2014	454,550	52.0	-	$ 50,001	$ 693,000	$ 109,092	$ 583,908	11.7
H3103	SANTA BARBARA	08CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2014	454,550	52.0	-	$ 50,001	$ 693,000	$ 109,092	$ 583,908	11.7
H3102	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2013	-	-	35,511	$ 28,409	$ 346,500	$ 28,409	$ 318,091	11.2
H3101	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2013	454,550	52.0	-	$ 50,001	$ 693,000	$ 109,092	$ 583,908	11.7
H3100	SANTA BARBARA	08CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2013	454,550	52.0	-	$ 50,001	$ 693,000	$ 109,092	$ 583,908	11.7
H3099	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2012	-	-	35,511	$ 28,409	$ 346,500	$ 28,409	$ 318,091	11.2
H3098	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2012	454,550	52.0	-	$ 50,001	$ 693,000	$ 109,092	$ 583,908	11.7
H3097	SANTA BARBARA	08CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2012	454,550	52.0	-	$ 50,001	$ 693,000	$ 109,092	$ 583,908	11.7
H3096	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2011	-	-	35,511	$ 28,409	$ 346,500	$ 28,409	$ 318,091	11.2
H3095	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2011	454,550	52.0	-	$ 50,001	$ 693,000	$ 109,092	$ 583,908	11.7
H3094	SANTA BARBARA	08CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2011	454,550	52.0	-	$ 50,001	$ 693,000	$ 109,092	$ 583,908	11.7
H3093	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2010	-	-	35,511	$ 28,409	$ 346,500	$ 28,409	$ 318,091	11.2
H3092	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2010	454,550	52.0	-	$ 50,001	$ 693,000	$ 109,092	$ 583,908	11.7
H3091	SANTA BARBARA	08CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2010	454,550	52.0	-	$ 50,001	$ 693,000	$ 109,092	$ 583,908	11.7
H3089	SANTA BARBARA	08CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2009	454,550	52.0	-	$ 50,001	$ 693,000	$ 109,092	$ 583,908	11.7
H3088	SANTA BARBARA	08CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2009	454,550	52.0	-	$ 50,001	$ 693,000	$ 109,092	$ 583,908	11.7
I3150	IRVINE	09CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2014	89,488	-	17,756	$ 26,372	$ 346,500	$ 28,409	$ 318,091	12.1
I3149	IRVINE	09CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2014	227,275	52.0	22,555	$ 48,495	$ 693,000	$ 109,092	$ 583,908	12.0
I3148	IRVINE	09CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2014	227,275	52.0	22,555	$ 48,495	$ 693,000	$ 109,092	$ 583,908	12.0
I3147	IRVINE	09CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2013	89,488	-	17,756	$ 26,372	$ 346,500	$ 28,409	$ 318,091	12.1
I3146	IRVINE	09CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2013	227,275	52.0	22,555	$ 48,495	$ 693,000	$ 109,092	$ 583,908	12.0
I3145	IRVINE	09CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2013	227,275	52.0	22,555	$ 48,495	$ 693,000	$ 109,092	$ 583,908	12.0
I3144	IRVINE	09CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2012	89,488	-	17,756	$ 26,372	$ 346,500	$ 28,409	$ 318,091	12.1
I3143	IRVINE	09CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2012	227,275	52.0	22,555	$ 48,495	$ 693,000	$ 109,092	$ 583,908	12.0
I3142	IRVINE	09CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2012	227,275	52.0	22,555	$ 48,495	$ 693,000	$ 109,092	$ 583,908	12.0
I3141	IRVINE	09CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2011	89,488	-	17,756	$ 26,372	$ 346,500	$ 28,409	$ 318,091	12.1
I3140	IRVINE	09CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2011	227,275	52.0	22,555	$ 48,495	$ 693,000	$ 109,092	$ 583,908	12.0
I3139	IRVINE	09CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2011	227,275	52.0	22,555	$ 48,495	$ 693,000	$ 109,092	$ 583,908	12.0

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
I3138	IRVINE	09CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2010	89,488	-	17,756	$ 26,372	$ 346,500	$ 28,409	$ 318,091	12.1
I3137	IRVINE	09CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2010	227,275	52.0	22,555	$ 48,495	$ 693,000	$ 109,092	$ 583,908	12.0
I3136	IRVINE	09CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2010	227,275	52.0	22,555	$ 48,495	$ 693,000	$ 109,092	$ 583,908	12.0
I3135	IRVINE	09CWIDE	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2009	89,488	-	17,756	$ 26,372	$ 346,500	$ 28,409	$ 318,091	12.1
I3134	IRVINE	09CWIDE	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2009	227,275	52.0	22,555	$ 48,495	$ 693,000	$ 109,092	$ 583,908	12.0
I3133	IRVINE	09CWIDE	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2009	227,275	52.0	22,555	$ 48,495	$ 693,000	$ 109,092	$ 583,908	12.0
I3349	IRVINE	09C9084	MCGAUGH HALL	DM Component of Exhaust Fan Replacement	226,500		25,602	$ 50,891	$ 1,200,000	$ 103,600	$ 1,096,400	21.5
I3338	IRVINE	09C9125	ENG TOWER	DM Component of Exhaust Fan Replacement	175,200	-	19,886	$ 39,433	$ 850,000	$ 80,000	$ 770,000	19.5
Subtotal, State Funded, (SBD) - Deferred Maintenance & Capital Renewal Projects					**49,440,223**	**5,616.0**	**1,622,959**	**$ 6,125,299**	**$ 100,361,467**	**$ 13,471,213**	**$ 86,890,254**	**14.2**
Subtotal, State Funded Projects					**478,894,893**	**49,229.0**	**25,347,958**	**$ 65,938,335**	**$ 825,401,552**	**$139,414,628**	**$ 685,986,924**	**10.4**
Med Center Funded Buildings												
MBCx Projects												
B3528	SAN FRANCISCO MC	02C2020	MTZ 2330 POS (S Building)	Monitoring Based Commissioning	58,496	7.0	12,813	$ 17,342	$ 119,528	$ 24,289	$ 95,239	5.5
B3535	SAN FRANCISCO MC	02C2031	MTZ BLDG J (2356 Sutter)	Monitoring Based Commissioning	72,528	8.0	17,241	$ 22,532	$ 106,914	$ 31,200	$ 75,714	3.4
B3552	SAN FRANCISCO MC	02C3004	MTZ CANCER C (OCC, H Building)	Monitoring Based Commissioning	189,779	22.0	12,765	$ 34,373	$ 212,801	$ 55,759	$ 157,042	4.6
B3034	SAN FRANCISCO	02C3034	BYERS HALL	Monitoring Based Commissioning	515,282	59.0	13,208	$ 77,025	$ 349,999	$ 136,876	$ 213,123	2.8
B3556	SAN FRANCISCO MC	02C3520	2300 HARRISO	Monitoring Based Commissioning	50,430	6.0	6,877	$ 11,782	$ 74,799	$ 18,980	$ 55,819	4.7
C3071	DAVIS	03C4567	THURMAN	Monitoring Based Commissioning	87,911	10.0	11,803	$ 18,210	$ 78,651	$ 30,541	$ 48,110	2.6
C3076	DAVIS	03C4684	CTR COMP MED	Monitoring Based Commissioning	53,975	6.0	7,246	$ 11,180	$ 48,290	$ 18,751	$ 29,539	2.6
C3078	DAVIS	03C4716	MADDY LAB	Monitoring Based Commissioning	51,474	6.0	6,911	$ 10,663	$ 46,053	$ 17,883	$ 28,170	2.6
C3501	DAVIS MC	03C8065	UMC MIND CL	Monitoring Based Commissioning	-	16.0	38,725	$ 34,078	$ 143,550	$ 49,053	$ 94,497	2.8
C3503	DAVIS MC	03C8125	UMC 14A WARE	Monitoring Based Commissioning	-	11.0	28,916	$ 25,446	$ 116,211	$ 35,054	$ 81,157	3.2
C3505	DAVIS MC	03C9416	UMC HOSPITAL	Monitoring Based Commissioning	-	129.0	310,012	$ 272,810	$ 1,149,200	$ 392,695	$ 756,505	2.8
C3507	DAVIS MC	03C9438	UMC CYPRESS	Monitoring Based Commissioning	-	11.0	26,172	$ 23,032	$ 97,018	$ 33,153	$ 63,865	2.8
C3509	DAVIS MC	03C9519	UMC ADMN SPT	Monitoring Based Commissioning	-	6.0	15,108	$ 13,295	$ 60,721	$ 18,316	$ 42,405	3.2
C3511	DAVIS MC	03C9529	UMC CNCR CTR	Monitoring Based Commissioning	-	14.0	33,858	$ 29,795	$ 125,510	$ 42,889	$ 82,621	2.8
C3513	DAVIS MC	03C9814	UMC GLASSRCK	Monitoring Based Commissioning	-	15.0	35,141	$ 30,924	$ 130,267	$ 44,514	$ 85,753	2.8
C3515	DAVIS MC	03C9880	UMC STK RES	Monitoring Based Commissioning	-	24.0	56,584	$ 49,794	$ 209,754	$ 71,676	$ 138,078	2.8
C3517	DAVIS MC	03C9897	UMC PAT SUPP	Monitoring Based Commissioning	-	6.0	17,532	$ 15,428	$ 70,461	$ 21,254	$ 49,207	3.2
C3519	DAVIS MC	03C9902	UMC FAC SUPP	Monitoring Based Commissioning	-	6.0	16,123	$ 14,188	$ 64,797	$ 19,546	$ 45,251	3.2
C3521	DAVIS MC	03C9921	UMC BROADWAY	Monitoring Based Commissioning	-	10.0	26,171	$ 23,030	$ 105,183	$ 31,727	$ 73,456	3.2
C3523	DAVIS MC	03C9927	UMC DAV TWR	Monitoring Based Commissioning	-	98.0	235,331	$ 207,091	$ 872,361	$ 298,096	$ 574,265	2.8
C3525	DAVIS MC	03C9929	UMC CENTRAL	Monitoring Based Commissioning	-	5.0	12,911	$ 11,362	$ 51,892	$ 15,652	$ 36,240	3.2
C3527	DAVIS MC	03C9986	UMC RSCH III	Monitoring Based Commissioning	-	12.0	29,853	$ 26,270	$ 110,664	$ 37,815	$ 72,849	2.8
C3529	DAVIS MC	03C9992	UMC LJE ACC	Monitoring Based Commissioning	-	81.0	195,418	$ 171,968	$ 724,406	$ 247,538	$ 476,868	2.8
C3531	DAVIS MC	03CNEW1	UMC EDUCATION BLDG (4610 X ST)	Monitoring Based Commissioning	-	4.0	11,953	$ 10,518	$ 48,038	$ 14,490	$ 33,548	3.2
C3533	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	MBCx Central Plant	-	86.0	180,000	$ 158,400	$ 1,081,332	$ 240,000	$ 841,332	5.3
D3501	LOS ANGELES MC	04C4006	MED PLZA 100	Monitoring Based Commissioning	159,980	11.0	-	$ 14,078	$ 97,379	$ 33,276	$ 64,103	4.6
D3503	LOS ANGELES MC	04C510B	SMH EMERGCY	Monitoring Based Commissioning	34,132	4.0	4,583	$ 6,074	$ 34,700	$ 11,858	$ 22,842	3.8
D3505	LOS ANGELES MC	04C510D	SMH PAVILION	Monitoring Based Commissioning	367,002	42.0	49,274	$ 65,310	$ 373,119	$ 127,499	$ 245,620	3.8
D3507	LOS ANGELES MC	04C510F	SMH WST TOWR	Monitoring Based Commissioning	382,854	44.0	51,401	$ 68,130	$ 389,234	$ 133,006	$ 256,228	3.8
D3510	LOS ANGELES MC	04C510H	SMH CENT PLT	MBCx Central Plant	75,000	9.0	7,500	$ 11,625	$ 78,750	$ 24,000	$ 54,750	4.7
D3509	LOS ANGELES MC	04C510H	SMH CENT PLT	Monitoring Based Commissioning	16,499	2.0	2,813	$ 3,336	$ 20,587	$ 6,210	$ 14,377	4.3
F3027	SAN DIEGO	06C6176	CMM EAST	Monitoring Based Commissioning	377,606	36.0	-	$ 29,453	$ 74,064	$ 85,916	$ 14,813	0.5
F3506	SAN DIEGO MC	06C6658	UH AMB CARE	Monitoring Based Commissioning	99,905	11.0	2,906	$ 10,437	$ 97,507	$ 26,302	$ 71,205	6.8
F3515	SAN DIEGO MC	06C6983	UH SOUTH WNG	Monitoring Based Commissioning	222,023	25.0	14,153	$ 30,197	$ 102,876	$ 64,608	$ 38,268	1.3
I3504	IRVINE MC	09C9701A	MC BLDG 1A	Monitoring Based Commissioning	191,088	22.0	25,655	$ 46,261	$ 194,273	$ 66,385	$ 127,888	2.8
I3506	IRVINE MC	09C9703	MC BLDG 3	Monitoring Based Commissioning	153,767	18.0	20,645	$ 37,226	$ 156,330	$ 53,420	$ 102,910	2.8
I3510	IRVINE MC	09C9722A	MC BLDG 22A	Monitoring Based Commissioning	25,905	3.0	4,416	$ 7,041	$ 32,324	$ 9,750	$ 22,574	3.2
I3513	IRVINE MC	09C9722C	MC BLDG 22C	Monitoring Based Commissioning	33,092	4.0	4,443	$ 8,011	$ 33,644	$ 11,496	$ 22,148	2.8
I3515	IRVINE MC	09C9723	MC BLDG 23	Monitoring Based Commissioning	54,946	6.0	9,366	$ 14,933	$ 68,558	$ 20,680	$ 47,878	3.2
I3517	IRVINE MC	09C9725	MC BLDG 25	Monitoring Based Commissioning	69,550	8.0	9,338	$ 16,837	$ 70,710	$ 24,162	$ 46,548	2.8
I3521	IRVINE MC	09C9729	MC BLDG 29	Monitoring Based Commissioning	69,202	8.0	9,291	$ 16,753	$ 70,357	$ 24,041	$ 46,316	2.8
I3523	IRVINE MC	09C9729A	MC BLDG 29A	Monitoring Based Commissioning	31,026	4.0	4,165	$ 7,511	$ 31,544	$ 10,778	$ 20,766	2.8
I3525	IRVINE MC	09C9730	MC BLDG 30	Monitoring Based Commissioning	35,012	4.0	4,701	$ 8,477	$ 35,595	$ 12,164	$ 23,431	2.8
I3527	IRVINE MC	09C9730A	MC BLDG 30A	Monitoring Based Commissioning	35,857	4.0	4,814	$ 8,680	$ 36,453	$ 12,457	$ 23,996	2.8
I3534	IRVINE MC	09C9753	MC BLDG 53	Monitoring Based Commissioning	97,407	11.0	13,078	$ 23,581	$ 99,030	$ 33,840	$ 65,190	2.8
I3537	IRVINE MC	09C9755	MC BLDG 55	Monitoring Based Commissioning	113,736	13.0	15,270	$ 27,535	$ 115,632	$ 39,513	$ 76,119	2.8
I3541	IRVINE MC	09C9763	MC BLDG 63	Monitoring Based Commissioning	303,157	35.0	6,525	$ 45,367	$ 303,378	$ 77,978	$ 225,400	5.0
I3544	IRVINE MC	09C9770	MC BLDG 70	Monitoring Based Commissioning	56,840	6.0	1,486	$ 8,722	$ 96,927	$ 14,831	$ 82,096	9.4

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
I3278	IRVINE MC	09CTBD6	MED CTR - LAB REPLACEMENT BLDG	MBCx of ~480,000 GSF Hospital Facility	-	-	-	$ -	$ -	$ -	$ -	
I3554	IRVINE MC	09CWIDEM	CAMPUSWIDE - MED CTR	MBCx Central Plant	150,000	17.0	15,000	$ 32,100	$ 157,500	$ 48,000	$ 109,500	3.4
Subtotal, Med Center Funded, MBCx Projects					**4,235,462**	**1,005.0**	**1,639,493**	**$ 1,868,214**	**$ 8,968,871**	**$ 2,919,917**	**$ 6,048,954**	**3.2**
HVAC Projects												
B1032	SAN FRANCISCO	02C3034	BYERS HALL	Install VFDs on 2 Nos existing 335 TR water cooled Centrifugal Chillers & provide tower free cooling	272,672	247.0	-	$ 35,447	$ 499,931	$ 65,441	$ 434,490	12.3
F3520	SAN DIEGO MC	06C6917	UH POWR PLNT	Central Chiller Plant, Install New Chiler, Pump VFDs	2,102,044	28.0	125,000	$ 277,709	$ 1,668,918	$ 604,491	$ 1,064,427	3.8
B1516	SAN FRANCISCO MC	02C2031	MTZ BLDG J (2356 Sutter)	Convert Chilled water CV pumping to Variable volume pumping	9,348	-	-	$ 1,215	$ 30,109	$ 2,244	$ 27,865	22.9
B1514	SAN FRANCISCO MC	02C2031	MTZ BLDG J (2356 Sutter)	AHU 5 SAT Reset	21,910	-	1,275	$ 3,817	$ 9,753	$ 6,533	$ 3,220	0.8
B1042	SAN FRANCISCO	02C2037	MTZ CANCER RESEARCH (2340 SUTTER)	Lab - VAV Retrofit w/ OS - only for FH exhaust	196,221	163.0	64,029	$ 74,171	$ 2,211,596	$ 111,122	$ 2,100,474	28.3
B1507	SAN FRANCISCO MC	02C3004	MTZ CANCER C (OCC, H Building)	AHU 3 SAT Reset	13,154	-	470	$ 2,067	$ 9,753	$ 3,533	$ 6,220	3.0
B1506	SAN FRANCISCO MC	02C3004	MTZ CANCER C (OCC, H Building)	AHU 2 SAT Reset	32,063	-	2,114	$ 5,775	$ 9,753	$ 9,386	$ 1,951	0.3
B1505	SAN FRANCISCO MC	02C3004	MTZ CANCER C (OCC, H Building)	AHU 1 SAT Reset	21,599	-	1,483	$ 3,935	$ 9,753	$ 6,370	$ 3,383	0.9
B1039	SAN FRANCISCO	02C3034	BYERS HALL	VAV with OS	51,070	34.0	14,852	$ 17,927	$ 192,682	$ 27,109	$ 165,573	9.2
B1005	SAN FRANCISCO	02C3034	BYERS HALL	AHU 1, 2 - SP Reset	34,062	-	2,281	$ 6,162	$ 14,997	$ 10,456	$ 4,541	0.7
C1064	DAVIS	03C4684	CTR COMP MED	Replace Absorption Chiller with 450 TR VFD driven Centrifugal Chiller and convert constant volume CHW pumping to variable volume.	533,346	78.0	5,889	$ 52,650	$ 603,809	$ 132,714	$ 471,095	8.9
C1030	DAVIS	03C4716	MADDY LAB	AHU 1, 2 - CAV to VAV & SP Reset	564,586	40.0	32,300	$ 78,672	$ 141,839	$ 167,801	$ 28,368	0.4
C1522	DAVIS MC	03C8065	UMC MIND CL	AHU 2B CAV to VAV SP Reset	-	1.0	2,648	$ 2,330	$ 54,889	$ 3,719	$ 51,170	22.0
C1521	DAVIS MC	03C8065	UMC MIND CL	AHU 2A SP Reset	-	-	393	$ 346	$ 3,189	$ 660	$ 2,529	7.3
C1519	DAVIS MC	03C9416	UMC HOSPITAL	AHU 1 - Convert to VAV & SP Reset	-	57.0	379,468	$ 333,932	$ 194,682	$ 503,832	$ 38,936	0.1
C1518	DAVIS MC	03C9416	UMC HOSPITAL	MZ 1 -CAV to VAV & SP Reset	-	11.0	29,562	$ 26,015	$ 66,660	$ 40,310	$ 26,350	1.0
C1520	DAVIS MC	03C9438	UMC CYPRESS	AC-2 & 3 CAV to VAV	-	6.0	4,468	$ 3,932	$ 68,370	$ 7,639	$ 60,731	15.4
C1504	DAVIS MC	03C9519	UMC ADMN SPT	AC-1, 2, AH- 1A, 1B SP Reset & Spot Cooling	-	-	34,067	$ 29,979	$ 162,361	$ 43,390	$ 118,971	4.0
C1517	DAVIS MC	03C9529	UMC CNCR CTR	AC1 DCV	-	-	(73)	$ (64)	$ 1,612	$ (90)	$ 1,702	(26.5)
C1516	DAVIS MC	03C9529	UMC CNCR CTR	SF-1 SP Reset	-	1.0	2,681	$ 2,359	$ 28,994	$ 4,406	$ 24,588	10.4
C1501	DAVIS MC	03C9814	UMC GLASSRCK	AC-1, 2 SP Reset	-	-	624	$ 549	$ 6,379	$ 1,101	$ 5,278	9.6
C1503	DAVIS MC	03C9897	UMC PAT SUPP	SAU 5 SP Reset	-	1.0	1,145	$ 1,008	$ 199	$ 1,875	$ 40	0.0
C1502	DAVIS MC	03C9897	UMC PAT SUPP	SAU 1, 2, 3 & 4 SP Reset	-	1.0	6,278	$ 5,525	$ 12,757	$ 9,703	$ 3,054	0.6
C1513	DAVIS MC	03C9927	UMC DAV TWR	A-3-2 Spot Cooling	-	-	9,953	$ 8,759	$ 28,327	$ 11,143	$ 17,184	2.0
C1512	DAVIS MC	03C9927	UMC DAV TWR	A-1-3 & A-3-1 SP Reset	(0)	2.0	3,579	$ 3,150	$ 6,379	$ 6,115	$ 1,276	0.4
C1511	DAVIS MC	03C9927	UMC DAV TWR	AG-1 SP Reset	-	1.0	1,570	$ 1,382	$ 3,189	$ 2,603	$ 638	0.5
C1510	DAVIS MC	03C9927	UMC DAV TWR	AG-2, A-1-1,A-1-2, A-5-1, A-6-6, A-7-1, A-8-1, A-12-1, A-14-1 SP Reset	-	9.0	20,276	$ 17,842	$ 28,704	$ 34,390	$ 5,741	0.3
C1509	DAVIS MC	03C9986	UMC RSCH III	Lab Rebalance	-	9.0	3,743	$ 3,294	$ 163,933	$ 6,223	$ 157,710	47.9
C1508	DAVIS MC	03C9986	UMC RSCH III	AHU-4 SP Reset	-	-	324	$ 285	$ 24,305	$ 527	$ 23,778	83.4
C1507	DAVIS MC	03C9986	UMC RSCH III	AHU-3,SP Reset	-	-	84	$ 74	$ 24,417	$ 143	$ 24,274	328.7
C1515	DAVIS MC	03C9992	UMC LJE ACC	AHU 3 SP Reset & Spot Cooling	-	2.0	22,826	$ 20,087	$ 31,516	$ 28,250	$ 6,303	0.3
C1514	DAVIS MC	03C9992	UMC LJE ACC	AHU 1, 2, 4 to 8	-	11.0	17,760	$ 15,629	$ 22,325	$ 29,011	$ 4,465	0.3
C1506	DAVIS MC	03CNEW1	UMC EDUCATION BLDG (4610 X ST)	AHU 2-2, 3-2 SP Reset	-	2.0	11,452	$ 10,077	$ 6,379	$ 14,595	$ 1,276	0.1
C1505	DAVIS MC	03CNEW1	UMC EDUCATION BLDG (4610 X ST)	AHU 1-1, 2-1, 3-1 SP Reset	-	2.0	10,703	$ 9,419	$ 9,568	$ 13,720	$ 1,914	0.2
C3532	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	UC Davis Med Energy Recovery System	-	-	37,897	$ 33,349	$ 293,832	$ 33,955	$ 259,877	7.8
F2060	SAN DIEGO	06C6176	CMM EAST	AHU's - CV TO VAV FUMEHOODS	1,698,397	102.0	10,802	$ 142,304	$ 2,062,598	$ 406,406	$ 1,656,192	11.6
F2004	SAN DIEGO MC	06C6658	UH AMB CARE	AHU'S - CVRH TO VAV	573,478	4.0	45,825	$ 86,432	$ 523,618	$ 183,460	$ 340,158	3.9
F2007	SAN DIEGO MC	06C6983	UH SOUTH WNG	AHU'S - CAV TO VAV RETROFIT	641,954	4.0	57,050	$ 101,988	$ 620,575	$ 211,119	$ 409,456	4.0
I1516	IRVINE MC	09C9701A	MC BLDG 1A	Replace Chillers, Replace Cooling Tower, Convert to Variable Volume Pumping	659,692	156.0	-	$ 87,079	$ 477,028	$ 158,326	$ 318,702	3.7
I1512	IRVINE MC	09C9703	MC BLDG 3	Replace Chiller, Add VFD to cooling tower, Convert to Variable Volume Chilled Water Pumping	354,253	64.0	-	$ 46,761	$ 722,174	$ 85,021	$ 637,153	13.6
I3288	IRVINE MC	09C9710	MC BLDG 10	1 package Cool only	10,555	-	-	$ 1,393	$ 25,200	$ 2,533	$ 22,667	16.3
I1501	IRVINE MC	09C9722A	MC BLDG 22A	AH 1 - VIV to VAV & SP Reset	59,129	(1.0)	6,113	$ 12,817	$ 41,436	$ 20,303	$ 21,133	1.6
I3301	IRVINE MC	09C9723	MC BLDG 23	Cancer Center Lab, 4th Floor - Aircuity	-	-	-	$ -	$ -	$ -	$ -	
I1513	IRVINE MC	09C9723	MC BLDG 23	Replace Chiller, Convert to Variable Volume Chilled Water Pumping	834,911	245.0	-	$ 110,208	$ 386,718	$ 200,379	$ 186,339	1.7
I1504	IRVINE MC	09C9723	MC BLDG 23	AH 3 - CAV SAT reset	7,712	-	1,013	$ 1,848	$ 3,122	$ 2,863	$ 624	0.3
I3285	IRVINE MC	09C9725	MC BLDG 25	13 package g/p	137,213	-	-	$ 18,112	$ 327,600	$ 32,931	$ 294,669	16.3
I3287	IRVINE MC	09C9726	MC BLDG 26	4 package g/p	42,219	-	-	$ 5,573	$ 100,800	$ 10,133	$ 90,667	16.3
I3284	IRVINE MC	09C9729	MC BLDG 29	3 package g/p	31,665	-	-	$ 4,180	$ 75,600	$ 7,600	$ 68,000	16.3
I3286	IRVINE MC	09C9730A	MC BLDG 30A	13 split	3,794	-	-	$ 501	$ 184,275	$ 911	$ 183,364	366.1
I3289	IRVINE MC	09C9751	MC BLDG 51	5 package g/p	52,772	-	-	$ 6,966	$ 126,000	$ 12,665	$ 113,335	16.3

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
I3294	IRVINE MC	09C9754	MC BLDG 54	SBD - remove gas water heaters and tie to campus steam loop via heat exchangers	-	-	-	$ -	$ -	$ -	$ -	
I3293	IRVINE MC	09C9754	MC BLDG 54	SBD - remove package boilers and tie to campus steam loop via heat exchangers	-	-	-	$ -	$ -	$ -	$ -	
I3292	IRVINE MC	09C9754	MC BLDG 54	SBD - Change the new lab building from DX to chilled water.	-	-	-	$ -	$ -	$ -	$ -	
I3317	IRVINE MC	09C9755	MC BLDG 55	Health Sci Lab (MC Bldg. 55) Aircuity	325,503	-	16,019	$ 56,102	$ 333,758	$ 90,936	$ 242,822	4.3
I3281	IRVINE MC	09C9755	MC BLDG 55	VFD or Roof Exhaust for CV w/ Bypass	26,580	2.0	-	$ 3,509	$ 15,567	$ 6,379	$ 9,188	2.6
I1507	IRVINE MC	09C9755	MC BLDG 55	EC 3 - VAV rebalance	30,337	-	11,303	$ 13,273	$ 1,320,233	$ 16,323	$ 1,303,910	98.2
I1506	IRVINE MC	09C9755	MC BLDG 55	EC 2 - VAV rebalance	12,268	-	2,050	$ 3,300	$ 88,016	$ 4,584	$ 83,432	25.3
I1505	IRVINE MC	09C9755	MC BLDG 55	Ahu 1 - SP Reset	10,090	-	1,040	$ 2,185	$ 3,122	$ 3,254	$ 624	0.3
I3291	IRVINE MC	09C9760	MC BLDG 60	1 package g/p	10,555	-	-	$ 1,393	$ 25,200	$ 2,533	$ 22,667	16.3
I3290	IRVINE MC	09C9760	MC BLDG 60	4 package g/p	42,219	-	-	$ 5,573	$ 100,800	$ 10,133	$ 90,667	16.3
I1514	IRVINE MC	09C9763	MC BLDG 63	Replace Chiller, Convert to Variable Volume Chilled Water Pumping	187,257	34.0	-	$ 24,718	$ 575,206	$ 44,942	$ 530,264	21.5
I1508	IRVINE MC	09C9763	MC BLDG 63	AH 1 - SP Reset	87,906	-	-	$ 11,604	$ 32,053	$ 21,097	$ 10,956	0.9
I1515	IRVINE MC	09C9770	MC BLDG 70	Replace Chiller, Convert to Variable Volume Chilled Water Pumping	98,631	45.0	-	$ 13,019	$ 226,967	$ 23,671	$ 203,296	15.6
I1509	IRVINE MC	09C9770	MC BLDG 70	AH 1, 2 - SP Reset	28,390	-	-	$ 3,747	$ 6,243	$ 6,814	$ 1,249	0.3
I3298	IRVINE MC	09CWIDEM	CAMPUSWIDE - MED CTR	Buildings 25,22A, 22b, 22C &23 central chilled water loop.	756,424	-	-	$ 99,848	$ 2,362,500	$ 181,542	$ 2,180,958	21.8
I3297	IRVINE MC	09CWIDEM	CAMPUSWIDE - MED CTR	Buildings 3 &1A central chilled water loop.	896,765	-	-	$ 118,373	$ 2,362,500	$ 215,224	$ 2,147,276	18.1
I3295	IRVINE MC	09CWIDEM	CAMPUSWIDE - MED CTR	expand building management controls to include AH#1, AH#2, AH#4, VFD condensor water and cooling tower	167,724	-	-	$ 22,140	$ 140,175	$ 40,254	$ 99,921	4.5
I3283	IRVINE MC	09CWIDEM	CAMPUSWIDE - MED CTR	1 package g/p - B-20	10,555	-	-	$ 1,393	$ 25,200	$ 2,533	$ 22,667	16.3
I1510	IRVINE MC	09CWIDEM	CAMPUSWIDE - MED CTR	Boiler Plant-Steam Trap Maintenance, VFD on boiler fans	235,059	39.0	483,004	$ 427,091	$ 89,906	$ 442,817	$ 17,981	0.0
Subtotal, Med Center Funded, HVAC Projects					**11,886,081**	**1,400.0**	**1,485,337**	**$ 2,522,234**	**$ 20,030,045**	**$ 4,392,106**	**$ 15,637,939**	**6.2**
Lighting Projects												
B3529	SAN FRANCISCO MC	02C2020	MTZ 2330 POS (S Building)	Retrofit T8 and T12 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy and Daylighting Sensors in Appropriate Areas	99,514	23.0	-	$ 12,937	$ 105,601	$ 23,883	$ 81,718	6.3
B3532	SAN FRANCISCO MC	02C2023	MTZ BLDG D	Retrofit T8 and T12 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy and Daylighting Sensors in Appropriate Areas	30,580	8.0	-	$ 3,975	$ 25,699	$ 7,339	$ 18,360	4.6
B3534	SAN FRANCISCO MC	02C2026	MTZ BLDG G	Retrofit T8 and T12 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy and Daylighting Sensors in Appropriate Areas	17,677	4.0	-	$ 2,298	$ 9,469	$ 4,242	$ 5,227	2.3
B3536	SAN FRANCISCO MC	02C2031	MTZ BLDG J (2356 Sutter)	Retrofit T8 and T12 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy and Daylighting Sensors in Appropriate Areas	164,905	44.0	-	$ 21,438	$ 118,058	$ 39,577	$ 78,481	3.7
B3537	SAN FRANCISCO MC	02C2033	MTZ BLDG N	Retrofit T8 and T12 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy and Daylighting Sensors in Appropriate Areas	24,101	6.0	-	$ 3,133	$ 18,543	$ 5,784	$ 12,759	4.1
B3539	SAN FRANCISCO MC	02C2035	MTZ BLDG R	Retrofit T8 and T12 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy and Daylighting Sensors in Appropriate Areas	45,766	11.0	-	$ 5,950	$ 32,295	$ 10,984	$ 21,311	3.6
B3086	SAN FRANCISCO	02C2037	MTZ CANCER RESEARCH (2340 SUTTER)	Retrofit T8 Fixtures with 28W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	171,416	42.0	-	$ 22,284	$ 163,316	$ 41,140	$ 122,176	5.5
B3553	SAN FRANCISCO MC	02C3004	MTZ CANCER C (OCC, H Building)	Retrofit T8 and T12 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy and Daylighting Sensors in Appropriate Areas	175,639	46.0	-	$ 22,833	$ 177,087	$ 42,153	$ 134,934	5.9
B3103	SAN FRANCISCO	02C3034	BYERS HALL	Retrofit T8 Fixtures with 28W T8 lamps and RLO ballasts, and Install daylighting sensors where appropriate	159,429	46.0	-	$ 20,726	$ 249,981	$ 38,263	$ 211,718	10.2
B3557	SAN FRANCISCO MC	02C3520	2300 HARRISO	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts	75,993	24.0	-	$ 9,879	$ 98,156	$ 18,238	$ 79,918	8.1
B3559	SAN FRANCISCO MC	02CWIDEM	CAMPUSWIDE - MED CTR	Phase 2: Replace 100 additional stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in medical center buildings	35,000	-	-	$ 4,550	$ 43,735	$ 8,400	$ 35,335	7.8
B3558	SAN FRANCISCO MC	02CWIDEM	CAMPUSWIDE - MED CTR	Phase 1: Replace 100 stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in medical center buildings	35,000	-	-	$ 4,550	$ 43,735	$ 8,400	$ 35,335	7.8
C3215	DAVIS	03C4567	THURMAN	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	65,981	18.0	-	$ 5,872	$ 68,042	$ 15,835	$ 52,207	8.9
C3220	DAVIS	03C4684	CTR COMP MED	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	37,612	10.0	-	$ 3,347	$ 36,186	$ 9,027	$ 27,159	8.1
C3222	DAVIS	03C4716	MADDY LAB	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	37,595	10.0	-	$ 3,346	$ 37,885	$ 9,023	$ 28,862	8.6

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
C3538	DAVIS MC	03C8065	UMC MIND CL	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts; Install Occupancy and Daylighting Sensors; and Delamp where possible	-	26.0	13,304	$ 11,708	$ 112,812	$ 22,808	$ 90,004	7.7
C3545	DAVIS MC	03C8066	UMC MIND I	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts and Delamp where possible	-	9.0	4,321	$ 3,803	$ 31,194	$ 7,408	$ 23,786	6.3
C3546	DAVIS MC	03C8116	UMC OAK PARK	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts; Delamp where possible	-	13.0	5,149	$ 4,531	$ 45,567	$ 8,826	$ 36,741	8.1
C3535	DAVIS MC	03C9416	UMC HOSPITAL	Retrofit T12 and T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, Install Occupancy Sensors, and Delamp where possible	-	215.0	271,511	$ 238,930	$ 817,775	$ 465,448	$ 352,327	1.5
C3544	DAVIS MC	03C9438	UMC CYPRESS	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts; Install Occupancy and Daylighting Sensors; and Delamp where possible	-	16.0	8,077	$ 7,108	$ 60,752	$ 13,846	$ 46,906	6.6
C3542	DAVIS MC	03C9519	UMC ADMN SPT	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts; Install Daylighting Sensors and Delamp where possible	-	20.0	8,564	$ 7,537	$ 79,714	$ 14,682	$ 65,032	8.6
C3541	DAVIS MC	03C9529	UMC CNCR CTR	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts; Install Occupancy and Daylighting Sensors; and Delamp where possible	-	24.0	14,769	$ 12,997	$ 111,837	$ 25,319	$ 86,518	6.7
C3553	DAVIS MC	03C9558	UMC PARKNG I	Replace existing HID fixtures with new fluorescent fixtures/photocells and retrofit roof fixtures	-	10.0	14,287	$ 12,573	$ 117,509	$ 24,492	$ 93,017	7.4
C3550	DAVIS MC	03C9814	UMC GLASSRCK	Replace HID fixtures in parking garage with new fluorescent fixtures	-	3.0	2,909	$ 2,560	$ 17,435	$ 4,986	$ 12,449	4.9
C3540	DAVIS MC	03C9814	UMC GLASSRCK	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts; Install Occupancy and Daylighting Sensors; and Delamp where possible	-	23.0	12,167	$ 10,707	$ 95,001	$ 20,858	$ 74,143	6.9
C3539	DAVIS MC	03C9897	UMC PAT SUPP	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts; Install Occupancy and Daylighting Sensors; and Delamp where possible	-	31.0	18,046	$ 15,880	$ 166,811	$ 30,936	$ 135,875	8.6
C3551	DAVIS MC	03C9902	UMC FAC SUPP	Retrofit HID up/down cylinder recessed cans with Pulse Start Metal Halide (PSMH) and electronic ballasts; replace shop HIDs with linear fluoroescent; retrofit (or replace) car wash 8' seal tite T12s with T5s or T8s and electronic ballasts	-	16.0	8,719	$ 7,672	$ 99,555	$ 14,946	$ 84,609	11.0
C3537	DAVIS MC	03C9921	UMC BROADWAY	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts; Install Daylighting Sensors and Delamp where possible	-	35.0	14,189	$ 12,486	$ 139,100	$ 24,324	$ 114,776	9.2
C3549	DAVIS MC	03C9927	UMC DAV TWR	Replace existing fire stair fluorescent fixtures with new bi-level fixtures; Replace existing 175-watt MH low bays in loading dock/corridor with linear fluorescent/sensors	-	4.0	9,393	$ 8,265	$ 58,465	$ 16,102	$ 42,363	5.1
C3536	DAVIS MC	03C9927	UMC DAV TWR	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts; Install Occupancy and Daylighting Sensors; and Delamp where possible	-	150.0	188,163	$ 165,584	$ 585,654	$ 322,565	$ 263,089	1.6
C3548	DAVIS MC	03C9929	UMC CENTRAL	Replace existing HID fixtures throughout the plant with new, fluorescent high bays	-	16.0	19,771	$ 17,398	$ 66,176	$ 33,893	$ 32,283	1.9
C3554	DAVIS MC	03C9978	UMC PARKNG 2	Replace existing HID fixtures with new fluorescent fixtures/photocells and retrofit roof fixtures	-	46.0	59,529	$ 52,386	$ 250,536	$ 102,050	$ 148,486	2.8
C3543	DAVIS MC	03C9986	UMC RSCH III	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts; Install Occupancy and Daylighting Sensors; and Delamp where possible	-	19.0	9,697	$ 8,533	$ 72,512	$ 16,623	$ 55,889	6.5
C3552	DAVIS MC	03C9992	UMC LJE ACC	Retrofit existing HID canopy fixtures with 300-watt Pulse Start Metal Halide/w photocells	-	1.0	2,112	$ 1,858	$ 3,626	$ 3,620	$ 725	0.4
C3547	DAVIS MC	03C9992	UMC LJE ACC	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts; Install Daylighting Sensors and Delamp where possible	-	119.0	54,908	$ 48,319	$ 451,360	$ 94,129	$ 357,231	7.4
C3534	DAVIS MC	03CNEW1	UMC EDUCATION BLDG (4610 X ST)	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts; Install Occupancy and Daylighting Sensors; and Delamp where possible	-	25.0	13,050	$ 11,484	$ 115,095	$ 22,372	$ 92,723	8.1
C3556	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	Phase 2: Replace 200 additional stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in campus buildings	-	-	4,900	$ 4,312	$ 84,105	$ 8,400	$ 75,705	17.6
C3555	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	Phase 1: Replace 200 stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in campus buildings	-	-	4,900	$ 4,312	$ 84,105	$ 8,400	$ 75,705	17.6
F3096	SAN DIEGO	06C6656	UH ARBOR PRK	Implement Recommendations in March 2006 SDREO Lighting Feasibility Report	41,707	5.0	-	$ 3,253	$ 108,478	$ 10,010	$ 98,468	30.3
F3507	SAN DIEGO MC	06C6658	UH AMB CARE	Retrofit T8 Fixtures with 28 watt T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	102,052	17.0	-	$ 7,960	$ 69,148	$ 24,492	$ 44,656	5.6

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
F3108	SAN DIEGO	06C6870	114 ARBOR ST	Implement Recommendations in March 2006 SDREO Lighting Feasilibity Report	4,550	2.0	-	$ 355	$ 5,772	$ 1,092	$ 4,680	13.2
F3514	SAN DIEGO MC	06C6978	UH T LINK	Implement Recommendations in March 2006 SDREO Lighting Feasilibity Report and Install Occupancy Sensors	34,118	3.0	-	$ 2,661	$ 24,403	$ 8,188	$ 16,215	6.1
F3111	SAN DIEGO	06C6982	UH SHOP BLDG	Implement Recommendations in March 2006 SDREO Lighting Feasibility Report	14,347	3.0	-	$ 1,119	$ 6,020	$ 3,443	$ 2,577	2.3
F3516	SAN DIEGO MC	06C6983	UH SOUTH WNG	Retrofit T8 Fixtures with 28 watt T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	114,172	19.0	-	$ 8,905	$ 79,311	$ 27,401	$ 51,910	5.8
F3518	SAN DIEGO MC	06CWIDEM	CAMPUSWIDE - MED CTR	Phase 2: Replace 100 additional stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in medical center buildings	35,000	-	-	$ 2,730	$ 37,006	$ 8,400	$ 28,606	10.5
F3517	SAN DIEGO MC	06CWIDEM	CAMPUSWIDE - MED CTR	Phase 1: Replace 100 stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in medical center buildings	35,000	-	-	$ 2,730	$ 37,006	$ 8,400	$ 28,606	10.5
I3503	IRVINE MC	09C9701	MC BLDG 1	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; Add Occupancy Sensors and Daylighting	290,983	70.0	-	$ 38,410	$ 228,981	$ 69,836	$ 159,145	4.1
I3505	IRVINE MC	09C9701A	MC BLDG 1A	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; Add Occupancy Sensors and Daylighting	184,858	45.0	-	$ 24,401	$ 141,830	$ 44,366	$ 97,464	4.0
I3507	IRVINE MC	09C9703	MC BLDG 3	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; Add Occupancy Sensors and Daylighting	162,493	39.0	-	$ 21,449	$ 133,297	$ 38,998	$ 94,299	4.4
I3508	IRVINE MC	09C9710	MC BLDG 10	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	48,978	15.0	-	$ 6,465	$ 60,919	$ 11,755	$ 49,164	7.6
I3509	IRVINE MC	09C9720	MC BLDG 20	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	19,724	6.0	-	$ 2,604	$ 25,364	$ 4,734	$ 20,630	7.9
I3511	IRVINE MC	09C9722A	MC BLDG 22A	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	82,283	19.0	-	$ 10,861	$ 80,590	$ 19,748	$ 60,842	5.6
I3512	IRVINE MC	09C9722B	MC BLDG 22B	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; Add Occupancy Sensors and Daylighting	11,383	3.0	-	$ 1,503	$ 8,877	$ 2,732	$ 6,145	4.1
I3514	IRVINE MC	09C9722C	MC BLDG 22C	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; Add Occupancy Sensors and Daylighting	32,681	8.0	-	$ 4,314	$ 25,487	$ 7,843	$ 17,644	4.1
I3516	IRVINE MC	09C9723	MC BLDG 23	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; Add Occupancy Sensors and Daylighting	146,138	34.0	-	$ 19,290	$ 121,936	$ 35,073	$ 86,863	4.5
I3518	IRVINE MC	09C9725	MC BLDG 25	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	69,467	21.0	-	$ 9,170	$ 89,583	$ 16,672	$ 72,911	8.0
I3519	IRVINE MC	09C9726	MC BLDG 26	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	12,399	4.0	-	$ 1,637	$ 16,737	$ 2,976	$ 13,761	8.4
I3520	IRVINE MC	09C9727	MC BLDG 27	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	14,666	4.0	-	$ 1,936	$ 19,787	$ 3,520	$ 16,267	8.4
I3522	IRVINE MC	09C9729	MC BLDG 29	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; Add Occupancy Sensors and Daylighting	73,016	17.0	-	$ 9,638	$ 59,810	$ 17,524	$ 42,286	4.4
I3296	IRVINE MC	09C9729	MC BLDG 29	Lighting controller	8,694	-	-	$ 1,148	$ 6,300	$ 2,087	$ 4,213	3.7
I3524	IRVINE MC	09C9729A	MC BLDG 29A	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	27,968	9.0	-	$ 3,692	$ 34,012	$ 6,712	$ 27,300	7.4
I3526	IRVINE MC	09C9730	MC BLDG 30	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; Add Occupancy Sensors and Daylighting	36,099	9.0	-	$ 4,765	$ 29,084	$ 8,664	$ 20,420	4.3
I3528	IRVINE MC	09C9730A	MC BLDG 30A	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; Add Occupancy Sensors and Daylighting	36,436	9.0	-	$ 4,810	$ 29,039	$ 8,745	$ 20,294	4.2
I3529	IRVINE MC	09C9731	MC BLDG 31	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	11,984	4.0	-	$ 1,582	$ 11,622	$ 2,876	$ 8,746	5.5

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
I3530	IRVINE MC	09C9733	MC BLDG 33	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	10,718	3.0	-	$ 1,415	$ 13,671	$ 2,572	$ 11,099	7.8
I3531	IRVINE MC	09C9750	MC BLDG 50	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; Add Occupancy Sensors and Daylighting	9,339	2.0	-	$ 1,233	$ 7,663	$ 2,241	$ 5,422	4.4
I3532	IRVINE MC	09C9751	MC BLDG 51	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; Add Daylighting	10,273	3.0	-	$ 1,356	$ 7,260	$ 2,466	$ 4,794	3.5
I3533	IRVINE MC	09C9752	MC BLDG 52	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; Add Occupancy Sensors and Daylighting	9,760	2.0	-	$ 1,288	$ 8,407	$ 2,342	$ 6,065	4.7
I3535	IRVINE MC	09C9753	MC BLDG 53	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	103,237	30.0	-	$ 13,627	$ 137,852	$ 24,777	$ 113,075	8.3
I3536	IRVINE MC	09C9754	MC BLDG 54	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; Add Occupancy Sensors and Daylighting	10,135	2.0	-	$ 1,338	$ 7,911	$ 2,432	$ 5,479	4.1
I3538	IRVINE MC	09C9755	MC BLDG 55	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	86,318	28.0	-	$ 11,394	$ 92,764	$ 20,716	$ 72,048	6.3
I3539	IRVINE MC	09C9758	MC BLDG 58	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	6,084	2.0	-	$ 803	$ 8,214	$ 1,460	$ 6,754	8.4
I3540	IRVINE MC	09C9760	MC BLDG 60	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	11,396	4.0	-	$ 1,504	$ 12,554	$ 2,735	$ 9,819	6.5
I3542	IRVINE MC	09C9763	MC BLDG 63	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	299,318	89.0	-	$ 39,510	$ 388,104	$ 71,836	$ 316,268	8.0
I3543	IRVINE MC	09C9767	MC BLDG 67	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; Add Occupancy Sensors and Daylighting	25,438	6.0	-	$ 3,358	$ 21,047	$ 6,105	$ 14,942	4.4
I3545	IRVINE MC	09C9770	MC BLDG 70	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; Add Occupancy Sensors and Daylighting	101,947	24.0	-	$ 13,457	$ 84,294	$ 24,467	$ 59,827	4.4
I3548	IRVINE MC	09C9956	MC BLDG 56	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Add Daylighting	46,596	21.0	-	$ 6,151	$ 62,236	$ 11,183	$ 51,053	8.3
I3549	IRVINE MC	09C9960	1915 ORGWOOD	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	17,528	5.0	-	$ 2,314	$ 21,760	$ 4,207	$ 17,553	7.6
I3550	IRVINE MC	09C9971	FHC WESTMIN	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; Add Occupancy Sensors and Daylighting	18,385	4.0	-	$ 2,427	$ 14,418	$ 4,412	$ 10,006	4.1
I3552	IRVINE MC	09CWIDEM	CAMPUSWIDE - MED CTR	Phase 2: Replace 100 additional stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in medical center buildings	35,000	-	-	$ 4,620	$ 42,053	$ 8,400	$ 33,652	7.3
I3551	IRVINE MC	09CWIDEM	CAMPUSWIDE - MED CTR	Phase 1: Replace 100 stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in medical center buildings	35,000	-	-	$ 4,620	$ 42,053	$ 8,400	$ 33,652	7.3
I3501	IRVINE MC	09CWIDEM	CAMPUSWIDE - MED CTR	South Parking Structure: Replace existing HID fixtures with new fluorescent fixtures/sensors	332,577	29.0	-	$ 43,900	$ 208,529	$ 79,818	$ 128,711	2.9
I3500	IRVINE MC	09CWIDEM	CAMPUSWIDE - MED CTR	Parking Lots: Retrofit 250 Existing HIDs with PSMH kits	81,030	-	-	$ 10,696	$ 109,948	$ 19,447	$ 90,501	8.5
Subtotal, Med Center Funded, Lighting Projects					**4,077,483**	**1,732**	**762,435**	**1,180,459**	**7,675,618**	**2,285,624**	**$ 5,389,994**	**4.6**
New Construction												
B3010	SAN FRANCISCO MC	02C2031	MTZ BLDG J (2356 Sutter)	SBD, New/Renov - Mount Zion Medical Office Building	576,630	66.0	34,346	$ 101,065	$ 1,098,947	$ 165,868	$ 933,079	9.2
B3073	SAN FRANCISCO MC	02CWIDEM	CAMPUSWIDE - MED CTR	SBD, New/Renov - Campus Approved Projects Under $5 Million	225,381	26.0	21,117	$ 45,348	$ 519,960	$ 75,208	$ 444,752	9.8
B3072	SAN FRANCISCO MC	02CWIDEM	CAMPUSWIDE - MED CTR	SBD, New/Renov - Campus Approved Projects Under $5 Million	225,381	26.0	21,117	$ 45,348	$ 519,960	$ 75,208	$ 444,752	9.8
B3071	SAN FRANCISCO MC	02CWIDEM	CAMPUSWIDE - MED CTR	SBD, New/Renov - Campus Approved Projects Under $5 Million	225,381	26.0	21,117	$ 45,348	$ 519,960	$ 75,208	$ 444,752	9.8
B3070	SAN FRANCISCO MC	02CWIDEM	CAMPUSWIDE - MED CTR	SBD, New/Renov - Campus Approved Projects Under $5 Million	225,381	26.0	21,117	$ 45,348	$ 519,960	$ 75,208	$ 444,752	9.8

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
C3091	DAVIS MC	03C9590	UMC BULKLEY	SBD, New/Renov - Cancer Center Expansion	-	46.0	81,128	$ 71,392	$ 586,839	$ 116,938	$ 469,901	6.6
C3092	DAVIS MC	03C9927	UMC DAV TWR	SBD, New/Renov - Tower II, Phase 5	-	8.0	17,982	$ 15,825	$ 132,201	$ 23,338	$ 108,863	6.9
C3136	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	SBD, New/Renov - Campus Approved Projects Under $5 Million	-	5.0	11,589	$ 10,199	$ 85,201	$ 15,041	$ 70,160	6.9
C3135	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	SBD, New/Renov - Campus Approved Projects Under $5 Million	-	7.0	15,066	$ 13,258	$ 110,757	$ 19,554	$ 91,203	6.9
C3134	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	SBD, New/Renov - Campus Approved Projects Under $5 Million	-	4.0	9,127	$ 8,032	$ 67,098	$ 11,846	$ 55,252	6.9
C3133	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	SBD, New/Renov - Campus Approved Projects Under $5 Million	-	6.0	14,487	$ 12,748	$ 106,502	$ 18,802	$ 87,700	6.9
D3001	LOS ANGELES MC	04C4006	MED PLZA 100	SBD, New/Renov - Outpatient Wing Seismic Renovation	615,049	44.0	-	$ 54,124	$ 645,613	$ 129,516	$ 516,097	9.5
D3044	LOS ANGELES MC	04C510F	SMH WST TOWR	SBD, New/Renov - Santa Monica/Orthopaedic Replacement Hospital and Parking Structure	2,748,782	314.0	163,728	$ 351,590	$ 3,637,434	$ 790,690	$ 2,846,744	8.1
D3088	LOS ANGELES MC	04CWIDEM	CAMPUSWIDE - MED CTR	SBD, New/Renov - Campus Approved Projects Under $5 Million	44,646	3.0	-	$ 3,929	$ 46,867	$ 9,401	$ 37,466	9.5
D3087	LOS ANGELES MC	04CWIDEM	CAMPUSWIDE - MED CTR	SBD, New/Renov - Campus Approved Projects Under $5 Million	44,646	3.0	-	$ 3,929	$ 46,867	$ 9,401	$ 37,466	9.5
D3086	LOS ANGELES MC	04CWIDEM	CAMPUSWIDE - MED CTR	SBD, New/Renov - Campus Approved Projects Under $5 Million	44,646	3.0	-	$ 3,929	$ 46,867	$ 9,401	$ 37,466	9.5
D3085	LOS ANGELES MC	04CWIDEM	CAMPUSWIDE - MED CTR	SBD, New/Renov - Campus Approved Projects Under $5 Million	44,646	3.0	-	$ 3,929	$ 46,867	$ 9,401	$ 37,466	9.5
F3169	SAN DIEGO MC	06CWIDEM	CAMPUSWIDE - MED CTR	SBD, New/Renov - Campus Approved Projects Under $5 Million	84,519	10.0	9,899	$ 15,600	$ 133,626	$ 28,204	$ 105,422	6.8
F3168	SAN DIEGO MC	06CWIDEM	CAMPUSWIDE - MED CTR	SBD, New/Renov - Campus Approved Projects Under $5 Million	84,519	10.0	9,899	$ 15,600	$ 133,626	$ 28,204	$ 105,422	6.8
F3167	SAN DIEGO MC	06CWIDEM	CAMPUSWIDE - MED CTR	SBD, New/Renov - Campus Approved Projects Under $5 Million	84,519	10.0	9,899	$ 15,600	$ 133,626	$ 28,204	$ 105,422	6.8
F3166	SAN DIEGO MC	06CWIDEM	CAMPUSWIDE - MED CTR	SBD, New/Renov - Campus Approved Projects Under $5 Million	84,519	10.0	9,899	$ 15,600	$ 133,626	$ 28,204	$ 105,422	6.8
I3123	IRVINE MC	09C9701A	MC BLDG 1A	SBD, New/Renov - UCI Medical Center Building 1-A Renovation Floors 2 and 3	402,300	46.0	23,963	$ 72,753	$ 758,774	$ 115,722	$ 643,052	8.8
I3130	IRVINE MC	09CTBD6	MED CTR - LAB REPLACEMENT BLDG	SBD, New/Renov - UCI Medical Center Laboratory Replacement Building	226,664	40.0	27,684	$ 52,621	$ 578,695	$ 100,292	$ 478,403	9.1
I3131	IRVINE MC	09CTBD7	UNIVERSITY HOSPITAL SHELL SPACE BUILDOUT	SBD, New/Renov - New University Hospital Shell Space Buildout	387,946	68.0	47,383	$ 90,063	$ 990,458	$ 171,655	$ 818,803	9.1
I3132	IRVINE MC	09CTBD8	MULTIPURPOSE OFFICE BLDG	SBD, New/Renov - UCI Medical Center Multipurpose Office Building	258,161	37.0	35,123	$ 62,878	$ 657,815	$ 108,342	$ 549,473	8.7
I3162	IRVINE MC	09CWIDEM	CAMPUSWIDE - MED CTR	SBD, New/Renov - Campus Approved Projects Under $5 Million	11,269	1.0	1,320	$ 2,570	$ 25,942	$ 3,761	$ 22,181	8.6
I3161	IRVINE MC	09CWIDEM	CAMPUSWIDE - MED CTR	SBD, New/Renov - Campus Approved Projects Under $5 Million	11,269	1.0	1,320	$ 2,570	$ 25,942	$ 3,761	$ 22,181	8.6
I3160	IRVINE MC	09CWIDEM	CAMPUSWIDE - MED CTR	SBD, New/Renov - Campus Approved Projects Under $5 Million	11,269	1.0	1,320	$ 2,570	$ 25,942	$ 3,761	$ 22,181	8.6
I3159	IRVINE MC	09CWIDEM	CAMPUSWIDE - MED CTR	SBD, New/Renov - Campus Approved Projects Under $5 Million	11,269	1.0	1,320	$ 2,570	$ 25,942	$ 3,761	$ 22,181	8.6
I3124	IRVINE MC	09CWIDEM	CAMPUSWIDE - MED CTR	SBD, New/Renov - Opthalmology Building	677,205	77.0	40,338	$ 122,468	$ 1,277,268	$ 194,799	$ 1,082,469	8.8
Subtotal, Med Center Funded, New Construction					**7,355,995**	**928.0**	**651,287**	**$ 1,308,806**	**$ 13,639,181**	**$ 2,448,699**	**$ 11,190,482**	**8.6**
Other Projects												
B3560	SAN FRANCISCO MC	02CWIDEM	CAMPUSWIDE - MED CTR	Install controller on vending machine (e.g. Vending Miser)	18,138	-	-	$ 2,358	$ 5,335	$ 4,353	$ 1,067	0.5
B1515	SAN FRANCISCO MC	02CWIDEM	CAMPUSWIDE - MED CTR	Convert Chilled water CV pumping to Variable volume pumping	254,992	34.0	-	$ 33,149	$ 149,623	$ 61,198	$ 88,425	2.7
C3582	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	Refrigerators Phase 4 of 4: 24 Energy Star Refrigerator Replacements	-	4.0	4,522	$ 3,979	$ 26,384	$ 7,752	$ 18,632	4.7
C3581	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	Refrigerators Phase 3 of 4: 100 Energy Star Refrigerator Replacements	-	15.0	18,841	$ 16,580	$ 109,935	$ 32,299	$ 77,636	4.7
C3580	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	Refrigerators Phase 2 of 4: 100 Energy Star Refrigerator Replacements	-	15.0	18,841	$ 16,580	$ 109,935	$ 32,299	$ 77,636	4.7
C3579	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	Server Virtualization: Installations Virtualization Software Installations	-	126.0	141,120	$ 124,186	$ 1,190,700	$ 241,920	$ 948,780	7.6
C3578	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	Install PC Power Management and Replace CRT Monitors with LCD Monitors	-	15.0	16,123	$ 14,188	$ 41,958	$ 27,639	$ 14,319	1.0
C3577	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	Install controllers on vending machines (e.g. Vending Miser)	-	1.0	5,323	$ 4,684	$ 10,108	$ 9,125	$ 2,022	0.4
C3576	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	Refrigerators Phase 1 of 4: 100 Energy Star Refrigerator Replacements	-	15.0	18,841	$ 16,580	$ 109,935	$ 32,299	$ 77,636	4.7

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
C3575	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	Lab Freezers: Replace old lab freezers with energy-efficient units	-	9.0	10,819	$ 9,521	$ 441,000	$ 18,547	$ 422,453	44.4
F3028	SAN DIEGO	06C6176	CMM EAST	Implement Recommendations in Kuhn & Kuhn Study 2003	344,149	43.0	-	$ 26,844	$ 207,634	$ 82,596	$ 125,038	4.7
F3062	SAN DIEGO	06C6438	SOM RSCH FAC	Implement Recommendations in Kuhn & Kuhn Study 2003	402,548	79.0	-	$ 31,399	$ 314,797	$ 96,612	$ 218,185	6.9
F3519	SAN DIEGO MC	06CWIDEM	CAMPUSWIDE - MED CTR	Install controller on vending machine (e.g. Vending Miser)	19,000	-	-	$ 1,482	$ 5,988	$ 4,560	$ 1,428	1.0
I3282	IRVINE MC	09CWIDEM	CAMPUSWIDE - MED CTR	Replace 15 -30/-80 freezers to be selected at a later date	100,000	-	-	$ 13,200	$ 590,625	$ 24,000	$ 566,625	42.9
Subtotal, Med Center Funded, Other Projects					**1,138,827**	**356.0**	**234,430**	**$ 314,730**	**$ 3,313,957**	**$ 675,199**	**$ 2,638,758**	**8.4**
Savings by Design (SBD) - Deferred Maintenance & Capital Renewal Projects												
C3574	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	Natural Gas Component of DM and CR Projects 2014	-	-	7,101	$ 6,249	$ 78,750	$ 5,681	$ 73,069	11.7
C3573	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	Second Electric Savings Component of DM and CR Projects 2014	-	10.0	12,727	$ 11,200	$ 157,500	$ 21,818	$ 135,682	12.1
C3572	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	First Electric Savings Component of DM and CR Projects 2014	-	10.0	12,727	$ 11,200	$ 157,500	$ 21,818	$ 135,682	12.1
C3571	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	Natural Gas Component of DM and CR Projects 2013	-	-	7,101	$ 6,249	$ 78,750	$ 5,681	$ 73,069	11.7
C3570	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	Second Electric Savings Component of DM and CR Projects 2013	-	10.0	12,727	$ 11,200	$ 157,500	$ 21,818	$ 135,682	12.1
C3569	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	First Electric Savings Component of DM and CR Projects 2013	-	10.0	12,727	$ 11,200	$ 157,500	$ 21,818	$ 135,682	12.1
C3568	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	Natural Gas Component of DM and CR Projects 2012	-	-	7,101	$ 6,249	$ 78,750	$ 5,681	$ 73,069	11.7
C3567	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	Second Electric Savings Component of DM and CR Projects 2012	-	10.0	12,727	$ 11,200	$ 157,500	$ 21,818	$ 135,682	12.1
C3566	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	First Electric Savings Component of DM and CR Projects 2012	-	10.0	12,727	$ 11,200	$ 157,500	$ 21,818	$ 135,682	12.1
C3565	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	Natural Gas Component of DM and CR Projects 2011	-	-	7,101	$ 6,249	$ 78,750	$ 5,681	$ 73,069	11.7
C3564	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	Second Electric Savings Component of DM and CR Projects 2011	-	10.0	12,727	$ 11,200	$ 157,500	$ 21,818	$ 135,682	12.1
C3563	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	First Electric Savings Component of DM and CR Projects 2011	-	10.0	12,727	$ 11,200	$ 157,500	$ 21,818	$ 135,682	12.1
C3562	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	Natural Gas Component of DM and CR Projects 2010	-	-	7,101	$ 6,249	$ 78,750	$ 5,681	$ 73,069	11.7
C3561	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	Second Electric Savings Component of DM and CR Projects 2010	-	10.0	12,727	$ 11,200	$ 157,500	$ 21,818	$ 135,682	12.1
C3560	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	First Electric Savings Component of DM and CR Projects 2010	-	10.0	12,727	$ 11,200	$ 157,500	$ 21,818	$ 135,682	12.1
C3559	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	Natural Gas Component of DM and CR Projects 2009	-	-	7,101	$ 6,249	$ 78,750	$ 5,681	$ 73,069	11.7
C3558	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	Second Electric Savings Component of DM and CR Projects 2009	-	10.0	12,727	$ 11,200	$ 157,500	$ 21,818	$ 135,682	12.1
C3557	DAVIS MC	03CWIDEM	CAMPUSWIDE - MED CTR	First Electric Savings Component of DM and CR Projects 2009	-	-	12,727	$ 11,200	$ 157,500	$ 21,818	$ 135,682	12.1
Subtotal, Med Center Funded, (SBD) - Deferred Maintenance & Capital Renewal Projects					**-**	**110.0**	**195,336**	**$ 171,896**	**$ 2,362,500**	**$ 295,902**	**$ 2,066,598**	**12.0**
Subtotal, Med Center Funded Projects					**28,693,847**	**5,531.0**	**4,968,318**	**$ 7,366,339**	**$ 55,990,173**	**$ 13,017,447**	**$ 42,972,726**	**5.8**
Housing Funded												
MBCx												
A3008	BERKELEY	01C1092	CHANNIN2535 (Channing-Bowditch Student Housing)	Monitoring Based Commissioning	37,120	4.0	9,449	$ 10,423	$ 60,868	$ 16,468	$ 44,400	4.3
A3012	BERKELEY	01C1098	RESSTUSRVBLD (Central Dining/Cesar Chavez Stu Ctr)	Monitoring Based Commissioning	224,407	26.0	11,275	$ 27,386	$ 72,631	$ 62,878	$ 14,526	0.5
A3015	BERKELEY	01C1145	RH1 CHRSTIAN	Monitoring Based Commissioning	30,124	3.0	8,714	$ 9,271	$ 56,132	$ 14,201	$ 41,931	4.5
A3017	BERKELEY	01C1146	RH1 SLOTTMAN	Monitoring Based Commissioning	32,849	4.0	9,194	$ 9,870	$ 59,225	$ 15,239	$ 43,986	4.5
A3019	BERKELEY	01C1147	RH2 TOWLE	Monitoring Based Commissioning	31,953	4.0	8,814	$ 9,500	$ 56,776	$ 14,720	$ 42,056	4.4
A3021	BERKELEY	01C1148	RH2 WADA	Monitoring Based Commissioning	33,240	4.0	9,029	$ 9,774	$ 58,161	$ 15,201	$ 42,960	4.4
A3034	BERKELEY	01C1230	BOWLES	Monitoring Based Commissioning	16,501	2.0	9,674	$ 8,886	$ 62,310	$ 11,699	$ 50,611	5.7
A3099	BERKELEY	01C1495	STERN	Monitoring Based Commissioning	22,684	3.0	11,414	$ 10,751	$ 73,520	$ 14,575	$ 58,945	5.5
C3046	DAVIS	03C3772	SEG MALCOLM	Monitoring Based Commissioning	33,068	4.0	5,636	$ 7,903	$ 36,309	$ 12,445	$ 23,864	3.0
C3047	DAVIS	03C3793	SEG RYERSON	Monitoring Based Commissioning	33,068	4.0	5,636	$ 7,903	$ 36,309	$ 12,445	$ 23,864	3.0
C3056	DAVIS	03C4023	TEC COMMUNIT	Monitoring Based Commissioning	44,665	5.0	7,614	$ 10,675	$ 49,042	$ 16,811	$ 32,231	3.0
C3085	DAVIS	03C4806	SEGN THOMPSN	Monitoring Based Commissioning	32,395	4.0	5,521	$ 7,742	$ 35,569	$ 12,192	$ 23,377	3.0
C3087	DAVIS	03C4825	TECS2 LABEN	Monitoring Based Commissioning	43,416	5.0	7,400	$ 10,376	$ 47,671	$ 16,340	$ 31,331	3.0
C3088	DAVIS	03C9524	EMERSON	Monitoring Based Commissioning	88,512	10.0	15,088	$ 21,155	$ 97,186	$ 33,313	$ 63,873	3.0
D3015	LOS ANGELES	04C4265	TIVERTON HSE	Monitoring Based Commissioning	81,558	5.0	-	$ 7,177	$ 48,381	$ 16,584	$ 31,797	4.4
D3019	LOS ANGELES	04C4302A	CANYON POINT	Monitoring Based Commissioning	153,094	9.0	-	$ 13,472	$ 90,818	$ 31,130	$ 59,688	4.4
D3020	LOS ANGELES	04C4302D	COVEL COMMON	Monitoring Based Commissioning	205,324	13.0	-	$ 18,069	$ 121,803	$ 41,751	$ 80,052	4.4
D3021	LOS ANGELES	04C4310	KERCKHOFF	Monitoring Based Commissioning	100,932	6.0	-	$ 8,882	$ 59,875	$ 20,523	$ 39,352	4.4
D3036	LOS ANGELES	04C4352	SYCAMORE CT	Monitoring Based Commissioning	141,026	9.0	-	$ 12,410	$ 83,659	$ 28,676	$ 54,983	4.4
E3011	RIVERSIDE	05CP5343	ABER INVER	Monitoring Based Commissioning	157,033	18.0	26,768	$ 34,530	$ 172,423	$ 59,102	$ 113,321	3.3

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
E3021	RIVERSIDE	05CP5502	LOTHIAN HALL	Monitoring Based Commissioning	190,029	22.0	32,391	$ 41,785	$ 208,653	$ 71,520	$ 137,133	3.3
E3026	RIVERSIDE	05CP5715	UNV PLZA APT	Monitoring Based Commissioning	55,859	6.0	9,521	$ 12,282	$ 61,333	$ 21,023	$ 40,310	3.3
E3028	RIVERSIDE	05CP5991	STONEHAVEN	Monitoring Based Commissioning	122,053	14.0	20,805	$ 26,838	$ 134,015	$ 45,937	$ 88,078	3.3
E3029	RIVERSIDE	05CP5998	INTER VILLAG	Monitoring Based Commissioning	79,310	9.0	13,519	$ 17,439	$ 87,084	$ 29,849	$ 57,235	3.3
F3064	SAN DIEGO	06C6507	RCRH ARGO	Monitoring Based Commissioning	88,044	5.0	-	$ 6,867	$ 55,595	$ 17,595	$ 38,000	5.5
F3086	SAN DIEGO	06C6604	TENAYA HALL	Monitoring Based Commissioning	88,388	5.0	-	$ 6,894	$ 61,296	$ 17,315	$ 43,981	6.4
F3088	SAN DIEGO	06C6605	TIOGA HALL	Monitoring Based Commissioning	107,235	5.0	-	$ 8,364	$ 80,065	$ 20,645	$ 59,420	7.1
F3113	SAN DIEGO	06C7157	BLACK	Monitoring Based Commissioning	58,227	2.0	-	$ 4,542	$ 49,214	$ 10,845	$ 38,369	8.4
F3115	SAN DIEGO	06C7158	BRENNAN	Monitoring Based Commissioning	58,175	2.0	-	$ 4,538	$ 49,913	$ 10,788	$ 39,125	8.6
F3117	SAN DIEGO	06C7159	DOUGLAS	Monitoring Based Commissioning	56,504	2.0	-	$ 4,407	$ 49,166	$ 10,435	$ 38,731	8.8
F3119	SAN DIEGO	06C7160	GOLDBERG	Monitoring Based Commissioning	59,710	2.0	-	$ 4,657	$ 49,742	$ 11,167	$ 38,575	8.3
G3034	SANTA CRUZ	07C7303	PORTER HSE A	Monitoring Based Commissioning	21,795	2.0	3,819	$ 5,311	$ 45,117	$ 8,286	$ 36,831	6.9
H3037	SANTA BARBARA	08C8527	SANTA ROSA	Monitoring Based Commissioning	65,061	7.0	11,090	$ 16,029	$ 71,436	$ 24,487	$ 46,949	2.9
H3045	SANTA BARBARA	08C8542	ORTEGA	Monitoring Based Commissioning	18,030	2.0	3,074	$ 4,442	$ 55,440	$ 6,786	$ 48,654	11.0
H3049	SANTA BARBARA	08C8547	ANACAPA	Monitoring Based Commissioning	60,147	7.0	10,253	$ 14,818	$ 66,042	$ 22,637	$ 43,405	2.9
H3050	SANTA BARBARA	08C8548	SANTA CRUZ	Monitoring Based Commissioning	60,148	7.0	10,253	$ 14,818	$ 66,042	$ 22,638	$ 43,404	2.9
H3051	SANTA BARBARA	08C8549	DE LA GUERRA	Monitoring Based Commissioning	24,661	3.0	4,204	$ 6,076	$ 55,440	$ 9,282	$ 46,158	7.6
H3056	SANTA BARBARA	08C8553	SAN MIGUEL	Monitoring Based Commissioning	65,769	8.0	11,210	$ 16,203	$ 72,215	$ 24,753	$ 47,462	2.9
H3062	SANTA BARBARA	08C8561	SAN NICOLAS	Monitoring Based Commissioning	65,412	8.0	11,150	$ 16,115	$ 71,823	$ 24,619	$ 47,204	2.9
H3063	SANTA BARBARA	08C8562	CARRILLO COM	Monitoring Based Commissioning	17,976	2.0	3,064	$ 4,428	$ 55,440	$ 6,765	$ 48,675	11.0
H3076	SANTA BARBARA	08C8586	SAN RAFAEL W	Monitoring Based Commissioning	47,334	5.0	8,069	$ 11,662	$ 51,974	$ 17,815	$ 34,159	2.9
H3080	SANTA BARBARA	08C8860	FRANCISCO TO	Monitoring Based Commissioning	193,347	22.0	32,958	$ 47,634	$ 212,295	$ 72,769	$ 139,526	2.9
H3081	SANTA BARBARA	08C8879	JALAMA	Monitoring Based Commissioning	65,450	8.0	11,156	$ 16,125	$ 71,865	$ 24,633	$ 47,232	2.9
Subtotal, Housing, MBCx					**3,211,632**	**297.0**	**347,758**	**$ 568,431**	**$ 3,159,870**	**$ 998,882**	**$ 2,160,988**	**3.8**
New Construction												
B3040	SAN FRANCISCO MC	02CTBD2	374 PARNASSUS HOUSING	SBD, New/Renov - Parnassus Housing: 374 Parnassus Avenue	27,609	3.0	3,234	$ 6,047	$ 58,794	$ 9,213	$ 49,581	8.2
C3045	DAVIS	03C3769	SEG FOOD SER	SBD, New/Renov - Segundo Services Center	129,870	15.0	15,210	$ 24,943	$ 216,025	$ 43,337	$ 172,688	6.9
C3090	DAVIS	03C9526	OXFORD CMNS	SBD, New/Renov - Oxford Circle Dining Commons	66,081	8.0	7,739	$ 12,691	$ 109,914	$ 22,050	$ 87,864	6.9
D3002	LOS ANGELES	04C4201	ARWHD LODGE	SBD, New/Renov - Lake Arrowhead Facility Improvements	72,707	5.0	-	$ 6,398	$ 67,157	$ 15,310	$ 51,847	8.1
D3012	LOS ANGELES	04C4246	DYKSTRA HALL	SBD, New/Renov - Dykstra Repairs and Refurbishment	1,950,545	172.0	-	$ 171,648	$ 1,750,813	$ 432,481	$ 1,318,332	7.7
D3017	LOS ANGELES	04C4298	RIEBER HALL	SBD, New/Renov - Rieber Repairs and Refurbishment	777,303	56.0	-	$ 68,403	$ 718,016	$ 163,684	$ 554,332	8.1
D3018	LOS ANGELES	04C4299	HEDRICK HALL	SBD, New/Renov - Hedrick Repairs and Refurbishment	725,977	52.0	-	$ 63,886	$ 670,602	$ 152,875	$ 517,727	8.1
D3053	LOS ANGELES	04CTBD3	HILGARD GRAD STUD HOUSING	SBD, New/Renov - Hilgard Graduate Student Housing	219,273	16.0	-	$ 19,296	$ 202,549	$ 46,174	$ 156,375	8.1
D3054	LOS ANGELES	04CTBD4	SOUTHWEST CAMPUS HOUSING COMMONS BUILDING	SBD, New/Renov - Southwest Campus Housing Commons Building	138,519	10.0	-	$ 12,190	$ 127,950	$ 29,169	$ 98,781	8.1
D3057	LOS ANGELES	04CTBD7	NORTHWEST CAMPUS STUDENT HOUSING BUILDING	SBD, New/Renov - Northwest Campus Student Housing Unit	3,348,278	241.0	-	$ 294,648	$ 3,092,901	$ 705,077	$ 2,387,824	8.1
E3012	RIVERSIDE	05CP5343	ABER INVER	SBD, New/Renov - Aberdeen-Inverness Refurbishment	69,930	8.0	8,190	$ 12,206	$ 98,136	$ 23,335	$ 74,801	6.1
E3030	RIVERSIDE	05CTBD1	CANYON CREST DINING COMMONS	SBD, New/Renov - Canyon Crest Dining Commons, Phase 1	167,063	19.0	19,566	$ 29,161	$ 234,439	$ 55,748	$ 178,691	6.1
E3032	RIVERSIDE	05CTBD2	CANYON CREST RESIDENT HALLS	SBD, New/Renov - Canyon Crest Residence Halls, Phase 2	237,213	27.0	27,781	$ 41,405	$ 332,876	$ 79,156	$ 253,720	6.1
E3031	RIVERSIDE	05CTBD2	CANYON CREST RESIDENT HALLS	SBD, New/Renov - Canyon Crest Residence Halls, Phase 1	362,131	41.0	42,411	$ 63,209	$ 508,171	$ 120,840	$ 387,331	6.1
F3129	SAN DIEGO	06CTBD5	HOUSING AND DINING SVCS ADMIN BLDG	SBD, New/Renov - Housing and Dining Services Administrative Building and Catering Facility	182,698	13.0	-	$ 14,250	$ 181,641	$ 38,336	$ 143,305	10.1
F3133	SAN DIEGO	06CTBD9	STUDENT ON-CAMPUS HOUSING EXPANSION	SBD, New/Renov - Student On-Campus Housing Expansion	2,912,127	209.0	-	$ 227,146	$ 2,895,242	$ 611,065	$ 2,284,177	10.1
G3083	SANTA CRUZ	07CWIDEH	CAMPUSWIDE - HOUSING	SBD, New/Renov - Student Housing/Dining Seismic Corrections	141,425	16.0	16,564	$ 28,052	$ 269,553	$ 47,193	$ 222,360	7.9
G3082	SANTA CRUZ	07CWIDEH	CAMPUSWIDE - HOUSING	SBD, New/Renov - Family Student Housing Redevelopment Phase 2	709,340	81.0	83,076	$ 140,699	$ 1,351,990	$ 236,703	$ 1,115,287	7.9
G3081	SANTA CRUZ	07CWIDEH	CAMPUSWIDE - HOUSING	SBD, New/Renov - Family Student Housing Redevelopment Phase 1	608,924	70.0	71,315	$ 120,781	$ 1,160,589	$ 203,194	$ 957,395	7.9
H3047	SANTA BARBARA	08C8542	ORTEGA	SBD, New/Renov - Dining Commons Seismic Corrections and Renovation, Phase 2: Ortega	138,668	16.0	16,240	$ 28,245	$ 248,827	$ 46,272	$ 202,555	7.2
I3121	IRVINE	09C9653	VERANO 400	SBD, New/Renov - Verano Place Unit 4 Renovation	168,897	24.0	22,979	$ 41,137	$ 430,361	$ 70,881	$ 359,480	8.7
I3122	IRVINE	09C9655	VERANO 600	SBD, New/Renov - Verano Place Unit 6 Renovation	152,327	22.0	20,724	$ 37,101	$ 388,138	$ 63,927	$ 324,211	8.7
Subtotal, Housing, New Construction					**13,306,904**	**1,124.0**	**355,029**	**$ 1,463,543**	**$ 15,114,683**	**$ 3,216,020**	**$ 11,898,663**	**8.1**
HVAC Projects												
H4016	SANTA BARBARA	08C8860	FRANCISCO TO	Refrigeration Compressors	17,520	-	-	$ 1,927	$ 12,042	$ 4,205	$ 7,837	4.1
A3007	BERKELEY	01C1084	FOOTHILL 4	Foothill Kitchen Hood Controls	39,576	10.0	1,568	$ 4,503	$ 32,225	$ 10,752	$ 21,472	4.8
A3014	BERKELEY	01C1098	RESSTUSRVBLD (Central Dining/Cesar Chavez Stu Ctr)	Crossroads Kitchen Hood Controls	39,576	10.0	1,969	$ 4,815	$ 32,225	$ 11,073	$ 21,152	4.4

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
A1101	BERKELEY	01C1098	RESSTUSRVBLD (Central Dining/Cesar Chavez Stu Ctr)	Convert constant volume Condenser water pumping to variable volume	19,058	3.0	-	$ 1,582	$ 26,437	$ 4,574	$ 21,863	13.8
A1042	BERKELEY	01C1098	RESSTUSRVBLD (Central Dining/Cesar Chavez Stu Ctr)	AHU 4, 5 - Spot Cooling & SP Reset	55,395	-	9,490	$ 11,972	$ 59,026	$ 20,887	$ 38,139	3.2
A3135	BERKELEY	01C1803	RH3 DINING	Café 3 Kitchen Hood Controls	5,176	4.0	431	$ 765	$ 12,474	$ 1,587	$ 10,887	14.2
C1002	DAVIS	03C4023	TEC COMMUNIT	S- 3, 4- CAV to VAV	104,142	7.0	12,375	$ 20,159	$ 71,585	$ 37,369	$ 34,216	1.7
C3089	DAVIS	03C9526	OXFORD CMNS	Oxford Kitchen Hood Controls	57,873	23.0	3,110	$ 7,887	$ 49,896	$ 16,378	$ 33,518	4.2
D6010	LOS ANGELES	04C4265	TIVERTON HSE	CT VFDs	24,661	4.0	-	$ 2,170	$ 10,928	$ 5,919	$ 5,009	2.3
D6001	LOS ANGELES	04C4302A	CANYON POINT	Replace Boiler	15,563	-	-	$ 1,370	$ 78,323	$ 2,494	$ 75,829	55.4
D6002	LOS ANGELES	04C4302D	COVEL COMMON	Replace Boiler	31,119	-	-	$ 2,738	$ 156,646	$ 4,987	$ 151,659	55.4
D1006	LOS ANGELES	04C4302D	COVEL COMMON	DAC 1 to 4 & DAHU-1 - VIV to VAV SP Reset	389,410	2.0	-	$ 34,268	$ 105,987	$ 85,306	$ 21,197	0.6
D1008	LOS ANGELES	04C4310	KERCKHOFF	CAV to VAV - AHU 2	52,107	1.0	-	$ 4,585	$ 28,262	$ 12,180	$ 16,082	3.5
D1007	LOS ANGELES	04C4310	KERCKHOFF	AHU 1 SP Reset	72,829	-	-	$ 6,409	$ 2,784	$ 16,712	$ 557	0.1
E2010	RIVERSIDE	05CP5343	ABER INVER	DDMZAHU'S - CV TO VAV RETROFIT	1,297,689	106.0	42,313	$ 133,292	$ 3,378,244	$ 353,758	$ 3,024,486	22.7
E2017	RIVERSIDE	05CP5502	LOTHIAN HALL	REPLACE OLD UNITS WITH VAV AHU'S	446,271	69.0	771	$ 34,126	$ 955,486	$ 107,722	$ 847,764	24.8
F3505	SAN DIEGO	06C6120	CLUB MED	UCSD Med School -Club Med Kitchen Hood Controls	4,899	4.0	-	$ 382	$ 12,474	$ 1,148	$ 11,326	29.6
F3229	SAN DIEGO	06C6120	CLUB MED	UCSD Med School -Club Med Kitchen Hood Controls	4,899	4.0	-	$ 382	$ 12,474	$ 1,148	$ 11,326	29.6
F3012	SAN DIEGO	06C6120	CLUB MED	UCSD Revelle Plaza Café Kitchen Hood Controls	29,185	10.0	-	$ 2,276	$ 32,225	$ 6,905	$ 25,320	11.1
F3034	SAN DIEGO	06C6315	CANYON VISTA	UCSD Earl Warren - Canyon Vista Kitchen Hood Controls	29,185	10.0	-	$ 2,276	$ 32,225	$ 6,905	$ 25,320	11.1
F3095	SAN DIEGO	06C6615	MARSHALL COM	UCSD Ocean View Terrace Kitchen Hood Controls	37,791	10.0	-	$ 2,948	$ 32,225	$ 8,910	$ 23,314	7.9
G3008	SANTA CRUZ	07C7303	PORTER HSE A	Tie Existing EMS System to Tridium	9,341	-	1,091	$ 1,851	$ 63,873	$ 3,115	$ 60,758	32.8
H3046	SANTA BARBARA	08C8542	ORTEGA	UCSB Ortega Kitchen Hood Controls	78,130	20.0	1,623	$ 9,892	$ 74,844	$ 20,049	$ 54,795	5.5
H3053	SANTA BARBARA	08C8549	DE LA GUERRA	UCSB Portola (S. Catalina) Kitchen Hood Controls	78,130	20.0	1,623	$ 9,892	$ 74,844	$ 20,049	$ 54,795	5.5
H3052	SANTA BARBARA	08C8549	DE LA GUERRA	UCSB De La Guerre Kitchen Hood Controls	103,952	27.0	1,229	$ 12,418	$ 99,792	$ 25,931	$ 73,861	5.9
H4005	SANTA BARBARA	08C8860	FRANCISCO TO	EE Motors	4,368	-	-	$ 480	$ 1,963	$ 1,048	$ 915	1.9
H3009	SANTA BARBARA	08CWIDEH	CAMPUSWIDE - HOUSING	Housing Boiler Replacements & lockout	-	-	129,169	$ 103,335	$ 431,794	$ 103,335	$ 328,459	3.2
I3118	IRVINE	09C9518	MESA CEN SER	Mesa Commons Kitchen Hood Controls	16,281	12.0	1,714	$ 3,555	$ 32,225	$ 7,654	$ 24,570	6.9
I3119	IRVINE	09C9530	M E BRDYWINE	Brandywine Kitchen Hood Controls	3,477	5.0	377	$ 768	$ 12,474	$ 1,616	$ 10,858	14.1
I3120	IRVINE	09C9557	ME PIPPIN	Pippin Kitchen Hood Controls	14,990	12.0	1,559	$ 3,257	$ 32,225	$ 7,077	$ 25,148	7.7
I3273	IRVINE	09C9653	VERANO 400	Water Heater Replacement	20,003	-	3,969	$ 5,895	$ 263,340	$ 6,350	$ 256,990	43.6
I3272	IRVINE	09C9653	VERANO 400	Replace Heating Furnace (780 units)	114,395	-	22,698	$ 33,712	$ 1,191,960	$ 36,316	$ 1,155,644	34.3
I3238	IRVINE	09C9653	VERANO 400	Wall Furnace Replacement	14,175	-	2,813	$ 4,177	$ 148,302	$ 4,500	$ 143,802	34.4
I3275	IRVINE	09CWIDEH	CAMPUSWIDE - HOUSING	Refrigerant Heat Recovery for Water Preheating in Dining Facilities	-	-	-	$ -	$ -	$ -	$ -	
I3274	IRVINE	09CWIDEH	CAMPUSWIDE - HOUSING	BA Fans in Residential Dining IACHBS	-	-	-	$ -	$ -	$ -	$ -	
I3267	IRVINE	09CWIDEH	CAMPUSWIDE - HOUSING	Install Solar Water Heating System in Housing Units with Central Heating Water Heating System	47,250	-	9,375	$ 13,925	$ 623,700	$ 15,000	$ 608,700	43.7
I3266	IRVINE	09CWIDEH	CAMPUSWIDE - HOUSING	Replace All Hot Water Heaters w/ Highest Efficiency Units	42,525	-	8,438	$ 12,532	$ 450,450	$ 13,500	$ 436,950	34.9
I3263	IRVINE	09CWIDEH	CAMPUSWIDE - HOUSING	Replace Kitchen Appliances with Energy Star units where opportunities exist.	29,820	-	3,834	$ 7,080	$ 277,200	$ 12,880	$ 264,320	37.3
I3259	IRVINE	09CWIDEH	CAMPUSWIDE - HOUSING	Replace remaining old Boilers with high Efficient units.	81,900	-	16,250	$ 24,136	$ 519,750	$ 26,000	$ 493,750	20.5
I3255	IRVINE	09CWIDEH	CAMPUSWIDE - HOUSING	Replace Inefficient Packaged HVAC and Chiller units with high SEER units.	75,415	-	8,765	$ 17,142	$ 415,800	$ 34,100	$ 381,700	22.3
I3252	IRVINE	09CWIDEH	CAMPUSWIDE - HOUSING	Install Occupancy Sensors in Laundry Rooms and Restrooms to control Exhaust Fans.	47,500	-	4,714	$ 10,135	$ 242,550	$ 22,800	$ 219,750	21.7
I3248	IRVINE	09CWIDEH	CAMPUSWIDE - HOUSING	Install Occupancy Sensors wherever applicable and Retrofit Lighting systems.	62,500	-	6,203	$ 13,336	$ 242,550	$ 30,000	$ 212,550	15.9
I3240	IRVINE	09CWIDEH	CAMPUSWIDE - HOUSING	Replace Heating Furnaces with Energy Star Units	-	-	-	$ -	$ -	$ -	$ -	
I3232	IRVINE	09CWIDEH	CAMPUSWIDE - HOUSING	Install Solar Hot Water Systems in Dining and Residential Buildings with Central Hot Water Systems.	135,450	-	26,875	$ 39,917	$ 1,316,700	$ 43,000	$ 1,273,700	31.9
I3229	IRVINE	09CWIDEH	CAMPUSWIDE - HOUSING	Replace Heating Furnace (200 units)	19,943	-	3,957	$ 5,877	$ 304,920	$ 6,331	$ 298,589	50.8
Subtotal, Housing, HVAC Projects					**3,773,468**	**373.0**	**328,299**	**$ 614,145**	**$ 11,955,444**	**$ 1,161,570**	**$ 10,793,874**	**17.6**
Lighting Projects												
A3009	BERKELEY	01C1092	CHANNIN2535 (Channing-Bowditch Student Housing)	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	58,358	22.0	-	$ 4,844	$ 92,812	$ 14,006	$ 78,806	16.3
A3013	BERKELEY	01C1098	RESSTUSRVBLD (Central Dining/Cesar Chavez Stu Ctr)	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts; Add Occupancy Sensors and Daylighting	127,567	33.0	-	$ 10,588	$ 158,044	$ 30,616	$ 127,428	12.0
A3016	BERKELEY	01C1145	RH1 CHRSTIAN	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	56,081	22.0	-	$ 4,655	$ 92,740	$ 13,459	$ 79,281	17.0
A3018	BERKELEY	01C1146	RH1 SLOTTMAN	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	58,886	22.0	-	$ 4,888	$ 96,930	$ 14,133	$ 82,797	16.9

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
A3020	BERKELEY	01C1147	RH2 TOWLE	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	56,386	22.0	-	$ 4,680	$ 92,793	$ 13,533	$ 79,260	16.9
A3022	BERKELEY	01C1148	RH2 WADA	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	57,883	22.0	-	$ 4,804	$ 95,202	$ 13,892	$ 81,310	16.9
A3035	BERKELEY	01C1230	BOWLES	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	63,688	24.0	-	$ 5,286	$ 107,125	$ 15,285	$ 91,840	17.4
A3100	BERKELEY	01C1495	STERN	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	35,812	14.0	-	$ 2,972	$ 76,538	$ 8,595	$ 67,943	22.9
A3165	BERKELEY	01CWIDEH	CAMPUSWIDE - HOUSING	Phase 2: Replace 100 additional stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in residential buildings	35,000	-	-	$ 2,905	$ 37,006	$ 8,400	$ 28,606	9.8
A3164	BERKELEY	01CWIDEH	CAMPUSWIDE - HOUSING	Phase 1: Replace 100 stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in residential buildings	35,000	-	-	$ 2,905	$ 37,006	$ 8,400	$ 28,606	9.8
B3104	SAN FRANCISCO	02C3035	MB HOUSING W	Retrofit T8 Fixtures with 28W T8 lamps and RLO ballasts, and Install occupancy sensors where appropriate	48,399	18.0	-	$ 6,292	$ 174,971	$ 11,616	$ 163,355	26.0
B3105	SAN FRANCISCO	02C3036	MB HOUSING S	Retrofit T8 Fixtures with 28W T8 lamps and RLO ballasts, and Install occupancy sensors where appropriate	69,303	27.0	-	$ 9,009	$ 199,974	$ 16,633	$ 183,341	20.3
B3106	SAN FRANCISCO	02C3037	MB HOUSING N	Retrofit T8 Fixtures with 28W T8 lamps and RLO ballasts, and Install occupancy sensors where appropriate	102,935	39.0	-	$ 13,382	$ 299,961	$ 24,704	$ 275,257	20.6
B3107	SAN FRANCISCO	02C3038	MB HOUSING E	Retrofit T8 Fixtures with 28W T8 lamps and RLO ballasts, and Install occupancy sensors where appropriate	75,781	29.0	-	$ 9,852	$ 249,962	$ 18,187	$ 231,775	23.5
B3069	SAN FRANCISCO	02CWIDEH	CAMPUSWIDE - HOUSING	Phase 2: Replace 100 additional stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in residential buildings	35,000	-	-	$ 4,550	$ 40,370	$ 8,400	$ 31,970	7.0
B3068	SAN FRANCISCO	02CWIDEH	CAMPUSWIDE - HOUSING	Phase 1: Replace 100 stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in residential buildings	35,000	-	-	$ 4,550	$ 40,370	$ 8,400	$ 31,970	7.0
C3185	DAVIS	03C3770	SEG GILMORE	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	41,336	16.0	-	$ 3,679	$ 59,409	$ 9,921	$ 49,488	13.5
C3186	DAVIS	03C3771	SEG BIXBY	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	41,422	16.0	-	$ 3,687	$ 59,646	$ 9,941	$ 49,705	13.5
C3187	DAVIS	03C3772	SEG MALCOLM	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	41,348	16.0	-	$ 3,680	$ 59,446	$ 9,924	$ 49,522	13.5
C3190	DAVIS	03C3793	SEG RYERSON	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	41,348	16.0	-	$ 3,680	$ 59,445	$ 9,924	$ 49,521	13.5
C3198	DAVIS	03C4023	TEC COMMUNIT	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	77,622	21.0	-	$ 6,908	$ 75,853	$ 18,629	$ 57,224	8.3
C3206	DAVIS	03C4284	LEACH	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors	28,011	11.0	-	$ 2,493	$ 39,017	$ 6,723	$ 32,294	13.0
C3232	DAVIS	03C4801	SEGN ALDER	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	32,091	12.0	-	$ 2,856	$ 45,550	$ 7,702	$ 37,848	13.3
C3233	DAVIS	03C4802	SEG DINE COM	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	57,239	16.0	-	$ 5,094	$ 50,875	$ 13,737	$ 37,138	7.3
C3235	DAVIS	03C4806	SEGN THOMPSN	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	39,820	16.0	-	$ 3,544	$ 56,423	$ 9,557	$ 46,866	13.2
C3236	DAVIS	03C4807	SEGN MILLER	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	33,887	13.0	-	$ 3,016	$ 48,500	$ 8,133	$ 40,367	13.4
C3239	DAVIS	03C4824	TECS1KEARNEY	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors	35,689	14.0	-	$ 3,176	$ 50,655	$ 8,565	$ 42,090	13.3
C3240	DAVIS	03C4825	TECS2 LABEN	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors	35,292	14.0	-	$ 3,141	$ 50,344	$ 8,470	$ 41,874	13.3
C3242	DAVIS	03C9521	CASTILN 1460	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors	25,912	10.0	-	$ 2,306	$ 35,902	$ 6,219	$ 29,683	12.9
C3243	DAVIS	03C9523	CASTILN 1440	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors	34,240	13.0	-	$ 3,047	$ 47,322	$ 8,218	$ 39,104	12.8
C3244	DAVIS	03C9524	EMERSON	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors	70,382	27.0	-	$ 6,264	$ 97,715	$ 16,892	$ 80,823	12.9
C3245	DAVIS	03C9525	WEBSTER	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors	29,551	11.0	-	$ 2,630	$ 40,967	$ 7,092	$ 33,875	12.9
C3246	DAVIS	03C9527	THOREAU	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors	27,686	11.0	-	$ 2,464	$ 37,971	$ 6,645	$ 31,326	12.7
C3132	DAVIS	03CWIDEH	CAMPUSWIDE - HOUSING	Phase 2: Replace 100 additional stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in residential buildings	35,000	-	-	$ 3,115	$ 37,006	$ 8,400	$ 28,606	9.2

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
C3131	DAVIS	03CWIDEH	CAMPUSWIDE - HOUSING	Phase 1: Replace 100 stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in residential buildings	35,000	-	-	$ 3,115	$ 37,006	$ 8,400	$ 28,606	9.2
D3198	LOS ANGELES	04C4302C	COURTSIDE/PK	Replace high pressure sodium fixtures with induction fixtures and install photocell control where appropriate	175,042	20.0	-	$ 15,404	$ 126,470	$ 42,010	$ 84,460	5.5
E3151	RIVERSIDE	05CP5343	ABER INVER	Retrofit T12 and T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts, and Install occupancy sensors where appropriate	199,858	77.0	-	$ 14,989	$ 245,194	$ 47,966	$ 197,228	13.2
E3124	RIVERSIDE	05CP5365	PENTLAND A	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts, and install occupancy sensors where appropriate	15,010	6.0	-	$ 1,126	$ 20,096	$ 3,602	$ 16,494	14.7
E3130	RIVERSIDE	05CP5369	PENTLAND I	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts, and install occupancy sensors where appropriate	19,917	8.0	-	$ 1,494	$ 26,465	$ 4,780	$ 21,685	14.5
E3156	RIVERSIDE	05CP5502	LOTHIAN HALL	Retrofit T12 and T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; and install occupancy sensors where appropriate	406,265	158.0	-	$ 30,470	$ 299,399	$ 97,504	$ 201,895	6.6
E3158	RIVERSIDE	05CP5590	BANNOCK A	Retrofit T12 and T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; incandescents with compact fluorescents; and install occupancy sensors where appropriate	14,152	5.0	-	$ 1,061	$ 12,828	$ 3,396	$ 9,432	8.9
E3159	RIVERSIDE	05CP5591	BANNOCK B	Retrofit T12 and T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; incandescents with compact fluorescents; and install occupancy sensors where appropriate	3,464	1.0	-	$ 260	$ 3,572	$ 831	$ 2,741	10.6
E3160	RIVERSIDE	05CP5592	BANNOCK C	Retrofit T12 and T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; incandescents with compact fluorescents; and install occupancy sensors where appropriate	3,743	1.0	-	$ 281	$ 3,365	$ 898	$ 2,467	8.8
E3162	RIVERSIDE	05CP5594	BANNOCK E	Retrofit T12 and T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; incandescents with compact fluorescents; and install occupancy sensors where appropriate	7,142	3.0	-	$ 536	$ 6,459	$ 1,714	$ 4,745	8.9
E3167	RIVERSIDE	05CP5600	BANNOCK K	Retrofit T12 and T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; incandescents with compact fluorescents; and install occupancy sensors where appropriate	4,329	2.0	-	$ 325	$ 4,561	$ 1,039	$ 3,522	10.8
E3168	RIVERSIDE	05CP5601	BANNOCK L	Retrofit T12 and T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; incandescents with compact fluorescents; and install occupancy sensors where appropriate	12,352	4.0	-	$ 926	$ 12,808	$ 2,964	$ 9,844	10.6
E3169	RIVERSIDE	05CP5603	BANNOCK N	Retrofit T12 and T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; incandescents with compact fluorescents; and install occupancy sensors where appropriate	3,781	1.0	-	$ 284	$ 3,571	$ 907	$ 2,664	9.4
E3170	RIVERSIDE	05CP5604	BANNOCK O	Retrofit T12 and T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; incandescents with compact fluorescents; and install occupancy sensors where appropriate	3,781	1.0	-	$ 284	$ 3,571	$ 907	$ 2,664	9.4
E3171	RIVERSIDE	05CP5605	BANNOCK P	Retrofit T12 and T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; incandescents with compact fluorescents; and install occupancy sensors where appropriate	3,781	1.0	-	$ 284	$ 3,571	$ 907	$ 2,664	9.4
E3172	RIVERSIDE	05CP5606	BANNOCK Q	Retrofit T12 and T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; incandescents with compact fluorescents; and install occupancy sensors where appropriate	7,065	3.0	-	$ 530	$ 6,849	$ 1,696	$ 5,153	9.7
E3173	RIVERSIDE	05CP5607	BANNOCK R	Retrofit T12 and T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; incandescents with compact fluorescents; and install occupancy sensors where appropriate	7,561	3.0	-	$ 567	$ 7,138	$ 1,815	$ 5,323	9.4
E3174	RIVERSIDE	05CP5608	BANNOCK S	Retrofit T12 and T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; incandescents with compact fluorescents; and install occupancy sensors where appropriate	15,119	6.0	-	$ 1,134	$ 14,272	$ 3,629	$ 10,643	9.4

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
E3175	RIVERSIDE	05CP5609	BANNOCK T	Retrofit T12 and T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; incandescents with compact fluorescents; and install occupancy sensors where appropriate	7,561	3.0	-	$ 567	$ 7,138	$ 1,815	$ 5,323	9.4
E3176	RIVERSIDE	05CP5610	BANNOCK U	Retrofit T12 and T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; incandescents with compact fluorescents; and install occupancy sensors where appropriate	11,340	4.0	-	$ 851	$ 10,702	$ 2,722	$ 7,980	9.4
E3177	RIVERSIDE	05CP5611	BANNOCK V	Retrofit T12 and T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; incandescents with compact fluorescents; and install occupancy sensors where appropriate	15,119	6.0	-	$ 1,134	$ 14,272	$ 3,629	$ 10,643	9.4
E3125	RIVERSIDE	05CP5636	PENTLAND BC	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts, and install occupancy sensors where appropriate	30,412	12.0	-	$ 2,281	$ 41,040	$ 7,299	$ 33,741	14.8
E3126	RIVERSIDE	05CP5637	PENTLAND D	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts, and install occupancy sensors where appropriate	15,684	6.0	-	$ 1,176	$ 21,083	$ 3,764	$ 17,319	14.7
E3127	RIVERSIDE	05CP5638	PENTLAND E	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts, and install occupancy sensors where appropriate	15,802	6.0	-	$ 1,185	$ 22,167	$ 3,792	$ 18,375	15.5
E3128	RIVERSIDE	05CP5639	PENTLAND FG	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts, and install occupancy sensors where appropriate	29,927	11.0	-	$ 2,245	$ 40,538	$ 7,182	$ 33,356	14.9
E3129	RIVERSIDE	05CP5640	PENTLAND H	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts, and install occupancy sensors where appropriate	17,062	6.0	-	$ 1,280	$ 24,221	$ 4,095	$ 20,126	15.7
E3131	RIVERSIDE	05CP5641	PENTLAND J	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts, and install occupancy sensors where appropriate	20,258	8.0	-	$ 1,519	$ 27,440	$ 4,862	$ 22,578	14.9
E3132	RIVERSIDE	05CP5642	PENTLAND K	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts, and install occupancy sensors where appropriate	19,401	7.0	-	$ 1,455	$ 25,875	$ 4,656	$ 21,219	14.6
E3133	RIVERSIDE	05CP5643	PENTLAND L	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts, and install occupancy sensors where appropriate	18,594	7.0	-	$ 1,395	$ 24,821	$ 4,463	$ 20,358	14.6
E3134	RIVERSIDE	05CP5644	PENTLAND M	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts, and install occupancy sensors where appropriate	19,392	7.0	-	$ 1,454	$ 25,852	$ 4,654	$ 21,198	14.6
E3135	RIVERSIDE	05CP5645	PENTLAND N	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts, and install occupancy sensors where appropriate	18,594	7.0	-	$ 1,395	$ 24,821	$ 4,463	$ 20,358	14.6
E3136	RIVERSIDE	05CP5646	PENTLAND O	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts, and install occupancy sensors where appropriate	18,594	7.0	-	$ 1,395	$ 24,821	$ 4,463	$ 20,358	14.6
E3137	RIVERSIDE	05CP5647	PENTLAND P	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts, and install occupancy sensors where appropriate	19,373	7.0	-	$ 1,453	$ 25,804	$ 4,650	$ 21,154	14.6
E3138	RIVERSIDE	05CP5648	PENTLAND Q	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts, and install occupancy sensors where appropriate	4,964	2.0	-	$ 372	$ 8,002	$ 1,191	$ 6,811	18.3
E3153	RIVERSIDE	05CP5715	UNV PLZA APT	Retrofit T12 and T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts; incandescents with compact fluorescents; and install occupancy sensors where appropriate	105,681	40.0	-	$ 7,926	$ 98,556	$ 25,363	$ 73,193	9.2
E3147	RIVERSIDE	05CP5991	STONEHAVEN	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts, and install occupancy sensors where appropriate	138,485	53.0	-	$ 10,386	$ 188,828	$ 33,236	$ 155,592	15.0
E3121	RIVERSIDE	05CP5998	INTER VILLAG	Retrofit T8 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts, and install occupancy sensors where appropriate	91,412	35.0	-	$ 6,856	$ 126,336	$ 21,939	$ 104,397	15.2
F3065	SAN DIEGO	06C6507	RCRH ARGO	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors in Appropriate Areas	45,943	18.0	-	$ 3,584	$ 68,380	$ 11,026	$ 57,354	16.0
F3087	SAN DIEGO	06C6604	TENAYA HALL	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors in Appropriate Areas	51,928	20.0	-	$ 4,050	$ 77,435	$ 12,463	$ 64,972	16.0

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
F3089	SAN DIEGO	06C6605	TIOGA HALL	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors in Appropriate Areas	94,691	25.0	-	$ 7,386	$ 95,070	$ 22,726	$ 72,344	9.8
F3114	SAN DIEGO	06C7157	BLACK	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors in Appropriate Areas	29,221	11.0	-	$ 2,279	$ 62,098	$ 7,013	$ 55,085	24.2
F3116	SAN DIEGO	06C7158	BRENNAN	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors in Appropriate Areas	29,765	11.0	-	$ 2,322	$ 63,308	$ 7,144	$ 56,164	24.2
F3118	SAN DIEGO	06C7159	DOUGLAS	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors in Appropriate Areas	29,315	11.0	-	$ 2,287	$ 62,351	$ 7,036	$ 55,315	24.2
F3120	SAN DIEGO	06C7160	GOLDBERG	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors in Appropriate Areas	29,533	11.0	-	$ 2,304	$ 62,758	$ 7,088	$ 55,670	24.2
F3165	SAN DIEGO	06CWIDEH	CAMPUSWIDE - HOUSING	Phase 2: Replace 100 additional stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in residential buildings	35,000	-	-	$ 2,730	$ 37,006	$ 8,400	$ 28,606	10.5
F3164	SAN DIEGO	06CWIDEH	CAMPUSWIDE - HOUSING	Phase 1: Replace 100 stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in residential buildings	35,000	-	-	$ 2,730	$ 37,006	$ 8,400	$ 28,606	10.5
G3110	SANTA CRUZ	07C7303	PORTER HSE A	Replace F40T12 w/ 28W T8 & Prem Eff RLO Ballast; Replace incandescent bulb with CFL; Replace Circlelite w/ CFL; Add Occupancy Sensors and Daylighting	78,049	31.0	-	$ 8,351	$ 100,828	$ 18,732	$ 82,096	9.8
G3123	SANTA CRUZ	07C7931	COL 9 RES 1	Replace F40T12 w/ 28W T8 & Prem Eff RLO Ballast; Replace incandescent bulb with CFL; Replace Circlelite w/ CFL; Add Occupancy Sensors and Daylighting	50,074	20.0	-	$ 5,358	$ 65,475	$ 12,018	$ 53,457	10.0
G3124	SANTA CRUZ	07C7932	COL 9 RES 2	Replace F40T12 w/ 28W T8 & Prem Eff RLO Ballast; Replace incandescent bulb with CFL; Replace Circlelite w/ CFL; Add Occupancy Sensors and Daylighting	61,277	24.0	-	$ 6,557	$ 79,165	$ 14,706	$ 64,459	9.8
G3126	SANTA CRUZ	07C7934	COL 9 RES 3	Replace F40T12 w/ 28W T8 & Prem Eff RLO Ballast; Replace incandescent bulb with CFL; Replace Circlelite w/ CFL; Add Occupancy Sensors and Daylighting	46,755	18.0	-	$ 5,003	$ 60,403	$ 11,221	$ 49,182	9.8
G3127	SANTA CRUZ	07C7936	COL 10 RES 4	Replace F40T12 w/ 28W T8 & Prem Eff RLO Ballast; Replace incandescent bulb with CFL; Replace Circlelite w/ CFL; Add Occupancy Sensors and Daylighting	58,903	23.0	-	$ 6,303	$ 76,099	$ 14,137	$ 61,962	9.8
G3129	SANTA CRUZ	07C7938	COL 10 RES 6	Replace F40T12 w/ 28W T8 & Prem Eff RLO Ballast; Replace incandescent bulb with CFL; Replace Circlelite w/ CFL; Add Occupancy Sensors and Daylighting	45,916	18.0	-	$ 4,913	$ 59,528	$ 11,020	$ 48,508	9.9
G3080	SANTA CRUZ	07CWIDEH	CAMPUSWIDE - HOUSING	Phase 2: Replace 100 additional stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in residential buildings	35,000	-	-	$ 3,745	$ 40,370	$ 8,400	$ 31,970	8.5
G3079	SANTA CRUZ	07CWIDEH	CAMPUSWIDE - HOUSING	Phase 1: Replace 100 stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in residential buildings	35,000	-	-	$ 3,745	$ 40,370	$ 8,400	$ 31,970	8.5
H3132	SANTA BARBARA	08C8527	SANTA ROSA	Replace Gen1 T8 and T12 mix w/ T8 dimmables; Add Occupancy Sensors	192,212	42.0	-	$ 21,143	$ 168,513	$ 46,131	$ 122,382	5.8
H3139	SANTA BARBARA	08C8547	ANACAPA	Replace Gen1 T8 and T12 mix w/ T8 dimmables; Add Occupancy Sensors	177,625	38.0	-	$ 19,539	$ 155,633	$ 42,630	$ 113,003	5.8
H3140	SANTA BARBARA	08C8548	SANTA CRUZ	Replace Gen1 T8 and T12 mix w/ T8 dimmables; Add Occupancy Sensors	177,186	38.0	-	$ 19,490	$ 154,653	$ 42,525	$ 112,128	5.8
H3141	SANTA BARBARA	08C8549	DE LA GUERRA	Replace Gen1 T8 w/ T8 dimmables; Add Occupancy Sensors	78,753	17.0	-	$ 8,663	$ 90,517	$ 18,901	$ 71,616	8.3
H3144	SANTA BARBARA	08C8553	SAN MIGUEL	Replace Gen1 T8 and T12 mix w/ T8 dimmables; Add Occupancy Sensors	194,094	42.0	-	$ 21,350	$ 169,883	$ 46,583	$ 123,300	5.8
H3151	SANTA BARBARA	08C8561	SAN NICOLAS	Replace Gen1 T8 and T12 mix w/ T8 dimmables; Add Occupancy Sensors	193,703	42.0	-	$ 21,307	$ 170,435	$ 46,489	$ 123,946	5.8
H3159	SANTA BARBARA	08C8586	SAN RAFAEL W	Replace Gen1 T8 w/ T8 dimmables; Add Occupancy Sensors	151,963	33.0	-	$ 16,716	$ 174,932	$ 36,471	$ 138,461	8.3
H3160	SANTA BARBARA	08C8587	SAN RAFAEL M	Replace Gen1 T8 w/ T8 dimmables; Add Occupancy Sensors	117,496	26.0	-	$ 12,925	$ 134,859	$ 28,199	$ 106,660	8.3
H3165	SANTA BARBARA	08C8860	FRANCISCO TO	Replace Gen1 T8 and T12 mix w/ T8 dimmables; Add Occupancy Sensors	561,606	122.0	-	$ 61,777	$ 479,413	$ 134,785	$ 344,628	5.6
H3167	SANTA BARBARA	08C8945	ELDORADO APT	Replace Gen1 T8 w/ T8 dimmables; Add Occupancy Sensors	104,706	22.0	-	$ 11,518	$ 120,877	$ 25,129	$ 95,748	8.3
H3168	SANTA BARBARA	08C8947	WESTGATE APT	Replace Gen1 T8 w/ T8 dimmables; Add Occupancy Sensors	64,308	14.0	-	$ 7,074	$ 74,016	$ 15,434	$ 58,582	8.3

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
H3112	SANTA BARBARA	08CWIDEH	CAMPUSWIDE - HOUSING	Phase 2: Replace 100 additional stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in residential buildings	35,000	-	-	$ 3,850	$ 37,006	$ 8,400	$ 28,606	7.4
H3111	SANTA BARBARA	08CWIDEH	CAMPUSWIDE - HOUSING	Phase 1: Replace 100 stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in residential buildings	35,000	-	-	$ 3,850	$ 37,006	$ 8,400	$ 28,606	7.4
I3303	IRVINE	09CWIDEH	CAMPUSWIDE - HOUSING	Housing Pathway/Exterior HID and Incan. Retrofit	20,000	-	1,985	$ 4,268	$ 103,950	$ 9,600	$ 94,350	22.1
I3302	IRVINE	09CWIDEH	CAMPUSWIDE - HOUSING	Housing Parking Lot HID Fixture Retrofit	20,000	-	1,985	$ 4,268	$ 103,950	$ 9,600	$ 94,350	22.1
I3246	IRVINE	09CWIDEH	CAMPUSWIDE - HOUSING	Install Bi-level Stairwell Fixture, Replace Incandescent Lamps w/ CFLs	225,000	-	22,329	$ 48,010	$ 623,700	$ 108,000	$ 515,700	10.7
I3244	IRVINE	09CWIDEH	CAMPUSWIDE - HOUSING	Install LED w/ Occupancy Sensors in Restrooms, Dimmable Photo Sensing Ballast in Common Areas	112,500	-	11,165	$ 24,005	$ 242,550	$ 54,000	$ 188,550	7.9
Subtotal, Housing, Lighting Projects					**6,486,494**	**1,758.0**	**37,463**	**$ 663,731**	**$ 8,592,908**	**$ 1,647,361**	**$ 6,945,547**	**10.5**
Other Projects												
I3276	IRVINE	09CWIDEH	CAMPUSWIDE - HOUSING	Dining Svcs Equip Replacement	-	-	-	$ -	$ -	$ -	$ -	
I3242	IRVINE	09CWIDEH	CAMPUSWIDE - HOUSING	Replace Refrigerators with Energy Star units	487,500	-	48,380	$ 104,021	$ 554,400	$ 234,000	$ 320,400	3.1
I3235	IRVINE	09CWIDEH	CAMPUSWIDE - HOUSING	Replace Electric Range with Energy Star unit	18,500	-	1,836	$ 3,947	$ 242,550	$ 8,880	$ 233,670	59.2
I3234	IRVINE	09CWIDEH	CAMPUSWIDE - HOUSING	Retrofit All Single Glazed Windows with Insulated Glass Windows.	14,175	-	2,813	$ 4,177	$ 166,320	$ 4,500	$ 161,820	38.7
I3233	IRVINE	09CWIDEH	CAMPUSWIDE - HOUSING	Improve Insulation in Attics and Stud Spaces.	119,700	-	23,750	$ 35,275	$ 1,178,100	$ 38,000	$ 1,140,100	32.3
H3190	SANTA BARBARA	08C8562	CARRILLO COM	Carillo Center Pool Cogen	480,000	62.0	55,000	$ 96,800	$ 554,400	$ 159,200	$ 395,200	4.1
E3183	RIVERSIDE	05CP5343	ABER INVER	UC Riverside Aberdeen Inverness Kitchen Hood Controls	16,895	10.0	795	$ 1,943	$ 18,711	$ 4,691	$ 14,020	7.2
E3182	RIVERSIDE	05CP5502	LOTHIAN HALL	UC Riverside Lothian Hall Kitchen Hood Controls	57,530	30.0	1,549	$ 5,631	$ 60,291	$ 15,046	$ 45,245	8.0
H3189	SANTA BARBARA	08CWIDEH	CAMPUSWIDE - HOUSING	Housing Pool Covers	-	-	13,750	$ 11,000	$ 97,020	$ 11,000	$ 86,020	7.8
H3016	SANTA BARBARA	08CWIDEH	CAMPUSWIDE - HOUSING	Install controller on vending machine (e.g. Vending Miser)	23,547	-	-	$ 2,590	$ 6,237	$ 5,651	$ 1,247	0.5
Subtotal, Housing, Other Projects					**1,217,847**	**102.0**	**147,872**	**$ 265,386**	**$ 2,878,029**	**$ 480,968**	**$ 2,397,061**	**9.0**
Subtotal, Housing Funded Projects					**27,996,344**	**3,654.0**	**1,216,421**	**$ 3,575,235**	**$ 41,700,935**	**$ 7,504,801**	**$ 34,196,134**	**9.6**
Other Fund Source												
MBCx												
A3023	BERKELEY	01C1149	STANLEY	Monitoring Based Commissioning	423,200	48.0	77,225	$ 95,129	$ 514,604	$ 163,348	$ 351,256	3.7
A3046	BERKELEY	01C1271	STADIUM	Monitoring Based Commissioning	16,765	2.0	37,886	$ 30,829	$ 244,045	$ 34,333	$ 209,712	6.8
A3087	BERKELEY	01C1390	I HOUSE	Monitoring Based Commissioning	110,360	13.0	24,308	$ 28,047	$ 156,579	$ 45,932	$ 110,647	3.9
C3066	DAVIS	03C4444	ARC PAVILION	Monitoring Based Commissioning	275,337	31.0	36,966	$ 57,035	$ 246,335	$ 95,654	$ 150,681	2.6
C3081	DAVIS	03C4786	GENOME & BIO	Monitoring Based Commissioning	432,725	49.0	58,098	$ 89,638	$ 387,144	$ 150,332	$ 236,812	2.6
C3084	DAVIS	03C4799	ARC	Monitoring Based Commissioning	325,326	37.0	43,678	$ 67,390	$ 291,059	$ 113,020	$ 178,039	2.6
D3016	LOS ANGELES	04C4270	WILSHIRE CTR	Monitoring Based Commissioning	449,235	28.0	-	$ 39,533	$ 266,496	$ 91,347	$ 175,149	4.4
D3037	LOS ANGELES	04C4360	SAC	Monitoring Based Commissioning	161,592	10.0	-	$ 14,220	$ 95,861	$ 32,858	$ 63,003	4.4
E3024	RIVERSIDE	05CP5511	STU REC CTR	Monitoring Based Commissioning	66,257	8.0	11,294	$ 14,569	$ 72,750	$ 24,937	$ 47,813	3.3
F3008	SAN DIEGO	06C6115	RIMAC	Monitoring Based Commissioning	441,855	19.0	-	$ 34,465	$ 368,392	$ 83,401	$ 284,991	8.3
F3071	SAN DIEGO	06C6575	E UTILITIES	MBCx East Campus Central Plant	225,600	17.0	-	$ 17,597	$ 138,600	$ 48,000	$ 90,600	5.1
F3099	SAN DIEGO	06C6661	CALITIT	Monitoring Based Commissioning	693,538	45.0	-	$ 54,096	$ 398,751	$ 141,939	$ 256,812	4.7
G3046	SANTA CRUZ	07C7933	COL 9 DINE	Monitoring Based Commissioning	85,180	10.0	961	$ 9,864	$ 42,874	$ 21,212	$ 21,662	2.2
H3023	SANTA BARBARA	08C8266	CNSI	Monitoring Based Commissioning	362,050	41.0	5,563	$ 44,276	$ 98,917	$ 91,342	$ 19,783	0.4
H3030	SANTA BARBARA	08C8505	EVENTS CNTR	Monitoring Based Commissioning	49,485	6.0	8,435	$ 12,191	$ 54,335	$ 18,624	$ 35,711	2.9
H3032	SANTA BARBARA	08C8511	MAC	Monitoring Based Commissioning	41,244	5.0	7,030	$ 10,161	$ 45,288	$ 15,523	$ 29,765	2.9
H3059	SANTA BARBARA	08C8558	UNIV CENTER	Monitoring Based Commissioning	37,455	4.0	19,548	$ 19,758	$ 125,919	$ 24,627	$ 101,292	5.1
H3067	SANTA BARBARA	08C8567	KOHN HALL	Monitoring Based Commissioning	30,518	4.0	5,203	$ 7,519	$ 55,440	$ 11,486	$ 43,954	5.8
H3075	SANTA BARBARA	08C8581	FACULTY CLUB	Monitoring Based Commissioning	10,381	1.0	1,770	$ 2,558	$ 55,440	$ 3,907	$ 51,533	20.1
H3077	SANTA BARBARA	08C8615	MRL	Monitoring Based Commissioning	117,271	13.0	661	$ 13,429	$ 31,416	$ 28,674	$ 6,283	0.5
I3098	IRVINE	09C9118	CAL (IT)2	Monitoring Based Commissioning	147,578	16.0	22,247	$ 37,723	$ 202,673	$ 58,379	$ 144,294	3.8
I6001	IRVINE	09C9299	ANT REC CTR	CW Reset & MBCx Chiller Plant(in addition to MBCx of Building)	158,186	-	15,698	$ 33,753	$ 126,492	$ 75,929	$ 50,563	1.5
I3109	IRVINE	09C9299	ANT REC CTR	Monitoring Based Commissioning	72,094	8.0	10,894	$ 18,449	$ 75,516	$ 28,476	$ 47,040	2.5
Subtotal, Other Fund Source MBCx Proejcts					**4,733,232**	**415.0**	**387,463**	**$ 752,229**	**$ 4,094,928**	**$ 1,403,280**	**$ 2,691,648**	**3.6**
New Construction												
A3006	BERKELEY	01C1064A	HASTE2537	SBD, New/Renov - Hearst Gymnasium Academic Building Seismic Corrections	418,291	48.0	48,989	$ 72,782	$ 632,279	$ 139,581	$ 492,698	6.8
A3005	BERKELEY	01C1064A	HASTE2537	SBD, New/Renov - Anna Head Undergraduate Student Housing	247,919	28.0	29,035	$ 43,137	$ 374,740	$ 82,729	$ 292,011	6.8
A3169	BERKELEY	01CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	22,537	3.0	2,640	$ 3,922	$ 34,073	$ 7,521	$ 26,552	6.8
A3168	BERKELEY	01CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	22,537	3.0	2,640	$ 3,922	$ 34,073	$ 7,521	$ 26,552	6.8

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
A3167	BERKELEY	01CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	22,537	3.0	2,640	$ 3,922	$ 34,073	$ 7,521	$ 26,552	6.8
A3166	BERKELEY	01CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	22,537	3.0	2,640	$ 3,922	$ 34,073	$ 7,521	$ 26,552	6.8
B3077	SAN FRANCISCO	02CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	8,452	1.0	792	$ 1,701	$ 18,003	$ 2,820	$ 15,183	8.9
B3076	SAN FRANCISCO	02CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	8,452	1.0	792	$ 1,701	$ 18,003	$ 2,820	$ 15,183	8.9
B3075	SAN FRANCISCO	02CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	8,452	1.0	792	$ 1,701	$ 18,003	$ 2,820	$ 15,183	8.9
B3074	SAN FRANCISCO	02CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	8,452	1.0	792	$ 1,701	$ 18,003	$ 2,820	$ 15,183	8.9
C3140	DAVIS	03CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	11,269	1.0	1,320	$ 2,165	$ 18,744	$ 3,761	$ 14,983	6.9
C3139	DAVIS	03CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	11,269	1.0	1,320	$ 2,165	$ 18,744	$ 3,761	$ 14,983	6.9
C3138	DAVIS	03CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	11,269	1.0	1,320	$ 2,165	$ 18,744	$ 3,761	$ 14,983	6.9
C3137	DAVIS	03CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	11,269	1.0	1,320	$ 2,165	$ 18,744	$ 3,761	$ 14,983	6.9
D3007	LOS ANGELES	04C4211	PARKG ST CHS	SBD, New/Renov - CHS Parking E General Clinical Research Center/Biomarker Seismic Renovation	208,768	18.0	-	$ 18,372	$ 187,394	$ 46,289	$ 141,105	7.7
D3052	LOS ANGELES	04CTBD2	SOUTH CAMPUS STUDENT CTR	SBD, New/Renov - South Campus Student Center	142,476	10.0	-	$ 12,538	$ 131,608	$ 30,002	$ 101,606	8.1
D3092	LOS ANGELES	04CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	44,646	3.0	-	$ 3,929	$ 41,243	$ 9,401	$ 31,842	8.1
D3091	LOS ANGELES	04CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	44,646	3.0	-	$ 3,929	$ 41,243	$ 9,401	$ 31,842	8.1
D3090	LOS ANGELES	04CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	44,646	3.0	-	$ 3,929	$ 41,243	$ 9,401	$ 31,842	8.1
D3089	LOS ANGELES	04CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	44,646	3.0	-	$ 3,929	$ 41,243	$ 9,401	$ 31,842	8.1
E3062	RIVERSIDE	05CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	3,943	-	461	$ 688	$ 5,530	$ 1,315	$ 4,215	6.1
E3061	RIVERSIDE	05CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	3,943	-	461	$ 688	$ 5,530	$ 1,315	$ 4,215	6.1
E3060	RIVERSIDE	05CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	3,943	-	461	$ 688	$ 5,530	$ 1,315	$ 4,215	6.1
E3059	RIVERSIDE	05CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	3,380	-	396	$ 590	$ 4,744	$ 1,128	$ 3,616	6.1
F3121	SAN DIEGO MC	06C7218	STUHTLTHXP	SBD, New/Renov - UCSDMC Hillcrest Emergency Department Renovation	56,993	7.0	3,395	$ 7,535	$ 73,030	$ 16,394	$ 56,636	7.5
F3122	SAN DIEGO	06CTBD1	CAMPUS WELLNESS CTR	SBD, New/Renov - Campus Wellness Center	836,914	73.0	-	$ 65,279	$ 756,028	$ 185,155	$ 570,873	8.7
G3088	SANTA CRUZ	07CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - College Dining Hall Renovations	28,172	3.0	3,300	$ 5,588	$ 53,703	$ 9,401	$ 44,302	7.9
G3087	SANTA CRUZ	07CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	11,269	1.0	1,320	$ 2,235	$ 21,475	$ 3,761	$ 17,714	7.9
G3086	SANTA CRUZ	07CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	11,269	1.0	1,320	$ 2,235	$ 21,475	$ 3,761	$ 17,714	7.9
G3085	SANTA CRUZ	07CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	11,269	1.0	1,320	$ 2,235	$ 21,475	$ 3,761	$ 17,714	7.9
G3084	SANTA CRUZ	07CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	11,269	1.0	1,320	$ 2,235	$ 21,475	$ 3,761	$ 17,714	7.9
H3021	SANTA BARBARA	08C8243	ICA	SBD, New/Renov - Intercollegiate Aquatics Center	151,265	17.0	9,010	$ 23,847	$ 217,383	$ 43,512	$ 173,871	7.3
H3116	SANTA BARBARA	08CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	7,326	1.0	858	$ 1,492	$ 13,146	$ 2,444	$ 10,702	7.2
H3115	SANTA BARBARA	08CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	7,326	1.0	858	$ 1,492	$ 13,146	$ 2,444	$ 10,702	7.2
H3114	SANTA BARBARA	08CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	7,326	1.0	858	$ 1,492	$ 13,146	$ 2,444	$ 10,702	7.2
H3113	SANTA BARBARA	08CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	7,326	1.0	858	$ 1,492	$ 13,146	$ 2,444	$ 10,702	7.2
H3117	SANTA BARBARA	08CWIDER	CAMPUSWIDE - RECREATION	SBD, New/Renov - Storke Field Artificial Turf and Lighting	14,086	2.0	1,650	$ 2,869	$ 25,274	$ 4,701	$ 20,573	7.2
Subtotal, Other Fund Source New Construction					**2,542,087**	**246.0**	**124,877**	**$ 316,375**	**$ 3,059,515**	**$ 681,669**	**$ 2,377,846**	**7.5**
HVAC Projects												
F3070	SAN DIEGO	06C6575	E UTILITIES	Fuel Cell Heat Recovery Chiller	515,200	74.0	-	$ 40,186	$ 277,200	$ 123,648	$ 153,552	3.8
A1096	BERKELEY	01C1149	STANLEY	Convert constant volume condenser water pumping (for electric chillers) to variable volume	93,865	7.0	-	$ 7,791	$ 60,879	$ 22,528	$ 38,351	4.9
A1018	BERKELEY	01C1149	STANLEY	AHU 5 - SP Reset	25,191	-	-	$ 2,091	$ 3,147	$ 6,046	$ 629	0.3

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
A1017	BERKELEY	01C1149	STANLEY	AHU 1 to 4 - SP Reset	462,737	(1.0)	(3,738)	$ 35,503	$ 12,587	$ 107,319	$ 2,517	0.1
A1016	BERKELEY	01C1149	STANLEY	Lab EF 1 to 8 - CAV Rebalance	255,901	899.0	95,938	$ 95,783	$ 855,084	$ 157,354	$ 697,730	7.3
A1094	BERKELEY	01C1390	I HOUSE	Install High Efficiency Chiller	11,214	7.0	-	$ 931	$ 92,960	$ 2,691	$ 90,269	97.0
A1081	BERKELEY	01C1390	I HOUSE	AHU 5 - SP Reset	21,498	-	7,038	$ 7,252	$ 49,297	$ 12,197	$ 37,100	5.1
C1048	DAVIS	03C4444	ARC PAVILION	DCV for a VAV system - AH 4	39,691	8.0	7,388	$ 10,033	$ 36,703	$ 16,913	$ 19,790	2.0
C1047	DAVIS	03C4444	ARC PAVILION	AH3 CAV to VAV	85,726	4.0	7,463	$ 14,197	$ 31,211	$ 28,037	$ 6,242	0.4
C1046	DAVIS	03C4444	ARC PAVILION	DCV for a VAV system - AC 1 thru 4	6,182	-	-	$ 550	$ 5,673	$ 1,484	$ 4,189	7.6
C1011	DAVIS	03C4786	GENOME & BIO	AHU 7 - SP Reset	17,734	1.0	2,300	$ 3,602	$ 2,807	$ 6,556	$ 561	0.2
C1010	DAVIS	03C4786	GENOME & BIO	AHU 5, 6, 8 - SP Reset	86,020	6.0	1,088	$ 8,613	$ 8,420	$ 21,732	$ 1,684	0.2
C1009	DAVIS	03C4786	GENOME & BIO	AHU 1 to 4 & 9 - SP Reset	65,476	6.0	688	$ 6,432	$ 14,033	$ 16,402	$ 2,807	0.4
C1045	DAVIS	03C4799	ARC	AHU 5, 7 - SP Reset	91,659	5.0	9,550	$ 16,562	$ 5,613	$ 31,548	$ 1,123	0.1
C1044	DAVIS	03C4799	ARC	DCV for a VAV system - AHU 3, 4	3,029	-	-	$ 270	$ 2,836	$ 727	$ 2,109	7.8
C1043	DAVIS	03C4799	ARC	AHU 2 - SP reset	6,205	-	(13)	$ 541	$ 2,807	$ 1,477	$ 1,330	2.5
C1042	DAVIS	03C4799	ARC	AHU 1 - SP Reset	6,879	-	1,338	$ 1,789	$ 2,807	$ 2,988	$ 561	0.3
D6006	LOS ANGELES	04C4270	WILSHIRE CTR	Replace Chiller	304,707	98.0	-	$ 26,814	$ 847,454	$ 73,130	$ 774,324	28.9
D1027	LOS ANGELES	04C4270	WILSHIRE CTR	AHU 1 & 2 SP Reset	736,319	171.0	-	$ 64,796	$ 1,729,872	$ 176,717	$ 1,553,155	24.0
D1024	LOS ANGELES	04C4360	SAC	AHU1 to 6 SP Reset	270,268	1.0	-	$ 23,784	$ 16,705	$ 62,162	$ 3,341	0.1
D1004	LOS ANGELES	04C4360	SAC	AHU 4 SP Reset	76,916	-	-	$ 6,769	$ 22,142	$ 17,524	$ 4,618	0.7
E2021	RIVERSIDE	05CP5511	STU REC CTR	AHU'S - CV TO VAV RETROFIT	1,121,747	232.0	1,220	$ 85,168	$ 524,937	$ 270,195	$ 254,742	3.0
F2050	SAN DIEGO	06C6115	RIMAC	AHU'S - CV TO VAV RETROFIT	1,996,288	29.0	65,855	$ 215,638	$ 526,244	$ 529,930	$ 105,249	0.5
F3112	SAN DIEGO	06C7008	CAFEVENTANAS	UCSD Eleanor - Café Ventanas Kitchen Hood Controls	29,185	10.0	-	$ 2,276	$ 32,225	$ 6,905	$ 25,320	11.1
G3030	SANTA CRUZ	07C7157	CR COLL COM	Crown-Merrill Kitchen Hood Controls	35,649	10.0	1,614	$ 5,073	$ 35,154	$ 9,847	$ 25,307	5.0
G3002	SANTA CRUZ	07C7755	STU MULTI	AHU 137 PE Motors	347	-	-	$ 37	$ 2,075	$ 83	$ 1,992	53.7
G3041	SANTA CRUZ	07C7757	EIGHT DINE	College Eight/Oaks Kitchen Hood Controls	35,649	10.0	1,614	$ 5,073	$ 35,154	$ 9,847	$ 25,307	5.0
G3047	SANTA CRUZ	07C7933	COL 9 DINE	UCSC College Nine Kitchen Hood Controls	197,291	54.0	2,744	$ 23,250	$ 194,298	$ 49,545	$ 144,753	6.2
G3019	SANTA CRUZ	07C7933	COL 9 DINE	Tie Existing EMS System to Tridium	36,506	-	275	$ 4,121	$ 127,746	$ 8,981	$ 118,765	28.8
G1023	SANTA CRUZ	07C7933	COL 9 DINE	FS 2B - TOD Controls	4,522	-	1,483	$ 1,640	$ 885	$ 2,271	$ 177	0.1
G1022	SANTA CRUZ	07C7933	COL 9 DINE	FS 2A - TOD Controls	2,948	-	1,559	$ 1,531	$ 885	$ 1,955	$ 177	0.1
H4018	SANTA BARBARA	08C8266	CNSI	clean room humidity control seperation	330,429	63.0	58,435	$ 83,095	$ 60,299	$ 126,051	$ 12,060	0.1
H4004	SANTA BARBARA	08C8505	EVENTS CNTR	EE Motors	2,395	1.0	-	$ 263	$ 2,787	$ 575	$ 2,212	8.4
H3188	SANTA BARBARA	08C8505	EVENTS CNTR	Chilled Water Loop Extension	300,000	200.0	-	$ 33,000	$ 415,800	$ 72,000	$ 343,800	10.4
H1027	SANTA BARBARA	08C8505	EVENTS CNTR	AH-2, AH3 - CAV to VAV and DCV	11,540	-	1,663	$ 2,599	$ 44,719	$ 4,100	$ 40,619	15.6
H1015	SANTA BARBARA	08C8505	EVENTS CNTR	AH-1 - CAV to VAV and DCV	24,440	1.0	1,421	$ 3,825	$ 45,573	$ 7,003	$ 38,570	10.1
H4007	SANTA BARBARA	08C8511	MAC	VFD on Exhaust Fans	12,248	-	-	$ 1,347	$ 5,679	$ 2,940	$ 2,739	2.0
H4008	SANTA BARBARA	08C8520	MAR SCI BLDG	EE Motors	7,466	1.0	-	$ 821	$ 5,807	$ 1,792	$ 4,015	4.9
I3040	IRVINE	09C9118	CAL (IT)2	Demand Control Ventilation	4,503	10.0	447	$ 961	$ 15,644	$ 2,161	$ 13,483	14.0
I3039	IRVINE	09C9118	CAL (IT)2	Aircuity - Reduce from 6 ACH to 4 ACH Occ & 2 Unocc	345,583	-	67,813	$ 101,224	$ 294,269	$ 176,145	$ 118,124	1.2
I1065	IRVINE	09C9118	CAL (IT)2	AHU 5,6,7 SP Reset	28,146	-	4,763	$ 7,621	$ 67,409	$ 14,450	$ 52,959	6.9
I3072	IRVINE	09C9299	ANT REC CTR	High Efficiency Boiler Replacement - Anteater Pool	14,046	-	2,787	$ 4,139	$ 117,650	$ 4,459	$ 113,191	27.3
I3068	IRVINE	09C9299	ANT REC CTR	Variable Speed Circulation Pump - Anteater Pool	17,757	-	1,762	$ 3,789	$ 18,940	$ 8,523	$ 10,417	2.7
I1072	IRVINE	09C9299	ANT REC CTR	AHU3,4,5,7 Convert to VAV & DCV from CAV system	59,515	(10.0)	5,785	$ 12,600	$ 152,729	$ 28,766	$ 123,963	9.8
I1020	IRVINE	09C9299	ANT REC CTR	DCV & Scheduling Controls for a VAV system (1A, 1B, 2 and 6)	111,998	31.0	17,109	$ 28,813	$ 70,790	$ 43,934	$ 26,856	0.9
Subtotal, Other Fund Source HVAC					**7,912,611**	**1,928.0**	**367,385**	**$ 1,002,196**	**$ 6,877,932**	**$ 2,271,638**	**$ 4,606,294**	**4.6**
Lighting Projects												
A3047	BERKELEY	01C1271	STADIUM	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts; Add Occupancy Sensors and Daylighting	65,531	17.0	-	$ 5,439	$ 405,539	$ 15,727	$ 389,812	71.7
A3088	BERKELEY	01C1390	I HOUSE	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	161,714	61.0	-	$ 13,422	$ 274,611	$ 38,811	$ 235,800	17.6
A3003	BERKELEY	01C1787	PARKING H	Replace existing HID fixtures with new fluorescent fixtures/sensors	100,196	8.0	-	$ 8,316	$ 166,285	$ 24,047	$ 142,238	17.1
C3180	DAVIS	03C3459	COWELL	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	61,786	16.0	-	$ 5,499	$ 67,409	$ 14,829	$ 52,580	9.6
C3211	DAVIS	03C4444	ARC PAVILION	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	328,626	74.0	-	$ 29,248	$ 384,083	$ 78,870	$ 305,213	10.4
C3002	DAVIS	03C4444	ARC PAVILION	Replace practice court gym HIDs with fluroescent high bays and occupancy sensors	125,266	20.0	-	$ 11,149	$ 63,985	$ 30,064	$ 33,921	3.0
C3004	DAVIS	03C4645	PARKING NE	Replace existing HID fixtures with new fluorescent fixtures/sensors	418,640	44.0	-	$ 37,259	$ 349,850	$ 100,474	$ 249,376	6.7
C3228	DAVIS	03C4786	GENOME & BIO	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	316,161	85.0	-	$ 28,138	$ 320,901	$ 75,879	$ 245,022	8.7
C3231	DAVIS	03C4799	ARC	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	375,478	86.0	-	$ 33,418	$ 432,500	$ 90,115	$ 342,385	10.2

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
C3001	DAVIS	03C4799	ARC	Replace gym and racquetball court HIDs with fluroescent high bays and occupancy sensors	278,369	45.0	-	$ 24,775	$ 145,025	$ 66,809	$ 78,216	3.2
C3249	DAVIS	03C9563	BKSTR WAREHS	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	51,025	13.0	-	$ 4,541	$ 64,414	$ 12,246	$ 52,168	11.5
C3252	DAVIS	03C9973	UNEX GALRIA	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	55,089	14.0	-	$ 4,903	$ 69,403	$ 13,221	$ 56,182	11.5
D3202	LOS ANGELES	04C4207	PARKG STR 3	Replace high pressure sodium fixtures with induction fixtures and install photocell control where appropriate	247,225	28.0	-	$ 21,756	$ 178,622	$ 59,334	$ 119,288	5.5
D3208	LOS ANGELES	04C4208	PARKG STR 9	Replace high pressure sodium fixtures with induction fixtures and install photocell control where appropriate	382,567	44.0	-	$ 33,666	$ 276,408	$ 91,816	$ 184,592	5.5
D3207	LOS ANGELES	04C4209	PARKG STR 8	Replace high pressure sodium fixtures with induction fixtures and install photocell control where appropriate	642,423	73.0	-	$ 56,533	$ 464,156	$ 154,182	$ 309,974	5.5
D3201	LOS ANGELES	04C4210	PARKG STR 2	Replace high pressure sodium fixtures with induction fixtures and install photocell control where appropriate	468,283	53.0	-	$ 41,209	$ 338,339	$ 112,388	$ 225,951	5.5
D3195	LOS ANGELES	04C4211	PARKG ST CHS	Replace high pressure sodium fixtures with induction fixtures and install photocell control where appropriate	195,795	22.0	-	$ 17,230	$ 141,463	$ 46,991	$ 94,472	5.5
D3205	LOS ANGELES	04C4219	PARKG STR 6	Replace high pressure sodium fixtures with induction fixtures and install photocell control where appropriate	165,117	19.0	-	$ 14,530	$ 119,299	$ 39,628	$ 79,671	5.5
D3199	LOS ANGELES	04C4263	PARKG STR 32	Replace high pressure sodium fixtures with induction fixtures and install photocell control where appropriate	154,290	18.0	-	$ 13,578	$ 111,476	$ 37,030	$ 74,446	5.5
D3197	LOS ANGELES	04C4301	PARKG STR RC	Replace high pressure sodium fixtures with induction fixtures and install photocell control where appropriate	26,166	3.0	-	$ 2,303	$ 18,905	$ 6,280	$ 12,625	5.5
D3206	LOS ANGELES	04C4322	PARKG STR 7	Replace high pressure sodium fixtures with induction fixtures and install photocell control where appropriate	369,935	42.0	-	$ 32,554	$ 267,281	$ 88,784	$ 178,497	5.5
D3209	LOS ANGELES MC	04C4332H	PARKG STR E	Replace high pressure sodium fixtures with induction fixtures and install photocell control where appropriate	38,798	4.0	-	$ 3,414	$ 31,854	$ 9,312	$ 22,542	6.6
D3200	LOS ANGELES	04C4342	PARKG STR 1	Replace high pressure sodium fixtures with induction fixtures and install photocell control where appropriate	632,498	72.0	-	$ 55,660	$ 456,985	$ 151,800	$ 305,185	5.5
D3218	LOS ANGELES	04C4360	SAC	Replace gym HID and strength & conditioning fixtures with new fluorescent fixtures highbays (sensors in gyms only)	229,211	30.0	-	$ 20,171	$ 83,199	$ 55,011	$ 28,188	1.4
D3217	LOS ANGELES	04C4360	SAC	Replace existing GYM HID fixtures with new fluorescent fixtures highbays w/sensors	113,896	13.0	-	$ 10,023	$ 38,731	$ 27,335	$ 11,396	1.1
D3196	LOS ANGELES	04C4490	PARKG STR DD	Replace high pressure sodium fixtures with induction fixtures and install photocell control where appropriate	44,212	5.0	-	$ 3,891	$ 31,943	$ 10,611	$ 21,332	5.5
D3193	LOS ANGELES	04C4582	ACKERMAN	Retrofit existing 175-watt suspended metal halide fixtures with ceramic metal halide and replace quartz floods with fluorescent T5HO wall washes	222,825	42.0	-	$ 19,609	$ 174,962	$ 53,478	$ 121,484	6.2
D3204	LOS ANGELES	04C4587	PARKG STR 5	Replace high pressure sodium fixtures with induction fixtures and install photocell control where appropriate	115,041	13.0	-	$ 10,124	$ 83,444	$ 27,610	$ 55,834	5.5
E3109	RIVERSIDE	05CP5511	STU REC CTR	Replace MH high bays with fluorescents and occupancy sensors in gym and racquetball courts	308,347	38.0	-	$ 23,126	$ 112,348	$ 74,003	$ 38,345	1.7
E3179	RIVERSIDE	05CP5994	GERMPLASM	Retrofit T12 fixtures with 28W T8 lamps and reduced light output (RLO) ballasts	71,940	20.0	-	$ 5,396	$ 26,293	$ 17,266	$ 9,027	1.7
F3009	SAN DIEGO	06C6115	RIMAC	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	360,727	93.0	-	$ 28,137	$ 491,130	$ 86,574	$ 404,556	14.4
F3029	SAN DIEGO	06C6188	SCI ENG RSCH	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	94,190	29.0	-	$ 7,347	$ 95,742	$ 22,606	$ 73,136	10.0
F3002	SAN DIEGO	06C6500	REC GYM	Replace existing HID with fluorescent high bays/sensors	58,457	9.0	-	$ 4,560	$ 28,511	$ 14,030	$ 14,481	3.2
F3100	SAN DIEGO	06C6661	CALITIT	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	238,852	70.0	-	$ 18,630	$ 232,818	$ 57,324	$ 175,494	9.4
G3107	SANTA CRUZ	07C7183	ME HOUSE A	Replace F40T12 w/ 28W T8 & Prem Eff RLO Ballast; Replace incandescent bulb with CFL; Replace Circlelite w/ CFL; Add Occupancy Sensors and Daylighting	65,289	26.0	-	$ 6,986	$ 87,514	$ 15,669	$ 71,845	10.3
G3108	SANTA CRUZ	07C7184	ME HOUSE B	Replace F40T12 w/ 28W T8 & Prem Eff RLO Ballast; Replace incandescent bulb with CFL; Replace Circlelite w/ CFL; Add Occupancy Sensors and Daylighting	43,926	17.0	-	$ 4,700	$ 57,492	$ 10,542	$ 46,950	10.0
G3125	SANTA CRUZ	07C7933	COL 9 DINE	Replace Gen1 T8 w/ 28W T8 & Prem Eff RLO Ballast; Add Occupancy Sensors and Daylighting	58,998	16.0	-	$ 6,313	$ 74,904	$ 14,160	$ 60,744	9.6
G3020	SANTA CRUZ	07C7935	PARK STRUC 1	Replace existing HID fixtures with new fluorescent fixtures w/sensors	128,667	9.0	-	$ 13,767	$ 124,363	$ 30,880	$ 93,483	6.8
H3120	SANTA BARBARA	08C8243	ICA	Replace Gen1 T8 w/ T8 dimmables; Add Occupancy Sensors	95,457	24.0	-	$ 10,500	$ 129,082	$ 22,910	$ 106,172	10.1
H3001	SANTA BARBARA	08C8243	ICA	Replace existing HID fixtures with new fluorescent fixtures/sensors	16,593	5.0	-	$ 1,825	$ 16,861	$ 3,982	$ 12,879	7.1
H3003	SANTA BARBARA	08C8250	MESA PARKING	Replace existing HID with fluorescent/sensors	191,226	14.0	-	$ 21,035	$ 152,400	$ 45,894	$ 106,506	5.1
H3122	SANTA BARBARA	08C8266	CNSI	Replace Gen2 T8 w/ T8 dimmables; Add Occupancy Sensors	147,478	35.0	-	$ 16,223	$ 314,539	$ 35,395	$ 279,144	17.2

Table 11.1: SEP Projects by Funding Source and Project Type (Continued)

SEP Project ID	Campus	Building Key	Building Name	Project Name	Total Purchased Electricity Savings (kWh/yr)	Demand Savings (kW)	Total Purchased Gas Savings (th/yr)	Total Cost Savings ($/yr)	Estimated Project Cost ($)	Gross Estimated Utility Incentive ($)	Net Project Cost ($)	Net Simple Payback (yrs)
H3124	SANTA BARBARA	08C8505	EVENTS CNTR	Replace Gen1 T8 and T12 mix w/ T8 dimmables; Add Occupancy Sensors	161,630	34.0	-	$ 17,779	$ 162,513	$ 38,791	$ 123,722	7.0
H3125	SANTA BARBARA	08C8511	MAC	Replace Gen2 T8 w/ T8 dimmables; Add Occupancy Sensors	97,717	19.0	-	$ 10,749	$ 181,178	$ 23,452	$ 157,726	14.7
H3002	SANTA BARBARA	08C8511	MAC	Replace existing gym and exercise area HIDs with fluorescent "high bays" with occupancy sensors	86,684	15.0	-	$ 9,535	$ 74,338	$ 20,804	$ 53,534	5.6
H3128	SANTA BARBARA	08C8520	MAR SCI BLDG	Replace Gen1 T8 w/ T8 dimmables; Add Occupancy Sensors	154,771	33.0	-	$ 17,025	$ 179,862	$ 37,145	$ 142,717	8.4
H3149	SANTA BARBARA	08C8558	UNIV CENTER	Replace Gen1 T8 and T12 mix w/ T8 dimmables; Add Occupancy Sensors	345,830	74.0	-	$ 38,041	$ 312,664	$ 82,999	$ 229,665	6.0
H3154	SANTA BARBARA	08C8567	KOHN HALL	Replace Gen2 T8 w/ T8 dimmables; Add Occupancy Sensors	61,659	13.0	-	$ 6,782	$ 117,763	$ 14,798	$ 102,965	15.2
H3163	SANTA BARBARA	08C8615	MRL	Replace Gen1 T8 w/ T8 dimmables; Add Occupancy Sensors	94,820	20.0	-	$ 10,430	$ 110,136	$ 22,757	$ 87,379	8.4
I3010	IRVINE	09C9012	PARK STRUC 1	Retrofit existing HID roof lights with PSMH kits	4,696	-	466	$ 1,002	$ 6,882	$ 2,254	$ 4,628	4.6
I3004	IRVINE	09C9012	PARK STRUC 1	Replace metal halide fixtures one-for-one with 2L-F32T8 HLO Fixtures and Install Occupancy Sensors for Bi-Level Control	160,815	31.0	15,959	$ 34,314	$ 136,841	$ 77,191	$ 59,650	1.7
I3008	IRVINE	09C9013	MESA PKG STR	Retrofit existing HID roof lights with PSMH kits	5,869	-	582	$ 1,252	$ 8,602	$ 2,817	$ 5,785	4.6
I3003	IRVINE	09C9013	MESA PKG STR	Replace metal halide fixtures one-for-one with 2L-F32T8 HLO Fixtures and Install Occupancy Sensors for Bi-Level Control	128,444	19.0	12,747	$ 27,407	$ 161,911	$ 61,653	$ 100,258	3.7
I3009	IRVINE	09C9022	SS PRKING ST	Retrofit existing HID roof lights with PSMH kits	14,967	-	1,485	$ 3,194	$ 21,936	$ 7,184	$ 14,752	4.6
I3005	IRVINE	09C9022	SS PRKING ST	Replace metal halide fixtures one-for-one with 2L-F32T8 HLO Fixtures and Install Occupancy Sensors for Bi-Level Control	292,002	49.0	28,978	$ 62,306	$ 304,714	$ 140,161	$ 164,553	2.6
I3207	IRVINE	09C9118	CAL (IT)2	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	58,747	41.0	5,830	$ 12,535	$ 124,684	$ 28,199	$ 96,485	7.7
I3556	IRVINE	09C9201	STDT HLTH CT	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; Add Occupancy Sensors and Daylighting	14,804	7.0	1,469	$ 3,159	$ 21,634	$ 7,106	$ 14,528	4.6
I3007	IRVINE	09C9256	ENG PARK STR	Retrofit existing HID roof lights with PSMH kits	7,043	-	699	$ 1,503	$ 10,323	$ 3,381	$ 6,942	4.6
I3006	IRVINE	09C9256	ENG PARK STR	Replace metal halide fixtures one-for-one with 2L-F32T8 HLO Fixtures and Install Occupancy Sensors for Bi-Level Control	261,118	54.0	25,913	$ 55,717	$ 253,137	$ 125,337	$ 127,800	2.3
I3217	IRVINE	09C9299	ANT REC CTR	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	83,913	43.0	8,327	$ 17,905	$ 219,763	$ 40,278	$ 179,485	10.0
Subtotal, Other Fund Source Lighting					**10,301,837**	**1,821.0**	**102,457**	**$ 1,061,536**	**$ 9,913,950**	**$ 2,720,224**	**$ 7,193,726**	**6.8**
Other Projects												
C3287	DAVIS	03CWIDEO	CAMPUSWIDE - OTHER	Campuswide 92 GH retrofit	-	-	196,995	$ 173,356	$ 1,032,847	$ 157,596	$ 875,251	5.0
I3230	IRVINE	09CWIDEO	CAMPUSWIDE - OTHER	Install Power Misers or Replace All Vending Machines with Energy Star Units.	72,500	-	7,195	$ 15,470	$ 173,250	$ 34,800	$ 138,450	8.9
I3367	IRVINE	09C9299	ANT REC CTR	Pool Covers	34,650		6,875	$ 10,211	$ 175,000	$ 11,000	$ 164,000	16.1
I3366	IRVINE	09C9299	ANT REC CTR	Solar Hot Water for Showers and Laundry	31,500		6,250	$ 9,283	$ 120,000	$ 10,000	$ 110,000	11.8
I3070	IRVINE	09C9299	ANT REC CTR	Solar Pool Water Heater - Anteater Pool	43,810	-	8,693	$ 12,911	$ 143,765	$ 13,908	$ 129,857	10.1
Subtotal, Other Fund Source, Other Projects					**182,460**	**-**	**226,007**	**$ 221,231**	**$ 1,644,863**	**$ 227,304**	**$ 1,417,559**	**6.4**
Savings by Design (SBD) - Deferred Maintenance & Capital Renewal Projects												
H3090	SANTA BARBARA	08CWIDER	CAMPUSWIDE - RECREATION	Natural Gas Component of DM and CR Projects 2009	-	-	35,511	$ 28,409	$ 346,500	$ 28,409	$ 318,091	11.2
Subtotal, Other Fund Source, Savings by Design (SBD) - Deferred Maintenance & Capital Renewal Projects					**-**	**-**	**35,511**	**$ 28,409**	**$ 346,500**	**$ 28,409**	**$ 318,091**	**11.2**
Subtotal, Other Fund Source Projects					**25,672,227**	**4,410.0**	**1,243,700**	**$ 3,381,975**	**$ 25,937,688**	**$ 7,332,524**	**$ 18,605,164**	**5.5**
UC Systemwide Total					**561,257,311**	**62,824.0**	**32,776,397**	**$ 80,261,884**	**$ 949,030,348**	**$167,269,400**	**$ 781,760,948**	9.7

Table 11.2: Project Committments by Campus

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
2009-11 Program Cycle										
2009-11 Tier 1 Projects										
BERKELEY	A1001	01C1775	ATHERTO2425	SF 11, 12, 37 to 39 - CV Rebalance	Tier 1	Design - Bid	1/1/2011	12/31/2011	-	150,400
BERKELEY	A1002	01C1286	TANG CENTER	AC 1 to 4 - Spot Cooling	Tier 1	Design - Bid	1/1/2009	12/31/2009	469,634	101,871
BERKELEY	A1003	01C1797	WURSTER	AHU 1 - VIV to VAV	Tier 1	Design - Bid	1/1/2010	12/31/2010	78,761	(388)
BERKELEY	A1004	01C1797	WURSTER	AHU 2 - VIV to VAV	Tier 1	Design - Bid	1/1/2010	12/31/2010	111,237	9,450
BERKELEY	A1005	01C1797	WURSTER	AHU 3,4 - VIV to VAV	Tier 1	Design - Bid	1/1/2010	12/31/2010	102,311	17,662
BERKELEY	A1006	01C1486	KROEBER	AHU 2 - CAV to VAV	Tier 1	Design - Bid	1/1/2009	12/31/2009	116,350	45,725
BERKELEY	A1010	01C1297	GARDNERSTACK	AHU 1 to 5 - SP Reset	Tier 1	Design - Bid	1/1/2009	12/31/2009	52,606	1,925
BERKELEY	A1011	01C1301	DOE LIBRARY	AHU 1 & 2 - CAV to VAV	Tier 1	Design - Bid	1/1/2010	12/31/2010	191,146	45,150
BERKELEY	A1012	01C1301	DOE LIBRARY	AHU 4 - CAV to VAV	Tier 1	Design - Bid	1/1/2010	12/31/2010	156,331	37,312
BERKELEY	A1014	01C1299	MOFFITT	AHU 1, 2 - SP Reset	Tier 1	Design - Bid	1/1/2009	12/31/2009	66,031	6,170
BERKELEY	A1016	01C1149	STANLEY	Lab EF 1 to 8 - CAV Rebalance	Tier 1	Design - Bid	1/1/2010	12/31/2010	255,901	95,938
BERKELEY	A1017	01C1149	STANLEY	AHU 1 to 4 - SP Reset	Tier 1	Design - Bid	1/1/2010	12/31/2010	462,737	(3,738)
BERKELEY	A1018	01C1149	STANLEY	AHU 5 - SP Reset	Tier 1	Design - Bid	1/1/2010	12/31/2010	25,191	-
BERKELEY	A1019	01C1520	UCB ART MUSE	AHU 1, 2 - CAV to VAV & SP Reset	Tier 1	Design Build	1/1/2010	12/31/2010	470,863	87,634
BERKELEY	A1022	01C1790	EVANS	AHU 1 to 4 - SP Reset	Tier 1	Design - Bid	1/1/2010	12/31/2010	225,994	59,100
BERKELEY	A1023	01C1790	EVANS	AHU 5 - SP Reset	Tier 1	Design - Bid	1/1/2010	12/31/2010	51,395	-
BERKELEY	A1024	01C1761	BARROWS	AH 1, CAV to VAV	Tier 1	Design - Bid	1/1/2009	12/31/2009	187,434	55,375
BERKELEY	A1026	01C1594	UNIVERSITY	AHU 6 - CAV to VAV & SP Reset	Tier 1	Design - Bid	1/1/2010	12/31/2010	81,905	25,000
BERKELEY	A1036	01C1237	SODA	AHU 1 - SP Reset	Tier 1	Design - Bid	1/1/2010	12/31/2010	142,493	17,175
BERKELEY	A1037	01C1236	HAAS FAC BLD	AHU 10 - SP Reset	Tier 1	Design - Bid	1/1/2011	12/31/2011	2,383	1,975
BERKELEY	A1039	01C1234	HAAS STU BLD	AHU 1 - CAV to VAV	Tier 1	Design - Bid	1/1/2009	12/31/2009	140,240	13,725
BERKELEY	A1041	01C1234	HAAS STU BLD	AHU 12 - CAV to VAV	Tier 1	Design - Bid	1/1/2009	12/31/2009	68,862	7,800
BERKELEY	A1043	01C1488	STEPHENS	AHU 1 - CAV to VAV	Tier 1	Design - Bid	1/1/2009	12/31/2009	36,926	9,400
BERKELEY	A1045	01C1270	CALIFORNIA	AH 1, AH 2 CAV to VAV	Tier 1	Design - Bid	1/1/2010	12/31/2010	127,280	20,475
BERKELEY	A1048	01C1405	LE CONTE	AHU 2 - SP Reset	Tier 1	Design - Bid	1/1/2011	12/31/2011	21,491	600
BERKELEY	A1049	01C1405	LE CONTE	AHU 1 - SP Reset	Tier 1	Design - Bid	1/1/2011	12/31/2011	6,869	(100)
BERKELEY	A1051	01C1406	VALLEY LSB	AHU 5, 6 - CAV to VAV	Tier 1	Design - Bid	1/1/2009	12/31/2009	378,427	18,938
BERKELEY	A1053	01C1406	VALLEY LSB	AHU 8, 10, 11 - CAV to VAV	Tier 1	Design - Bid	1/1/2009	12/31/2009	402,311	31,738
BERKELEY	A1054	01C1406	VALLEY LSB	AHU 16,17,22 - CAV to VAV	Tier 1	Design - Bid	1/1/2009	12/31/2009	277,699	31,575
BERKELEY	A1055	01C1406	VALLEY LSB	AHU 18 - CAV to VAV	Tier 1	Design - Bid	1/1/2009	12/31/2009	121,722	11,088
BERKELEY	A1056	01C1406	VALLEY LSB	AHU 15 - SP reset	Tier 1	Design - Bid	1/1/2011	12/31/2011	13,805	(138)
BERKELEY	A1057	01C1406	VALLEY LSB	AHU 25 - SP reset	Tier 1	Design - Bid	1/1/2011	12/31/2011	82,560	1,362
BERKELEY	A1058	01C1406	VALLEY LSB	Fume Hoods - Rebalance	Tier 1	Design - Bid	1/1/2011	12/31/2011	463,570	25,562
BERKELEY	A1062	01C1225	LS ADDITION	AHU 1 to 4 - CAV to VAV & SP Reset	Tier 1	Design - Bid	1/1/2009	12/31/2009	962,602	76,675
BERKELEY	A1065	01C1783	ETCHEVERRY	AHU 4 - CAV to VAV	Tier 1	Design - Bid	1/1/2009	12/31/2009	465,956	50,225
BERKELEY	A1068	01C1373	HEARST MIN	HV 1 - TOD Controls & SP Reset	Tier 1	Design - Bid	1/1/2010	12/31/2010	26,212	8,175
BERKELEY	A1069	01C1809	HILDEBRAND	SF 33, 34 - CAV to VAV & SP Reset	Tier 1	Design - Bid	1/1/2009	12/31/2009	558,962	49,812
BERKELEY	A1070	01C1808	TAN	SF 1 to 4 - SP Reset	Tier 1	Design - Bid	1/1/2010	12/31/2010	238,512	(3,400)
BERKELEY	A1074	01C1346	MULFORD	AHU 1 - CAV to VAV	Tier 1	Design - Bid	1/1/2009	12/31/2009	23,663	10,238
BERKELEY	A1076	01C1376	HILGARD	SF 37 - CAV to VAV & SP Reset	Tier 1	Design - Bid	1/1/2010	12/31/2010	67,278	18,475
BERKELEY	A1079	01C1382	MORGAN	Fume Hoods - Rebalance	Tier 1	Design - Bid	1/1/2011	12/31/2011	61,059	2,838
BERKELEY	A1080	01C1784	CHAVEZ (Golden Bear)	AHU 1 - CAV to VAV	Tier 1	Design - Bid	1/1/2010	12/31/2010	141,643	34,900
BERKELEY	A1082	01C1360	HAAS PAVIL	AHU 5 - CAV to VAV	Tier 1	Design - Bid	1/1/2009	12/31/2009	64,953	17,912
BERKELEY	A1083	01C1360	HAAS PAVIL	AHU 6 - CAV to VAV	Tier 1	Design - Bid	1/1/2009	12/31/2009	51,598	21,362
BERKELEY	A1084	01C1360	HAAS PAVIL	AHU 1 to 4 - DD to VAV	Tier 1	Design - Bid	1/1/2009	6/30/2010	557,805	33,375
BERKELEY	A1085	01C1791	KING UNION	AHU 1 - CAV to VAV	Tier 1	In House	7/1/2009	6/30/2010	110,763	41,250
BERKELEY	A1086	01C1791	KING UNION	AHU 2 - CAV to VAV	Tier 1	In House	7/1/2009	6/30/2010	77,929	21,612
BERKELEY	A1088	01C1802	ZELLERBACH	AHU 2, 3 - VIV to VAV	Tier 1	Design - Bid	1/1/2010	12/31/2010	7,518	5,212
BERKELEY	A1091	01C1373	HEARST MIN	HV 2 - TOD Controls & SP Reset	Tier 1	Design - Bid	1/1/2010	12/31/2010	67,486	6,675
BERKELEY	A1092	01C1236	HAAS FAC BLD	AHU 13 - CAV to VAV & SP Reset	Tier 1	Design - Bid	1/1/2010	12/31/2010	47,281	9,575
BERKELEY	A3010	01C1095	HEARST2195 (SRB1)	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2009	12/31/2009	392,521	14,013
BERKELEY	A3023	01C1149	STANLEY	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2011	12/31/2011	423,200	61,780
BERKELEY	A3025	01C1210	SPROUL	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2011	12/31/2011	85,614	11,675

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
BERKELEY	A3027	01C1220	BIRGE	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2010	12/31/2010	160,703	19,847
BERKELEY	A3030	01C1225	LS ADDITION	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2009	12/31/2009	599,589	40,970
BERKELEY	A3032	01C1229	NW AN FACIL	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2011	12/31/2011	114,385	8,200
BERKELEY	A3036	01C1231	LAW	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2011	12/31/2011	116,416	22,731
BERKELEY	A3039	01C1234	HAAS STU BLD	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2010	12/31/2010	110,836	10,050
BERKELEY	A3041	01C1236	HAAS FAC BLD	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2010	12/31/2010	111,895	11,161
BERKELEY	A3048	01C1286	TANG CENTER	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2010	12/31/2010	105,908	15,271
BERKELEY	A3049	01C1286	TANG CENTER	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts + Occupancy Sensors + Daylighting	Tier 1	Design - Bid	1/1/2009	12/31/2009	106,790	-
BERKELEY	A3058	01C1299	MOFFITT	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2010	12/31/2010	135,559	13,711
BERKELEY	A3060	01C1301	DOE LIBRARY	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2011	12/31/2011	85,487	17,270
BERKELEY	A3062	01C1302	MINOR ADDITN	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2010	12/31/2010	85,060	5,829
BERKELEY	A3066	01C1323	DAVIS	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2011	12/31/2011	97,347	14,470
BERKELEY	A3071	01C1355	GIANNINI	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2011	12/31/2011	225,465	7,183
BERKELEY	A3081	01C1373	HEARST MIN	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2009	12/31/2009	326,790	14,853
BERKELEY	A3083	01C1376	HILGARD	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2010	12/31/2010	59,191	15,659
BERKELEY	A3085	01C1382	MORGAN	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2011	12/31/2011	61,954	5,947
BERKELEY	A3089	01C1405	LE CONTE	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2011	12/31/2011	83,550	15,543
BERKELEY	A3093	01C1419	DONNER LAB	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2011	12/31/2011	100,612	10,807
BERKELEY	A3095	01C1486	KROEBER	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2009	12/31/2009	54,678	12,370
BERKELEY	A3097	01C1488	STEPHENS	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2011	12/31/2011	35,980	6,167
BERKELEY	A3101	01C1520	UCB ART MUSE	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2011	12/31/2011	130,108	10,793
BERKELEY	A3105	01C1594	UNIVERSITY	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2009	12/31/2009	115,926	15,988
BERKELEY	A3106	01C1594	UNIVERSITY	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; + Occupancy Sensors + Daylighting	Tier 1	Design - Bid	1/1/2009	12/31/2009	365,726	-
BERKELEY	A3108	01C1761	BARROWS	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2010	12/31/2010	129,885	20,289
BERKELEY	A3110	01C1762	MCCONE	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2009	12/31/2009	317,881	25,093
BERKELEY	A3111	01C1774	TOLMAN	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2011	12/31/2011	133,364	25,293
BERKELEY	A3114	01C1776	OXFORD RES (Oxford Tract)	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2011	12/31/2011	146,221	13,447
BERKELEY	A3116	01C1782	LATIMER	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2009	12/31/2009	395,052	37,137
BERKELEY	A3118	01C1783	ETCHEVERRY	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2010	12/31/2010	291,845	18,615
BERKELEY	A3122	01C1790	EVANS	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2010	12/31/2010	252,983	29,002
BERKELEY	A3123	01C1791	KING UNION	Monitoring Based Commissioning	Tier 1	Design - Bid	3/1/2010	6/30/2011	137,934	11,562
BERKELEY	A3124	01C1791	KING UNION	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts + Occupancy Sensors + Daylighting	Tier 1	In House	7/1/2009	6/30/2010	154,854	-
BERKELEY	A3125	01C1793	BARKER	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2011	12/31/2011	214,635	17,476
BERKELEY	A3129	01C1797	WURSTER	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2009	12/31/2009	181,482	23,356
BERKELEY	A3130	01C1797	WURSTER	+ Daylighting	Tier 1	Design - Bid	1/1/2009	12/31/2009	8,919	-
BERKELEY	A3131	01C1800	LAWRENCE	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2011	12/31/2011	113,006	6,939
BERKELEY	A3133	01C1802	ZELLERBACH	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2011	12/31/2011	99,212	16,077
BERKELEY	A3137	01C1809	HILDEBRAND	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2010	12/31/2010	350,272	25,881
BERKELEY	A3173	01CWIDE	CAMPUSWIDE	Refrigerators Phase 1 of 5: 100 Energy Star Refrigerator Replacements	Tier 1	Undecided	1/1/2009	12/31/2009	224,300	-
BERKELEY	A3174	01CWIDE	CAMPUSWIDE	Refrigerators Phase 2 of 5: 100 Energy Star Refrigerator Replacements	Tier 1	Undecided	1/1/2010	12/31/2010	224,300	-
BERKELEY	A3175	01CWIDE	CAMPUSWIDE	Refrigerators Phase 3 of 5: 100 Energy Star Refrigerator Replacements	Tier 1	Undecided	1/1/2011	12/31/2011	224,300	-
BERKELEY	A3184	01CWIDE	CAMPUSWIDE	LCD Phase 1 of 8: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	Tier 1	Undecided	1/1/2009	12/31/2009	213,796	-
BERKELEY	A3185	01CWIDE	CAMPUSWIDE	LCD Phase 2 of 8: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	Tier 1	Undecided	1/1/2009	12/31/2009	213,796	-

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
BERKELEY	A3186	01CWIDE	CAMPUSWIDE	LCD Phase 3 of 8: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	Tier 1	Undecided	1/1/2010	12/31/2010	213,796	-
BERKELEY	A3187	01CWIDE	CAMPUSWIDE	LCD Phase 4 of 8: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	Tier 1	Undecided	1/1/2010	12/31/2010	213,796	-
BERKELEY	A3188	01CWIDE	CAMPUSWIDE	LCD Phase 5 of 8: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	Tier 1	Undecided	1/1/2011	12/31/2011	213,796	-
BERKELEY	A3189	01CWIDE	CAMPUSWIDE	LCD Phase 6 of 8: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	Tier 1	Undecided	1/1/2011	12/31/2011	213,796	-
BERKELEY	A3196	01CWIDE	CAMPUSWIDE	Variable Speed Circulation Pump - Hearst Pool Pump 1	Tier 1	Job Order	1/15/2009	8/30/2009	15,721	-
BERKELEY	A3197	01CWIDE	CAMPUSWIDE	Variable Speed Circulation Pump - Golden Bear Pool	Tier 1	Job Order	11/1/2008	3/15/2009	11,791	-
BERKELEY	A3198	01CWIDE	CAMPUSWIDE	Variable Speed Circulation Pump - Strawberry Canyon Pool	Tier 1	Job Order	10/15/2008	3/15/2009	78,956	-
BERKELEY	A3199	01CWIDE	CAMPUSWIDE	Variable Speed Circulation Pump - Hearst Pool P2	Tier 1	Job Order	1/15/2009	8/30/2009	8,215	-
BERKELEY	A3205	01CWIDE	CAMPUSWIDE	Pool Covers - Hearst Pools	Tier 1	Job Order	2/1/2009	8/30/2009	-	33,805
SAN FRANCISCO	B1002	02C2410	NURSING	CAV to VAV & SP Reset	Tier 1	Design Build	4/1/2009	6/1/2011	370,548	107,875
SAN FRANCISCO	B1005	02C3034	BYERS HALL	AHU 1, 2 - SP Reset	Tier 1	Design Build	4/1/2009	3/1/2010	34,062	2,281
SAN FRANCISCO	B1006	02C3003	COMMUNITY CE	AHU 1, 3, 4 - SP Reset	Tier 1	Design Build	4/1/2009	3/1/2010	55,687	6,990
SAN FRANCISCO	B1007	02C3003	COMMUNITY CE	SP Reset	Tier 1	Design Build	4/1/2009	3/1/2010	114,983	11,687
SAN FRANCISCO	B1008	02C3003	COMMUNITY CE	SP Reset	Tier 1	Design Build	4/1/2009	3/1/2010	86,145	11,252
SAN FRANCISCO	B1009	02C3002	GENENTECH HA	SF - N7 to N9 - SP Reset	Tier 1	Design Build	4/1/2009	3/1/2010	41,448	4,762
SAN FRANCISCO	B1010	02C3002	GENENTECH HA	SF - N 10, 11 - SP Reset	Tier 1	Design Build	4/1/2009	3/1/2010	57,752	11,012
SAN FRANCISCO	B1011	02C3001	ROCK HALL	AHU 1, 2 - SP Reset	Tier 1	Design Build	4/1/2009	3/1/2010	234,088	13,126
SAN FRANCISCO	B1012	02C3001	ROCK HALL	AHU 1, 2 - SP Reset	Tier 1	Design Build	4/1/2009	3/1/2010	495,551	32,657
SAN FRANCISCO	B1016	02C2212	MILLBERRY	SF 5, 6 - CAV to VAV and SP reset	Tier 1	Design Build	4/1/2009	12/1/2010	166,028	30,025
SAN FRANCISCO	B1018	02C3002	GENENTECH HA	SF - S1 to S4 & N1 to N6 - SP Reset	Tier 1	Design Build	4/1/2009	3/1/2010	890,175	127,288
SAN FRANCISCO	B1021	02C2450	LAUREL HTS	SF-6, 8 SP Reset	Tier 1	Design Build	1/1/2011	11/1/2011	41,643	7,403
SAN FRANCISCO	B1030	02CWIDE	CAMPUSWIDE	Install VSD on existing 1200 TR Electric Centrifugal Chiller	Tier 1	Design Build	4/1/2009	6/1/2011	246,754	310,158
SAN FRANCISCO	B1031	02C3003	COMMUNITY CE	Replace 2 speed control by VFD control on Cooling Tower Fan	Tier 1	Undecided	4/1/2009	6/1/2010	103,617	-
SAN FRANCISCO	B1032	02C3034	BYERS HALL	Install VFDs on 2 Nos existing 335 TR water cooled Centrifugal Chillers & provide tower free cooling	Tier 1	Undecided	4/1/2009	6/1/2010	272,672	-
SAN FRANCISCO	B3011	02C2212	MILLBERRY	Monitoring Based Commissioning	Tier 1	Design Build	2/1/2009	4/1/2010	333,848	15,734
SAN FRANCISCO	B3012	02C2251	CLINICAL SCI	Monitoring Based Commissioning	Tier 1	Design Build	2/1/2009	4/1/2010	123,840	32,573
SAN FRANCISCO	B3023	02C2415	MISSION CTR	Monitoring Based Commissioning	Tier 1	Design Build	3/1/2010	11/1/2011	534,930	27,305
SAN FRANCISCO	B3027	02C3002	GENENTECH HA	Monitoring Based Commissioning	Tier 1	Undecided	1/1/2010	3/1/2011	1,862,784	86,101
SAN FRANCISCO	B3028	02C3003	COMMUNITY CE	Monitoring Based Commissioning	Tier 1	Undecided	1/1/2010	9/1/2011	291,897	16,654
SAN FRANCISCO	B3029	02C3003	COMMUNITY CE	UCSF Mission Bay Kitchen Hood Controls	Tier 1	Undecided	1/1/2010	3/1/2011	76,299	3,912
SAN FRANCISCO	B3034	02C3034	BYERS HALL	Monitoring Based Commissioning	Tier 1	Undecided	1/1/2010	3/1/2011	515,282	13,208
SAN FRANCISCO	B3042	02CWIDE	CAMPUSWIDE	Phase 1: Replace 200 stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in campus buildings	Tier 1	Conventional	1/1/2009	11/1/2009	70,000	-
SAN FRANCISCO	B3043	02CWIDE	CAMPUSWIDE	Phase 2: Replace 200 additional stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in campus buildings	Tier 1	Conventional	1/1/2010	11/1/2010	70,000	-
SAN FRANCISCO	B3079	02CWIDE	CAMPUSWIDE	54 Energy Star Refrigerator Replacements	Tier 1	PO	1/1/2009	11/1/2009	121,122	-
SAN FRANCISCO	B3080	02CWIDE	CAMPUSWIDE	Refrigerators Phase 1 of 3: 100 Energy Star Refrigerator Replacements	Tier 1	PO	1/1/2010	11/1/2010	224,300	-
SAN FRANCISCO	B3081	02CWIDE	CAMPUSWIDE	Refrigerators Phase 2 of 3: 100 Energy Star Refrigerator Replacements	Tier 1	PO	1/1/2011	11/1/2011	224,300	-
SAN FRANCISCO	B3082	02CWIDE	CAMPUSWIDE	Refrigerators Phase 3 of 3: 25 Energy Star Refrigerator Replacements	Tier 1	PO	1/1/2009	11/1/2009	56,075	-
SAN FRANCISCO	B3083	02CWIDE	CAMPUSWIDE	1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	Tier 1	Design Build	1/1/2009	11/1/2009	213,796	-
SAN FRANCISCO	B3085	02C2012	LIBRARY	Install occupancy and daylighting sensors in offices, conference rooms, and library areas, where appropriate	Tier 1	Design - Bid	2/1/2009	5/1/2010	80,338	-
SAN FRANCISCO	B3087	02C2212	MILLBERRY	Implement recommendations in 2007 ARUP Study and install additional occupancy and daylighting sensors	Tier 1	Design - Bid	2/1/2009	6/1/2010	128,069	-
SAN FRANCISCO	B3088	02C2251	CLINICAL SCI	Implement recommendations in 2007 ARUP Study and install additional occupancy and daylighting sensors	Tier 1	Design - Bid	2/1/2009	6/1/2010	233,603	-

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
SAN FRANCISCO	B3089	02C2252	MED SCIENCES	Implement recommendations in 2007 ARUP Study and install additional occupancy and daylighting sensors	Tier 1	Design - Bid	2/1/2009	6/1/2010	712,329	-
SAN FRANCISCO	B3090	02C2290	LPPI	Implement planned lamp and ballast retrofit, and install occupancy and daylighting sensors where appropriate	Tier 1	Design - Bid	2/1/2009	6/1/2010	239,404	-
SAN FRANCISCO	B3091	02C2410	NURSING	Retrofit T8 Fixtures with 28W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	Tier 1	Design - Bid	2/1/2009	6/1/2010	158,728	-
SAN FRANCISCO	B3092	02C2412	DENTISTRY	Retrofit T8 Fixtures with 28W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	Tier 1	Design - Bid	2/1/2009	6/1/2010	325,070	-
SAN FRANCISCO	B3093	02C2415	MISSION CTR	Retrofit T8 Fixtures with 28W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	Tier 1	Design - Bid	2/1/2009	6/1/2010	449,716	-
SAN FRANCISCO	B3097	02C3001	ROCK HALL	Retrofit T8 Fixtures with 28W T8 lamps and RLO ballasts, and Install daylighting sensors where appropriate	Tier 1	Undecided	1/1/2010	3/1/2011	197,044	-
SAN FRANCISCO	B3098	02C3002	GENENTECH HA	Retrofit T8 Fixtures with 28W T8 lamps and RLO ballasts, and Install daylighting sensors where appropriate	Tier 1	Undecided	1/1/2010	3/1/2011	1,119,952	-
SAN FRANCISCO	B3099	02C3003	COMMUNITY CE	Retrofit T8 Fixtures with 28W T8 lamps and RLO ballasts, and Install daylighting sensors where appropriate	Tier 1	Undecided	1/1/2010	3/1/2011	234,376	-
SAN FRANCISCO	B3103	02C3034	BYERS HALL	Retrofit T8 Fixtures with 28W T8 lamps and RLO ballasts, and Install daylighting sensors where appropriate	Tier 1	Undecided	1/1/2010	3/1/2011	159,429	-
SAN FRANCISCO MC	B3528	02C2020	MTZ 2330 POS (S Building)	Monitoring Based Commissioning	Tier 1	Undecided	2/1/2009	12/1/2010	58,496	10,250
SAN FRANCISCO MC	B3529	02C2020	MTZ 2330 POS (S Building)	Retrofit T8 and T12 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy and Daylighting Sensors in Appropriate Areas	Tier 1	Undecided	2/1/2009	12/1/2010	99,514	-
SAN FRANCISCO MC	B3540	02C2036	MTZ 1701 DIV (T Building)	Monitoring Based Commissioning	Tier 1	Undecided	2/1/2009	12/1/2010	111,307	6,104
SAN FRANCISCO MC	B3541	02C2036	MTZ 1701 DIV (T Building)	Retrofit T8 and T12 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy and Daylighting Sensors in Appropriate Areas	Tier 1	Undecided	2/1/2009	12/1/2010	95,421	-
SAN FRANCISCO MC	B3549	02C2408	UC CLINICS (ACC)	Retrofit T8 and T12 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy and Daylighting Sensors in Appropriate Areas	Tier 1	Undecided	2/1/2009	12/1/2010	1,051,278	-
SAN FRANCISCO MC	B3553	02C3004	MTZ CANCER C (OCC, H Building)	Retrofit T8 and T12 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy and Daylighting Sensors in Appropriate Areas	Tier 1	Undecided	2/1/2009	12/1/2010	175,639	-
SAN FRANCISCO MC	B3556	02C3520	2300 HARRISO	Monitoring Based Commissioning	Tier 1	Undecided	2/1/2009	12/1/2010	50,430	6,877
SAN FRANCISCO MC	B3557	02C3520	2300 HARRISO	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts	Tier 1	Undecided	2/1/2009	12/1/2010	75,993	-
DAVIS	C1006	03C4708	DUTTON HALL	AHU 1, 2 - Spot Cooling	Tier 1	In House	9/30/2010	12/30/2011	200,969	37,000
DAVIS	C1007	03C3207	HART	AC 1 - Spot Cooling	Tier 1	In House	1/1/2010	12/30/2011	25,306	-
DAVIS	C1008	03C4821	MATH SCI	AHU 1 to 3 - SP Reset	Tier 1	In House	3/30/2011	12/30/2011	99,243	9,025
DAVIS	C1009	03C4786	GENOME & BIO	AHU 1 to 4 & 9 - SP Reset	Tier 1	In House	3/30/2011	12/30/2011	65,476	688
DAVIS	C1010	03C4786	GENOME & BIO	AHU 5, 6, 8 - SP Reset	Tier 1	In House	3/30/2011	12/30/2011	86,020	1,088
DAVIS	C1011	03C4786	GENOME & BIO	AHU 7 - SP Reset	Tier 1	In House	3/30/2011	12/30/2011	17,734	2,300
DAVIS	C1018	03C4004	BAINER	RF3, 4 CAV - VSD	Tier 1	In House	3/30/2011	12/30/2011	28,785	650
DAVIS	C1019	03C4726	PLNT&ENV SCI	AHU 2 to 5 - SP Reset	Tier 1	In House	3/30/2011	12/30/2011	148,238	23,800
DAVIS	C1020	03C4726	PLNT&ENV SCI	AHU 6, 7 - SP Reset	Tier 1	In House	3/30/2011	12/30/2011	31,413	1,825
DAVIS	C1021	03C4632	ACADMC SURGE	AHU 3 - SP Reset	Tier 1	In House	3/30/2011	12/30/2011	75,920	10,462
DAVIS	C1022	03C4632	ACADMC SURGE	AHU 5 - SP Reset	Tier 1	In House	3/30/2011	12/30/2011	45,953	(988)
DAVIS	C1025	03C4725	ENGINEER 3	AH 2 - SP Reset	Tier 1	In House	9/1/2010	12/30/2011	46,630	5,425
DAVIS	C1026	03C4725	ENGINEER 3	AH 3, 4 - SP Reset	Tier 1	In House	9/1/2010	12/30/2011	44,928	2,888
DAVIS	C1027	03C4725	ENGINEER 3	AH 5 - SP Reset	Tier 1	In House	9/1/2010	12/30/2011	12,342	825
DAVIS	C1032	03C3971	ART	Art Hall - AC 1,2,3 - CAV to VAV & SP reset	Tier 1	Job Order	3/30/2011	12/30/2011	119,848	30,038
DAVIS	C1033	03C3390	LIB	1S, 3S, AC51, AC52, AC53, AC54, AHU01- CAV to VAV	Tier 1	Job Order	9/30/2008	12/30/2011	1,713,727	269,638
DAVIS	C1034	03C3390	LIB	AC 1, AC 2, AHU 02 - SP Reset	Tier 1	In House	3/30/2008	12/30/2009	536,652	86,188
DAVIS	C1036	03C4428	MED SCI I B	Spot cooling, CAV to VAV - SF 1, AC 4	Tier 1	Job Order	3/30/2011	12/30/2011	106,657	688
DAVIS	C1038	03C4428	MED SCI I B	CAV to VAV - MZ 1	Tier 1	Job Order	3/30/2011	12/30/2011	48,871	(162)
DAVIS	C1042	03C4799	ARC	AHU 1 - SP Reset	Tier 1	In House	9/30/2010	9/30/2011	6,879	1,338
DAVIS	C1043	03C4799	ARC	AHU 2 - SP reset	Tier 1	In House	9/30/2010	9/30/2011	6,205	(12)

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
DAVIS	C1045	03C4799	ARC	AHU 5, 7 - SP Reset	Tier 1	In House	9/30/2010	9/30/2011	91,659	9,550
DAVIS	C1055	03C4656	SOCSCI&HUMAN	AH 3, 5, 6, 7, 8, 9, 10 - Spot cooling & SP Reset	Tier 1	In House	9/30/2010	9/30/2011	223,253	44,550
DAVIS	C1056	03C4792	SCIENCES LAB	AHU 1 Spot Cooling	Tier 1	In House	9/30/2010	9/30/2011	17,551	6,412
DAVIS	C1057	03CWIDE	CAMPUSWIDE	Add O2 trim and B-1/B-2 VFDs	Tier 1			12/15/2011	359,530	38,584
DAVIS	C1059	03CWIDE	CAMPUSWIDE	Install Condensing Stack Economizer	Tier 1			12/30/2011	(306,600)	242,360
DAVIS	C1061	03CWIDE	CAMPUSWIDE	Free Cooling HX - TES	Tier 1	Undecided	6/30/2008	12/30/2009	953,259	-
DAVIS	C1062	03CWIDE	CAMPUSWIDE	Free Cooling HX - CHCP	Tier 1	Undecided	6/30/2008	12/30/2009	953,259	-
DAVIS	C3001	03C4799	ARC	Replace gym and racquetball court HIDs with fluroescent high bays and occupancy sensors	Tier 1	Job Order	9/30/2008	12/30/2009	278,369	-
DAVIS	C3002	03C4444	ARC PAVILION	Replace practice court gym HIDs with fluroescent high bays and occupancy sensors	Tier 1	Job Order	9/30/2008	12/30/2009	125,266	-
DAVIS	C3003	03C3331	HICKEY GYM	Replace Gym HIDs with fluroescent "high bays" with occupancy sensors	Tier 1	Job Order	9/30/2008	12/30/2009	90,090	-
DAVIS	C3004	03C4645	PARKING NE	Replace existing HID fixtures with new fluorescent fixtures/sensors	Tier 1		9/30/2008	12/30/2011	418,640	-
DAVIS	C3005	03CWIDE	CAMPUSWIDE	Replace existing HID fixtures with new fluorescent fixtures/sensors	Tier 1		9/30/2008	12/30/2011	416,465	-
DAVIS	C3006	03CWIDE	CAMPUSWIDE	Replace existing HID fixtures with new fluorescent fixtures	Tier 1		9/30/2008	12/30/2011	735,665	-
DAVIS	C3032	03C3207	HART	Monitoring Based Commissioning	Tier 1	Other	1/1/2009	11/30/2011	55,063	7,509
DAVIS	C3033	03C3266	YOUNG	Monitoring Based Commissioning	Tier 1	Other	3/30/2008	12/30/2010	164,683	17,688
DAVIS	C3034	03C3320	CRUESS	SBD, New/Renov - Cruess Hall Renovations	Tier 1	Undecided	3/30/2008	6/30/2010	209,790	19,656
DAVIS	C3035	03C3331	HICKEY GYM	Monitoring Based Commissioning	Tier 1	Other	3/30/2008	12/30/2010	63,788	8,698
DAVIS	C3036	03C3350	EVERSN	Monitoring Based Commissioning	Tier 1	Other	3/30/2008	12/30/2010	36,669	5,000
DAVIS	C3037	03C3351	WICKSN	SBD, New/Renov - Wickson Renovation (1 of 2)	Tier 1	Undecided	1/1/2009	12/30/2011	458,407	21,844
DAVIS	C3039	03C3390	LIB	Monitoring Based Commissioning	Tier 1			12/15/2011	757,342	81,344
DAVIS	C3041	03C3487	VITFLB	SBD, New/Renov - Viticulture and Enology Research and Teaching Winery	Tier 1	Design Build	11/1/2008	3/1/2011	398,277	18,978
DAVIS	C3042	03C3493	HARING	SBD, New/Renov - Haring Hall Renovations	Tier 1			12/15/2011	488,797	45,797
DAVIS	C3043	03C3607	HOAGLD	Monitoring Based Commissioning	Tier 1	Other	3/30/2008	12/30/2010	98,545	10,584
DAVIS	C3044	03C3745	VRHIES	Monitoring Based Commissioning	Tier 1	Other	3/30/2008	12/30/2010	37,588	5,126
DAVIS	C3045	03C3769	SEG FOOD SER	SBD, New/Renov - Segundo Services Center	Tier 1	Undecided	11/1/2008	11/30/2011	129,870	12,168
DAVIS	C3048	03C3803	OLSON	Monitoring Based Commissioning	Tier 1	Other	3/30/2008	12/30/2010	43,021	5,867
DAVIS	C3049	03C3815	SPROUL	Monitoring Based Commissioning	Tier 1	Other	3/30/2008	12/30/2010	38,945	5,311
DAVIS	C3050	03C3961	CHEM	SBD, New/Renov - Chemistry Building Renovations (1 of 2)	Tier 1			12/18/2011	882,369	42,046
DAVIS	C3051	03C3961	CHEM	SBD, New/Renov - Chemistry Building Renovations (2 of 2)	Tier 1			12/18/2011	882,369	42,046
DAVIS	C3052	03C3970	MUSIC	Monitoring Based Commissioning	Tier 1	Other	3/30/2008	12/30/2010	34,020	3,654
DAVIS	C3053	03C3970	MUSIC	SBD, New/Renov - Music Instruction and Recital Building	Tier 1	Undecided		6/30/2011	50,450	4,727
DAVIS	C3054	03C3971	ART	Monitoring Based Commissioning	Tier 1	Other	3/30/2008	12/30/2010	39,193	5,345
DAVIS	C3055	03C3972	WRIGHT HALL	Monitoring Based Commissioning	Tier 1	Other	3/30/2008	12/30/2010	87,980	9,450
DAVIS	C3058	03C4073	STORER	Monitoring Based Commissioning	Tier 1	Other	3/30/2008	12/30/2010	173,328	18,617
DAVIS	C3059	03C4098	SURGE 3	Monitoring Based Commissioning	Tier 1	Other	3/30/2008	12/30/2010	110,465	11,865
DAVIS	C3061	03C4272	VMTH FEED	SBD, New/Renov - Briggs Hall Safety Improvement and Building Renewal (1 of 2)	Tier 1			12/15/2011	811,734	38,680
DAVIS	C3062	03C4273	BRIGGS	SBD, New/Renov - Briggs Hall Safety Improvement and Building Renewal (2 of 2)	Tier 1			12/15/2011	811,734	38,680
DAVIS	C3064	03C4427	TUPPER HALL	SBD, New/Renov - Tupper Hall 2nd Floor Laboratory Remodel	Tier 1	Design - Bid	3/30/2008	12/30/2010	168,850	8,046
DAVIS	C3065	03C4428	MED SCI I B	Monitoring Based Commissioning	Tier 1	Other	3/30/2008	12/30/2010	38,616	5,266
DAVIS	C3066	03C4444	ARC PAVILION	Monitoring Based Commissioning	Tier 1	Other	3/30/2008	12/30/2010	275,337	29,573
DAVIS	C3067	03C4466	VET MED 2	Monitoring Based Commissioning	Tier 1	Other	3/30/2008	12/30/2010	85,050	9,135
DAVIS	C3069	03C4556	MEYER	Monitoring Based Commissioning	Tier 1	Other	6/30/2008	12/30/2011	393,543	42,269
DAVIS	C3070	03C4557	TERCERO TRLA	SBD, New/Renov - Tercero Sout Student Housing Phase 2	Tier 1	Design - Bid	11/1/2008	12/30/2010	298,631	27,980
DAVIS	C3071	03C4567	THURMAN	Monitoring Based Commissioning	Tier 1	Other	6/30/2008	12/30/2010	87,911	9,442
DAVIS	C3072	03C4610	PRIM RSCH OF	SBD, New/Renov - Calif National Primate Research Center Virology	Tier 1	Design - Bid	3/30/2008	12/30/2010	53,935	2,570
DAVIS	C3073	03C4632	ACADMC SURGE	Monitoring Based Commissioning	Tier 1	Other	6/30/2008	12/30/2010	96,704	13,187
DAVIS	C3074	03C4633	KEMPER	Monitoring Based Commissioning	Tier 1	Other	6/30/2008	12/30/2010	373,063	40,070
DAVIS	C3075	03C4656	SOCSCI&HUMAN	Monitoring Based Commissioning	Tier 1	Other	6/30/2008	12/30/2010	110,182	15,025
DAVIS	C3076	03C4684	CTR COMP MED	Monitoring Based Commissioning	Tier 1	Other	6/30/2008	12/30/2010	53,975	5,797

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
DAVIS	C3077	03C4708	DUTTON HALL	Monitoring Based Commissioning	Tier 1	Other	6/30/2008	12/30/2010	31,724	4,326
DAVIS	C3078	03C4716	MADDY LAB	Monitoring Based Commissioning	Tier 1	Other	6/30/2008	12/30/2010	51,474	5,529
DAVIS	C3080	03C4725	ENGINEER 3	Monitoring Based Commissioning	Tier 1	Other	6/30/2008	12/30/2011	127,717	13,718
DAVIS	C3081	03C4786	GENOME & BIO	Monitoring Based Commissioning	Tier 1	Other	3/30/2008	6/30/2011	432,725	46,478
DAVIS	C3082	03C4792	SCIENCES LAB	Monitoring Based Commissioning	Tier 1	Other	6/30/2008	12/30/2010	264,078	28,364
DAVIS	C3083	03C4795	VM LAB FAC	Monitoring Based Commissioning	Tier 1	Other	3/30/2008	6/30/2011	79,885	8,580
DAVIS	C3084	03C4799	ARC	Monitoring Based Commissioning	Tier 1	Other	3/30/2008	6/30/2011	325,326	34,942
DAVIS	C3085	03C4806	SEGN THOMPSN	Monitoring Based Commissioning	Tier 1	Other	7/1/2008	9/30/2010	32,395	4,417
DAVIS	C3086	03C4821	MATH SCI	Monitoring Based Commissioning	Tier 1	Other	3/30/2008	6/30/2011	50,545	6,893
DAVIS	C3087	03C4825	TECS2 LABEN	Monitoring Based Commissioning	Tier 1	Other	7/1/2008	9/30/2010	43,416	5,920
DAVIS	C3089	03C9526	OXFORD CMNS	Oxford Kitchen Hood Controls	Tier 1	Design - Bid	3/30/2008	12/30/2010	57,873	2,488
DAVIS	C3090	03C9526	OXFORD CMNS	SBD, New/Renov - Oxford Circle Dining Commons	Tier 1	Design Build	3/30/2008	7/30/2010	66,081	6,191
DAVIS	C3093	03C9968	DV 3820 CHLS	Monitoring Based Commissioning	Tier 1	Other	3/30/2008	12/30/2010	42,395	5,781
DAVIS	C3094	03CTBD1	STUDENT RESOURCE CENTER	SBD, New/Renov - Student Resource Center	Tier 1	Undecided	3/1/2009	12/30/2011	79,920	7,488
DAVIS	C3098	03CTBD5	GRADUATE SCHOOL OF MANAGEMENT AND CONFERENCE CENTER	SBD, New/Renov - Graduate School of Management and Conference Center	Tier 1	Design - Bid	3/30/2008	12/30/2009	278,222	26,068
DAVIS	C3102	03CWIDE	CAMPUSWIDE	Phase 1: Replace 200 stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in campus buildings	Tier 1	Job Order	6/30/2008	12/30/2009	70,000	-
DAVIS	C3104	03CWide	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2009	Tier 1	Undecided		12/30/2009	454,550	-
DAVIS	C3105	03CWide	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2009	Tier 1	Undecided		12/30/2009	454,550	-
DAVIS	C3107	03CWide	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2010	Tier 1	Undecided		12/10/2010	454,550	-
DAVIS	C3108	03CWide	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2010	Tier 1	Undecided		12/10/2010	454,550	-
DAVIS	C3110	03CWide	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2011	Tier 1	Undecided		12/30/2011	454,550	-
DAVIS	C3111	03CWide	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2011	Tier 1	Undecided		12/30/2011	454,550	-
DAVIS	C3122	03CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 1	Undecided		12/30/2010	28,172	2,640
DAVIS	C3123	03CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 1	Undecided		12/30/2011	28,172	2,640
DAVIS	C3137	03CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 1	Design - Bid	7/1/2008	12/30/2010	11,269	1,056
DAVIS	C3138	03CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 1	Design Build	7/1/2009	12/30/2011	11,269	1,056
DAVIS	C3144	03CWIDE	CAMPUSWIDE	Refrigerators Phase 1 of 4: 100 Energy Star Refrigerator Replacements	Tier 1	Other	3/30/2008	9/1/2009	224,300	-
DAVIS	C3145	03CWIDE	CAMPUSWIDE	Refrigerators Phase 2 of 4: 100 Energy Star Refrigerator Replacements	Tier 1	Other	3/30/2009	9/1/2010	224,300	-
DAVIS	C3146	03CWIDE	CAMPUSWIDE	Refrigerators Phase 3 of 4: 100 Energy Star Refrigerator Replacements	Tier 1	Other	3/30/2010	9/1/2011	224,300	-
DAVIS	C3147	03CWIDE	CAMPUSWIDE	Refrigerators Phase 4 of 4: 77 Energy Star Refrigerator Replacements	Tier 1	Other	3/30/2010	9/1/2011	172,711	-
DAVIS	C3191	03C3803	OLSON	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 1			12/15/2011	92,246	-
DAVIS	C3200	03C4051	KING	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 1			12/15/2011	261,835	-
DAVIS	C3205	03C4273	BRIGGS	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 1			12/20/2011	263,518	-
DAVIS	C3214	03C4556	MEYER	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 1			12/15/2011	284,975	-
DAVIS	C3217	03C4633	KEMPER	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 1			12/15/2011	284,678	-
DAVIS	C3218	03C4656	SOCSCI&HUMAN	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 1			12/15/2011	255,111	-
DAVIS	C3219	03C4683	LIF-SCI ADN	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 1			12/15/2011	181,905	-

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
DAVIS	C3255	03CWIDE	CAMPUSWIDE	Variable Speed Circulation Pump - Shell Pool (1)	Tier 1	In House	6/30/2008	12/30/2010	45,605	-
DAVIS	C3256	03CWIDE	CAMPUSWIDE	Variable Speed Circulation Pump - Shell Pool (2)	Tier 1	In House	6/30/2008	12/30/2010	45,605	-
DAVIS	C3257	03CWIDE	CAMPUSWIDE	Variable Speed Circulation Pump - Recreation Pool	Tier 1	In House	6/30/2008	12/30/2010	84,730	-
DAVIS	C3258	03CWIDE	CAMPUSWIDE	Variable Speed Circulation Pump - Hickey Pool	Tier 1	In House	6/30/2008	12/30/2010	37,553	-
DAVIS	C3262	03CWIDE	CAMPUSWIDE	Pool Covers - Recreation Pool	Tier 1	Undecided	6/30/2008	12/30/2009	-	23,730
DAVIS	C3278	03CWIDE	CAMPUSWIDE	Install controller on vending machine (e.g. Vending Miser)	Tier 1	Other		12/30/2011	250,460	-
DAVIS	C3279	03C3961	CHEM	Test and Balance	Tier 1	Job Order	6/30/2008	12/30/2009	78,591	25,818
DAVIS	C3283	03C3961B	CHEM ANX	Test and Balance	Tier 1	Job Order	6/30/2008	12/30/2009	28,724	13,251
RIVERSIDE	E3016	05CP5414	PHYSICAL SCI	Monitoring Based Commissioning	Tier 1	Design - Bid	1/1/2011	6/1/2011	254,600	27,346
RIVERSIDE	E3020	05CP5501	BATCHELOR	SBD, New/Renov - Batchelor Hall Building Systems Renewal	Tier 1	Design - Bid	1/1/2011	6/1/2011	280,040	26,238
RIVERSIDE	E3038	05CWide	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2010	Tier 1	Design - Bid	3/28/2008	12/31/2009	454,550	-
RIVERSIDE	E3040	05CWide	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2009	Tier 1	Design - Bid	3/28/2008	12/31/2009	-	28,409
RIVERSIDE	E3077	05CP5186	BIOLOGIC SCI	Placeholder HVAC Project - Projected from Systemwide Average of SEP Audits to Date	Tier 1	Undecided	6/1/2010	6/1/2011	225,480	18,960
RIVERSIDE	E3078	05CP5194	ENGINEERING2	Placeholder HVAC Project - Projected from Systemwide Average of SEP Audits to Date	Tier 1	Undecided	9/1/2009	8/1/2010	656,050	55,160
RIVERSIDE	E3080	05CP5261	BOURNS	Placeholder HVAC Project - Projected from Systemwide Average of SEP Audits to Date	Tier 1	Undecided	6/1/2010	6/1/2011	652,740	54,880
RIVERSIDE	E3082	05CP5307	HUM & SOC SC	Placeholder HVAC Project - Projected from Systemwide Average of SEP Audits to Date	Tier 1	Undecided	9/1/2009	8/1/2010	183,190	21,090
RIVERSIDE	E3085	05CP5334	PE	Placeholder HVAC Project - Projected from Systemwide Average of SEP Audits to Date	Tier 1	undecided	9/1/2009	8/1/2010	114,680	13,200
RIVERSIDE	E3086	05CP5335	GEOLOGY	Placeholder HVAC Project - Projected from Systemwide Average of SEP Audits to Date	Tier 1	Undecided	6/1/2010	6/1/2011	398,730	33,530
RIVERSIDE	E3090	05CP5380	CAMPUS SURGE	Placeholder HVAC Project - Projected from Systemwide Average of SEP Audits to Date	Tier 1	Undecided	6/1/2010	6/1/2011	125,060	14,400
RIVERSIDE	E3091	05CP5411	ARTS	Placeholder HVAC Project - Projected from Systemwide Average of SEP Audits to Date	Tier 1	Undecided	6/1/2010	6/1/2011	184,390	21,230
RIVERSIDE	E3093	05CP5417	ENTOMOLOGY	Placeholder HVAC Project - Projected from Systemwide Average of SEP Audits to Date	Tier 1	Undecided	6/1/2010	6/1/2011	288,260	24,240
RIVERSIDE	E3096	05CP5497	OLMSTED	Placeholder HVAC Project - Projected from Systemwide Average of SEP Audits to Date	Tier 1	Undecided	9/1/2009	8/1/2010	160,080	18,430
RIVERSIDE	E3099	05CP5508	PIERCE	Placeholder HVAC Project - Projected from Systemwide Average of SEP Audits to Date	Tier 1	Undecided	9/1/2009	8/1/2010	586,990	49,350
SAN DIEGO	F2051	06C6129	CMRR	AHU'S CAV TO VAV RETROFIT	Tier 1	Design - Bid	1/1/2009	6/1/2011	133,133	17,675
SAN DIEGO	F2052	06C6129	CMRR	AH-1, AH-2 & AH-3 - CV to VAV Lab Hoods	Tier 1	Design - Bid	1/1/2009	6/1/2011	473,709	29,975
SAN DIEGO	F2053	06C6132	ENG UNIT 2	VAV FUMEHOOD EXHAUST FANS	Tier 1	Design - Bid	1/1/2009	12/1/2010	1,834,437	105,900
SAN DIEGO	F2054	06C6135	CENT MOL GEN	AH-1, AH-2 & AH-3 - CV TO VAV FUME HOOD	Tier 1	Design - Bid	1/1/2009	6/1/2011	604,652	38,662
SAN DIEGO	F2055	06C6135	CENT MOL GEN	AHU-4&5 - RETROFIT CAV TO VAV	Tier 1	Design - Bid	1/1/2009	6/1/2011	80,513	10,688
SAN DIEGO	F2056	06C6135	CENT MOL GEN	AHU-6 - RETROFIT INLET GUIDE VANES WITH VFD	Tier 1	Design Build	1/1/2009	6/1/2011	51,858	4,988
SAN DIEGO	F2057	06C6143	CMM WEST	AHU's - CV TO VAV FUMEHOODS	Tier 1	Design - Bid	1/1/2009	6/1/2011	1,371,924	77,550
SAN DIEGO	F2060	06C6176	CMM EAST	AHU's - CV TO VAV FUMEHOODS	Tier 1	Design - Bid	1/1/2009	6/1/2010	2,057,886	116,325
SAN DIEGO	F2061	06C6206	HUBBS HALL	AHU's - CAV TO VAV FUME HOODS	Tier 1	Design - Bid	1/1/2009	6/1/2010	1,326,097	91,600
SAN DIEGO	F2064	06C6328	SVERDRUP	AH-1 - CV TO VAV FUMEHOODS	Tier 1	Design - Bid	1/1/2009	12/1/2009	1,238,103	78,350
SAN DIEGO	F2065	06C6135	CENT MOL GEN	S-1&3 - CV TO VAV FUMEHOODS	Tier 1	Design - Bid	1/1/2009	6/1/2011	1,481,230	83,850
SAN DIEGO	F2068	06C6510	GYMNASIUM	HV'S - CV TO VAV RETROFIT	Tier 1	Design Build	1/1/2009	12/1/2009	236,299	54,550
SAN DIEGO	F2070	06C6598	MANDEVILLE	AHU'S - CAV TO VAV RETROFIT	Tier 1	Design - Bid	1/1/2009	6/1/2011	311,139	46,162
SAN DIEGO	F2072	06C6599	GEISEL LIB	AHU's - CAV TO VAV RETROFIT	Tier 1	Design - Bid	1/1/2009	6/1/2011	3,180,310	278,262
SAN DIEGO	F2074	06C6603	H SS BLDG	SF-1 to SF-6 Retrofit	Tier 1	Design Build	1/1/2009	12/1/2009	941,174	97,250
SAN DIEGO	F2076	06C6701	PRICE CTR	AHU's - Replace Inlet Guide Vanes w/ VFD's	Tier 1	Design - Bid	1/1/2009	12/1/2010	121,633	15,638
SAN DIEGO	F2078	06C6119	MTF	CV to VAV Lab Hoods	Tier 1	Design - Bid	1/1/2010	6/1/2011	1,452,985	174,438
SAN DIEGO	F2079	06C6131	ENG UNIT 1	CV to VAV Lab Hoods	Tier 1	Design - Bid	1/3/2010	6/3/2011	1,106,887	86,975
SAN DIEGO	F2080	06C6156	CLIN SCI BLD	AH-1,2,3,&4 - CV to VAV Lab Hoods	Tier 1	Design - Bid	1/1/2009	6/1/2010	2,179,926	95,500
SAN DIEGO	F2081	06C6352	MAYER HALL	CV to VAV Lab Hoods	Tier 1	Design - Bid	1/4/2010	6/4/2011	716,874	39,500
SAN DIEGO	F2082	06C6355	PACIFIC HALL	CV to VAV Lab Hoods	Tier 1	Design - Bid	1/1/2009	6/1/2010	7,554,024	470,138
SAN DIEGO	F3002	06C6500	REC GYM	Replace existing HID with fluorescent high bays/sensors	Tier 1	Design Build	1/1/2009	12/1/2009	58,457	-
SAN DIEGO	F3004	06CWIDE	CAMPUSWIDE	Variable Speed Circulation Pump - Canyonview East Pool	Tier 1	Design Build	1/1/2009	12/1/2009	59,443	-
SAN DIEGO	F3005	06CWIDE	CAMPUSWIDE	Variable Speed Circulation Pump - Canyonview West Pool	Tier 1	Design Build	1/1/2009	12/1/2009	59,443	-

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
SAN DIEGO	F3006	06CWIDE	CAMPUSWIDE	Variable Speed Circulation Pump - Natatorium Pool	Tier 1	Design Build	1/1/2009	12/1/2009	59,350	-
SAN DIEGO	F3007	06CWide	CAMPUSWIDE	Solar Pool Water Heater - Natatorium Pool	Tier 1	Design Build	1/1/2009	12/1/2009	-	6,303
SAN DIEGO	F3008	06C6115	RIMAC	Monitoring Based Commissioning	Tier 1	Design Build	1/1/2009	6/1/2010	163,231	44,226
SAN DIEGO	F3016	06C6131	ENG UNIT 1	Implement Recommendations in Kuhn & Kuhn Study 2003	Tier 1	Design - Bid	1/1/2009	6/1/2010	621,635	-
SAN DIEGO	F3031	06C6218	NIERENBERG	Monitoring Based Commissioning	Tier 1	Design Build	1/1/2009	12/1/2009	86,030	5,079
SAN DIEGO	F3032	06C6246	NIEREN ANNEX	Monitoring Based Commissioning	Tier 1	Design Build	1/1/2009	12/1/2009	46,200	1,637
SAN DIEGO	F3036	06C6328	SVERDRUP	Install occupancy sensors in classrooms, offices, and appropriate library aras, as well as photocell sensors where appropriate	Tier 1	Job Order	1/1/2009	12/1/2009	16,232	-
SAN DIEGO	F3038	06C6335	CENT UTLTIES	MBCx Central Plant	Tier 1	Design Build	1/1/2009	12/1/2009	750,000	60,000
SAN DIEGO	F3043	06C6352	MAYER HALL	Monitoring Based Commissioning	Tier 1	Design Build	1/1/2009	12/1/2009	167,894	4
SAN DIEGO	F3045	06C6353	BONNER HALL	Monitoring Based Commissioning	Tier 1	Design Build	1/1/2009	12/1/2009	246,034	49
SAN DIEGO	F3048	06C6355	PACIFIC HALL	Implement Recommendations in Kuhn & Kuhn Study 2003	Tier 1	Design - Bid	1/1/2009	6/1/2010	552,534	-
SAN DIEGO	F3049	06C6357	GALBRTH HALL	Monitoring Based Commissioning	Tier 1	Design Build	1/1/2009	12/1/2010	132,784	11,831
SAN DIEGO	F3051	06C6361	YORK HALL	Monitoring Based Commissioning	Tier 1	Design Build	1/1/2009	12/1/2009	209,313	90
SAN DIEGO	F3053	06C6365	TOR PINE NOR	Monitoring Based Commissioning	Tier 1	Design Build	1/1/2009	12/1/2010	69,225	5,722
SAN DIEGO	F3055	06C6367	TOR PIN CTR	Monitoring Based Commissioning	Tier 1	Design Build	1/1/2009	12/1/2010	183,061	15,725
SAN DIEGO	F3061	06C6429	RITTER REPL	Monitoring Based Commissioning	Tier 1	Design Build	1/1/2009	12/1/2009	185,685	5,148
SAN DIEGO	F3070	06C6575	E UTILITIES	Fuel Cell Heat Recovery Chiller	Tier 1	Design Build	1/1/2009	12/1/2009	515,200	-
SAN DIEGO	F3071	06C6575	E UTILITIES	MBCx East Campus Central Plant	Tier 1	Design Build	1/1/2009	12/1/2009	150,000	12,000
SAN DIEGO	F3090	06C6606	MUIR COMMONS	UCSD John Muir Sierra Summit Kichen Hood Controls	Tier 1	Design Build	1/1/2009	12/1/2011	35,819	313
SAN DIEGO	F3095	06C6615	MARSHALL COM	UCSD Ocean View Terrace Kitchen Hood Controls	Tier 1	Design Build	1/1/2009	12/1/2010	35,819	313
SAN DIEGO	F3099	06C6661	CALITIT	Monitoring Based Commissioning	Tier 1	Design Build	1/1/2009	12/1/2011	391,951	47,871
SAN DIEGO	F3102	06C6701	PRICE CTR	Monitoring Based Commissioning	Tier 1	Design Build	1/1/2009	12/1/2009	260,519	17,774
SAN DIEGO	F3111	06C6982	UH SHOP BLDG	Implement Recommendations in March 2006 SDREO Lighting Feasibility Report	Tier 1	Design Build	1/1/2009	12/1/2010	14,347	-
SAN DIEGO	F3131	06CTBD7	MGMT SCHOOL FACILITY	SBD, New/Renov - Management School Facility, Phase 2	Tier 1	Design - Bid	1/1/2009	12/1/2011	249,750	23,400
SAN DIEGO	F3162	06CWIDE	CAMPUSWIDE	SBD, New/Renov - Cogeneration Plant Expansion	Tier 1	Design Build	1/1/2009	12/1/2010	402,077	19,159
SAN DIEGO	F3173	06CWIDE	CAMPUSWIDE	Refrigerators Phase 1 of 4: 100 Energy Star Refrigerator Replacements	Tier 1	Design Build	1/1/2009	12/1/2009	224,300	-
SAN DIEGO	F3174	06CWIDE	CAMPUSWIDE	Refrigerators Phase 2 of 4: 100 Energy Star Refrigerator Replacements	Tier 1	Design Build	1/1/2009	12/1/2010	224,300	-
SAN DIEGO	F3175	06CWIDE	CAMPUSWIDE	Refrigerators Phase 3 of 4: 100 Energy Star Refrigerator Replacements	Tier 1	Design Build	1/1/2009	12/1/2011	224,300	-
SAN DIEGO	F3180	06CWIDE	CAMPUSWIDE	LCD Phase 1 of 6: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	Tier 1	Other	1/1/2009	12/1/2009	213,796	-
SAN DIEGO	F3194	06C6206	HUBBS HALL	Lighting Controls	Tier 1	Design Build	1/1/2009	12/1/2009	27,693	-
SAN DIEGO	F3195	06C6206	HUBBS HALL	VSD Control of CHW Pumps	Tier 1	Design Build	1/1/2009	12/1/2009	36,724	-
SAN DIEGO	F3196	06C6206	HUBBS HALL	VSD Control of HW Pumps	Tier 1	Design Build	1/1/2009	12/1/2009	24,221	1,091
SAN DIEGO	F3198	06C6206	HUBBS HALL	VSD Control of Supply Fans	Tier 1	Design Build	1/1/2009	6/1/2010	71,503	-
SAN DIEGO	F3199	06C6206	HUBBS HALL	Motor Replacements	Tier 1	Design Build	1/1/2009	6/1/2009	10,239	-
SAN DIEGO	F3200	06C6206	HUBBS HALL	Walk-in Cooler Evaporator Fan Controls	Tier 1	Design Build	1/1/2009	12/1/2009	14,444	-
SAN DIEGO	F3201	06C6210	SIO AQUARIUM (BIRCH)	Lighting Replacement	Tier 1	Design Build	1/1/2009	12/1/2010	61,441	-
SAN DIEGO	F3202	06C6210	SIO AQUARIUM (BIRCH)	Lighting Controls	Tier 1	Design Build	1/1/2009	12/1/2010	4,654	-
SAN DIEGO	F3203	06C6210	SIO AQUARIUM (BIRCH)	Turbocor Compressor Retrofit	Tier 1	Design - Bid	1/1/2009	12/1/2010	231,610	-
SAN DIEGO	F3204	06C6210	SIO AQUARIUM (BIRCH)	VSD Control of CHW Pumps	Tier 1	Design Build	1/1/2009	12/1/2010	7,345	-
SAN DIEGO	F3206	06C6210	SIO AQUARIUM (BIRCH)	VSD Control of HW Pumps	Tier 1	Design Build	1/1/2009	12/1/2010	2,907	131
SAN DIEGO	F3207	06C6210	SIO AQUARIUM (BIRCH)	Process Pumping Improvements	Tier 1	Design Build	1/1/2009	12/1/2010	233,720	-
SAN DIEGO	F3208	06C6210	SIO AQUARIUM (BIRCH)	Compressed Air System Upgrade	Tier 1	Design Build	1/1/2009	12/1/2010	65,777	-
SAN DIEGO	F3209	06C6210	SIO AQUARIUM (BIRCH)	Motor Replacements	Tier 1	Design Build	1/1/2009	12/1/2010	47,542	-
SAN DIEGO	F3210	06C6210	SIO AQUARIUM (BIRCH)	Walk-in Cooler Evaporator Fan Controls	Tier 1	Design Build	1/1/2009	12/1/2010	3,611	-
SAN DIEGO	F3211	06C6285	RITTER HALL	Lighting Replacement	Tier 1	Design Build	1/1/2009	12/1/2010	19,624	-
SAN DIEGO	F3212	06C6285	RITTER HALL	Lighting Controls	Tier 1	Design Build	1/1/2009	12/1/2010	21,892	-
SAN DIEGO	F3214	06C6285	RITTER HALL	VSD Control of HW Pumps	Tier 1	Design Build	1/1/2009	12/1/2010	47,836	-
SAN DIEGO	F3215	06C6285	RITTER HALL	VSD Control of Supply Fans	Tier 1	Design Build	1/1/2009	12/1/2010	18,000	-
SAN DIEGO	F3216	06C6285	RITTER HALL	Walk-in Cooler Evaporator Fan Controls	Tier 1	Design Build	1/1/2009	12/1/2010	7,222	-
SAN DIEGO	F3217	06C6360	SCHOLANDER	Lighting Replacement	Tier 1	Design Build	1/1/2009	12/1/2010	9,752	-

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
SAN DIEGO	F3218	06C6218	NIERENBERG	Lighting Controls	Tier 1	Design Build	1/1/2009	12/1/2010	16,550	-
SAN DIEGO	F3219	06C6360	SCHOLANDER	Lighting Controls	Tier 1	Design Build	1/1/2009	12/1/2010	2,542	-
SAN DIEGO	F3220	06C6218	NIERENBERG	VSD Control of CHW Pumps	Tier 1	Design Build	1/1/2009	12/1/2010	4,407	-
SAN DIEGO	F3221	06C6360	SCHOLANDER	VSD Control of CHW Pumps	Tier 1	Design Build	1/1/2009	12/1/2010	4,407	-
SAN DIEGO	F3223	06C6218	NIERENBERG	VSD Control of HW Pumps	Tier 1	Design Build	1/1/2009	12/1/2010	2,907	131
SAN DIEGO	F3224	06C6360	SCHOLANDER	VSD Control of HW Pumps	Tier 1	Design Build	1/1/2009	12/1/2010	1,453	65
SAN DIEGO	F3225	06C6360	SCHOLANDER	CV to VAV Conversion	Tier 1	Design Build	1/1/2009	12/1/2010	33,130	4,016
SAN DIEGO	F3226	06C6360	SCHOLANDER	VSD Control of Supply Fans	Tier 1	Design Build	1/1/2009	12/1/2010	12,618	-
SAN DIEGO	F3227	06C6218	NIERENBERG	Walk-in Cooler Evaporator Fan Controls	Tier 1	Design Build	1/1/2009	12/1/2010	14,444	-
SAN DIEGO	F3228	06C6360	SCHOLANDER	Walk-in Cooler Evaporator Fan Controls	Tier 1	Design Build	1/1/2009	12/1/2010	14,444	-
SAN DIEGO	F3231	06CWIDE	CAMPUSWIDE	Install Low Pressure Drop Filters	Tier 1	Design - Bid	1/1/2009	6/1/2010	4,270,030	-
SAN DIEGO	F3232	06CWIDE	CAMPUSWIDE	SIO Campus Virtual Chilled Water System	Tier 1	Design - Bid	1/1/2009	6/1/2010	952,854	-
SAN DIEGO MC	F3500	06C6157	PERLMAN HOSP	Monitoring Based Commissioning	Tier 1	Design Build	1/1/2009	12/1/2010	154,543	25,660
SAN DIEGO MC	F3502	06C6159	SHILEY EYE	Retrofit T8 and T12 Fixtures with 28 watt T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	Tier 1	Design Build	1/1/2009	12/1/2009	162,226	-
SAN DIEGO MC	F3508	06C6916	UH WEST WING	Implement Recommendations in March 2006 SDREO Lighting Feasilibity Report and Install Occupancy Sensors	Tier 1	Design Build	1/1/2009	12/1/2010	43,719	-
SANTA CRUZ	G1019	07C7920	SOC SCI 1	AH 1, EF 3.1, 3.2, 3.3, 3.4, 7, 8 - Varicone to VSD (for SF & RF) and CAV to VAV (for Exhaust fan only)	Tier 1	Design - Bid	6/1/2009	8/1/2010	49,776	-
SANTA CRUZ	G3003	07C7116	THIMANN LAB	Tie Existing EMS System to Tridium	Tier 1	Design - Bid	10/1/2009	9/1/2010	69,491	3,846
SANTA CRUZ	G3005	07C7175	COMM. BLDG	Tie Existing EMS System to Tridium	Tier 1	Design - Bid	1/1/2010	11/1/2010	70,340	422
SANTA CRUZ	G3006	07C7179	NAT SCI 2	Tie Existing EMS System to Tridium	Tier 1	Design - Bid	1/1/2009	2/1/2010	35,259	3,775
SANTA CRUZ	G3014	07C7775	EARTH MAR SC	Tie Existing EMS System to Tridium	Tier 1	Design - Bid	5/1/2009	6/1/2010	152,287	3,461
SANTA CRUZ	G3018	07C7922	MUSIC CTR	Tie Existing EMS System to Tridium	Tier 1	Design - Bid	6/1/2010	6/1/2011	17,564	1,119
SANTA CRUZ	G3020	07C7935	PARK STRUC 1	Replace existing HID fixtures with new fluorescent fixtures w/sensors	Tier 1	Design - Bid	10/31/2008	12/15/2009	128,667	-
SANTA CRUZ	G3021	07CWIDE	CAMPUSWIDE	Retrofit existing HID pole lights with CF and PSMH	Tier 1	Design - Bid	9/30/2008	12/1/2010	274,863	-
SANTA CRUZ	G3022	07CWIDE	CAMPUSWIDE	Solar Pool Water Heater - East Field House Pool	Tier 1	Design - Bid	10/1/2008	2/1/2010	-	20,917
SANTA CRUZ	G3023	07CWIDE	CAMPUSWIDE	Pool Covers - East Field House Pool	Tier 1	Design - Bid	10/1/2008	11/1/2009	-	64,886
SANTA CRUZ	G3024	07CWIDE	CAMPUSWIDE	High Efficiency Boiler Replacement - East Field House Pool	Tier 1	Design - Bid	10/1/2008	3/1/2010	-	14,269
SANTA CRUZ	G3025	07CWIDE	CAMPUSWIDE	Install controller on vending machine (e.g. Vending Miser)	Tier 1	Other	1/1/2009	11/1/2009	95,745	-
SANTA CRUZ	G3027	07C7116	THIMANN LAB	Monitoring Based Commissioning	Tier 1	Design - Bid	4/1/2010	6/1/2011	145,932	18,848
SANTA CRUZ	G3031	07C7175	COMM. BLDG	Monitoring Based Commissioning	Tier 1	Design - Bid	7/1/2010	10/1/2011	164,126	1,476
SANTA CRUZ	G3032	07C7179	NAT SCI 2	Monitoring Based Commissioning	Tier 1	Design - Bid	9/1/2009	9/1/2010	87,571	18,500
SANTA CRUZ	G3042	07C7782	SCI &ENG LIB	Monitoring Based Commissioning	Tier 1	Design - Bid	9/1/2009	10/1/2010	85,704	938
SANTA CRUZ	G3045	07C7922	MUSIC CTR	Monitoring Based Commissioning	Tier 1	Design - Bid	11/1/2010	11/1/2011	36,885	5,481
SANTA CRUZ	G3046	07C7933	COL 9 DINE	Monitoring Based Commissioning	Tier 1	Design - Bid	6/1/2009	3/1/2010	85,180	769
SANTA CRUZ	G3047	07C7933	COL 9 DINE	UCSC College Nine Kitchen Hood Controls	Tier 1	Design - Bid	10/1/2008	11/1/2009	194,589	11,086
SANTA CRUZ	G3052	07CWIDE	CAMPUSWIDE	Phase 3: Replace 50 additional stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in campus buildings	Tier 1	Design - Bid	6/1/2009	12/1/2010	17,500	-
SANTA CRUZ	G3078	07CWIDE	CAMPUSWIDE	MBCx Central Plant	Tier 1	Design - Bid	1/1/2010	9/10/2011	150,000	12,000
SANTA CRUZ	G3094	07CWIDE	CAMPUSWIDE	Refrigerators Phase 2 of 2: 58 Energy Star Refrigerator Replacements	Tier 1	Other	1/1/2009	1/1/2010	130,094	-
SANTA CRUZ	G3101	07C7115	HAHN STUD SV	Replace Gen1 T8 w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 1	Design - Bid	1/1/2009	8/1/2010	65,473	-
SANTA CRUZ	G3102	07C7116	THIMANN LAB	Replace Gen1 T8 w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 1	Design - Bid	1/1/2009	8/1/2010	133,783	-
SANTA CRUZ	G3103	07C7119	FIELD HSE E	+ Occupancy Sensors + Daylighting	Tier 1	Design - Bid	1/1/2009	8/1/2010	23,787	-
SANTA CRUZ	G3105	07C7175	COMM. BLDG	Replace Gen1 T8 w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 1	Design - Bid	1/1/2009	8/1/2010	59,996	-
SANTA CRUZ	G3106	07C7179	NAT SCI 2	+ Occupancy Sensors + Daylighting	Tier 1	Design - Bid	1/1/2009	8/1/2010	7,849	-
SANTA CRUZ	G3109	07C7194	J BASKIN ENG	+ Occupancy Sensors + Daylighting	Tier 1	Design - Bid	1/1/2009	8/1/2010	53,255	-
SANTA CRUZ	G3113	07C7306	PORTER ACAD D	+ Occupancy Sensors + Daylighting	Tier 1	Design - Bid	1/1/2009	8/1/2010	10,769	-
SANTA CRUZ	G3114	07C7311	TA MAINSTAGE	+ Occupancy Sensors + Daylighting	Tier 1	Design - Bid	1/1/2009	8/1/2010	15,645	-
SANTA CRUZ	G3116	07C7416	OAK ACAD BLD	+ Occupancy Sensors + Daylighting	Tier 1	Design - Bid	1/1/2009	8/1/2010	15,104	-

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
SANTA CRUZ	G3117	07C7744	SINSHEIMR LB	Replace Gen1 T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 w/ 28W T8 & Prem Eff RLO Ballast; + Occupancy Sensors + Daylighting	Tier 1	Design - Bid	1/1/2009	8/1/2010	137,569	-
SANTA CRUZ	G3118	07C7775	EARTH MAR SC	+ Occupancy Sensors + Daylighting	Tier 1	Design - Bid	1/1/2009	8/1/2010	23,808	-
SANTA CRUZ	G3119	07C7782	SCI &ENG LIB	+ Occupancy Sensors + Daylighting	Tier 1	Design - Bid	1/1/2009	8/1/2010	28,078	-
SANTA CRUZ	G3120	07C7920	SOC SCI 1	+ Occupancy Sensors + Daylighting	Tier 1	Design - Bid	1/1/2009	8/1/2010	17,209	-
SANTA CRUZ	G3121	07C7921	SOC SCI 2	+ Occupancy Sensors + Daylighting	Tier 1	Design - Bid	1/1/2009	8/1/2010	19,303	-
SANTA CRUZ	G3122	07C7922	MUSIC CTR	+ Occupancy Sensors + Daylighting	Tier 1	Design - Bid	1/1/2009	8/1/2010	6,256	-
SANTA CRUZ	G3133	07C7744	SINSHEIMR LB	MBCx, Chiller Plant	Tier 1	Design - Bid	6/1/2008	3/1/2010	217,942	2,108
SANTA CRUZ	G3134	07C7919	PHYS SCI BLD	OSA Economizer Repiping for Chilled Water Loop	Tier 1	Design - Bid	9/1/2008	12/1/2010	80,000	6,000
SANTA CRUZ	G3135	07C7744	SINSHEIMR LB	OSA Economizer Repiping for Chilled Water Loop	Tier 1	Design - Bid	9/1/2008	12/1/2010	80,000	6,000
SANTA CRUZ	G3136	07CWIDE	LML DOLPHNRM	VFD install on SeaWater Primary Pumps	Tier 1	Design - Bid	11/1/2008	12/1/2009	76,042	-
SANTA CRUZ	G5017	07C7922	MUSIC CTR	Retrofit CH-1 and CH-2 with frictionless Turbocor Compressors	Tier 1	Design - Bid	11/1/2008	11/1/2009	141,600	-
SANTA BARBARA	H1002	08C8556	HAROLD FRANK	AC 1 - CAV to VAV & Upgrade to DDC	Tier 1	Design - Bid	1/1/2009	12/15/2011	121,580	20,788
SANTA BARBARA	H1003	08C8556	HAROLD FRANK	S-2 - CAV to VAV & Upgrade to DDC	Tier 1	Design - Bid	1/1/2009	12/15/2011	53,694	8,000
SANTA BARBARA	H1004	08C8556	HAROLD FRANK	HV 1 - CAV to VAV & Upgrade to DDC	Tier 1	Design - Bid	1/1/2009	12/15/2011	47,258	11,884
SANTA BARBARA	H1005	08C8556	HAROLD FRANK	HV 2 - CAV to VAV & Upgrade to DDC	Tier 1	Design - Bid	1/1/2009	12/15/2011	43,156	10,357
SANTA BARBARA	H1007	08C8535	NORTH HALL	S 4 - CAV to VAV	Tier 1	Design - Bid	1/1/2009	12/15/2011	5,433	3,621
SANTA BARBARA	H1009	08C8572	BROIDA HALL (Physics)	FH - convert CAV to VAV - (2) Exh Fans & General EF	Tier 1	Design - Bid	1/1/2009	12/15/2010	74,950	12,937
SANTA BARBARA	H1010	08C8571	BIOLOGY 2	AHU SB1, SB2, SB3 - CAV to VAV retrofit	Tier 1	Design - Bid	1/1/2009	12/15/2011	1,187,659	158,462
SANTA BARBARA	H1014	08C8235	LIFESCI	AHU 3 - TOD Controls (w/o Spot Cooling) & Economizer	Tier 1	In House	1/1/2009	12/15/2010	26,732	3,100
SANTA BARBARA	H1017	08C8551	PSYCHOLOGY	S3 - CAV to VAV for Exhaust Fan	Tier 1	Design - Bid	1/1/2009	12/15/2010	2,469	800
SANTA BARBARA	H1018	08C8551	PSYCHOLOGY	S4 - CAV to VAV	Tier 1	Design - Bid	1/1/2009	12/15/2011	30,565	3,296
SANTA BARBARA	H1021	08C8531	MUSIC	1-S1 - CAV to VAV	Tier 1	Design - Bid	1/1/2009	12/15/2011	28,394	6,402
SANTA BARBARA	H1023	08C8515	HSSB	FH Exhaust - add VFD & Autosash Closers	Tier 1	Design - Bid	1/1/2009	12/15/2010	26,208	1,756
SANTA BARBARA	H1025	08CNEW1	STUDENT RESOURCES BLDG (BLDG 221)	AH 3 - SP Reset	Tier 1	Design - Bid	1/1/2009	12/15/2009	889	-
SANTA BARBARA	H1026	08C8503	ENGR 2	convert CAV to VAV - (7) AHUs and FH EF - S-1 thru S-7	Tier 1	Design - Bid	1/1/2009	12/15/2011	1,449,523	87,638
SANTA BARBARA	H3001	08C8243	ICA	Replace existing HID fixtures with new fluorescent fixtures/sensors	Tier 1	Design - Bid	1/1/2009	12/15/2010	16,593	-
SANTA BARBARA	H3002	08C8511	MAC	Replace existing gym and exercise area HIDs with fluorescent "high bays" with occupancy sensors	Tier 1	Design - Bid	1/1/2009	12/15/2010	86,684	-
SANTA BARBARA	H3003	08C8250	MESA PARKING	Replace existing HID with fluorescent/sensors	Tier 1	Design - Bid	1/1/2009	12/15/2010	191,226	-
SANTA BARBARA	H3004	08CWIDE	CAMPUSWIDE	Replace existing gym HIDs with fluorescent "high bays" with sensors (Pavilion Gym)	Tier 1	Design - Bid	1/1/2009	12/15/2010	85,675	-
SANTA BARBARA	H3005	08CWIDE	CAMPUSWIDE	Replace existing gym HIDs with fluorescent high bays with sensors (Thunderdome Gym)	Tier 1	Design - Bid	1/1/2009	12/15/2010	324,249	-
SANTA BARBARA	H3007	08C8225	ENG SCI	New gas Cabinet Exhaust System	Tier 1	Design - Bid	1/1/2009	12/15/2011	99,100	-
SANTA BARBARA	H3008	08CWIDE	CAMPUSWIDE	Fume Hood Sash Closers	Tier 1	Design - Bid	1/1/2009	12/15/2010	976,601	55,785
SANTA BARBARA	H3009	08CWIDE	CAMPUSWIDE	Housing Boiler Replacements & lockout	Tier 1	Design - Bid	2/1/2009	12/15/2011	-	103,335
SANTA BARBARA	H3011	08CWIDE	CAMPUSWIDE	Variable Speed Circulation Pump - Rec Center Pool Pump 1	Tier 1	Undecided	1/1/2009	12/15/2010	61,268	-
SANTA BARBARA	H3012	08CWIDE	CAMPUSWIDE	Variable Speed Circulation Pump - Rec Center Pool Pump 2	Tier 1	Undecided	1/1/2009	12/15/2010	61,268	-
SANTA BARBARA	H3015	08CWIDE	CAMPUSWIDE	Pool Covers - Campus Pool	Tier 1	Design - Bid	1/1/2009	12/15/2009	-	53,425
SANTA BARBARA	H3016	08CWIDE	CAMPUSWIDE	Install controller on vending machine (e.g. Vending Miser)	Tier 1	In House	2/1/2009	12/15/2010	23,547	-
SANTA BARBARA	H3018	08C8535	NORTH HALL	UCSB DATA Center Ventilation Project	Tier 1	Design - Bid	1/1/2009	12/15/2011	288,536	-
SANTA BARBARA	H3020	08CWIDE	CAMPUSWIDE	V-belt to Direct Drive Fan Energy Saving Calculations	Tier 1	Design - Bid	1/1/2009	12/15/2010	1,393,288	-
SANTA BARBARA	H3021	08C8243	ICA	SBD, New/Renov - Intercollegiate Aquatics Center	Tier 1	Design - Bid	1/1/2009	12/15/2010	151,265	7,208
SANTA BARBARA	H3023	08C8266	CNSI	Monitoring Based Commissioning	Tier 1	In House	1/1/2009	12/15/2011	362,050	4,450
SANTA BARBARA	H3028	08C8503	ENGR 2	SBD, New/Renov - Engineering II Life Safety Improvements and Addition	Tier 1	Design - Bid	1/1/2009	12/15/2011	204,181	9,729
SANTA BARBARA	H3030	08C8505	EVENTS CNTR	Monitoring Based Commissioning	Tier 1	Undecided	1/1/2009	12/15/2011	49,485	6,748
SANTA BARBARA	H3031	08C8507	RCVG STG FAC	Monitoring Based Commissioning	Tier 1	In House	1/1/2009	12/15/2010	16,113	2,197
SANTA BARBARA	H3033	08C8515	HSSB	Monitoring Based Commissioning	Tier 1	In House	2/1/2009	12/15/2011	131,301	3,601

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
SANTA BARBARA	H3034	08C8516	RECCEN	Monitoring Based Commissioning	Tier 1	Undecided	1/1/2009	12/15/2011	99,040	24,517
SANTA BARBARA	H3037	08C8527	SANTA ROSA	Monitoring Based Commissioning	Tier 1	Undecided	2/1/2009	12/15/2011	65,061	8,872
SANTA BARBARA	H3039	08C8531	MUSIC	Monitoring Based Commissioning	Tier 1	In House	2/1/2009	12/15/2011	36,727	8,240
SANTA BARBARA	H3041	08C8534	ARTS	Monitoring Based Commissioning	Tier 1	In House	1/1/2009	12/15/2010	149,595	16,068
SANTA BARBARA	H3042	08C8534	ARTS	SBD, New/Renov - Arts Building Seismic Corrections and Renewal	Tier 1	Design - Bid	1/1/2009	12/15/2011	298,967	28,011
SANTA BARBARA	H3043	08C8535	NORTH HALL	Monitoring Based Commissioning	Tier 1	In House	2/1/2009	12/15/2011	47,821	3,630
SANTA BARBARA	H3044	08C8535	NORTH HALL	SBD, New/Renov - North Hall Computer Center Renovations	Tier 1	Design - Bid	1/1/2009	12/15/2011	53,640	2,556
SANTA BARBARA	H3045	08C8542	ORTEGA	Monitoring Based Commissioning	Tier 1	Undecided	2/1/2009	12/15/2011	18,030	2,459
SANTA BARBARA	H3046	08C8542	ORTEGA	UCSB Ortega Kitchen Hood Controls	Tier 1	Design - Bid	2/1/2009	12/15/2011	78,130	1,298
SANTA BARBARA	H3047	08C8542	ORTEGA	SBD, New/Renov - Dining Commons Seismic Corrections and Renovation, Phase 2: Ortega	Tier 1	Design - Bid	2/1/2009	12/15/2011	138,668	12,992
SANTA BARBARA	H3049	08C8547	ANACAPA	Monitoring Based Commissioning	Tier 1	Undecided	2/1/2009	12/15/2011	60,147	8,202
SANTA BARBARA	H3050	08C8548	SANTA CRUZ	Monitoring Based Commissioning	Tier 1	Undecided	2/1/2009	12/15/2011	60,148	8,202
SANTA BARBARA	H3051	08C8549	DE LA GUERRA	Monitoring Based Commissioning	Tier 1	Undecided	2/1/2009	12/15/2011	24,661	3,363
SANTA BARBARA	H3052	08C8549	DE LA GUERRA	UCSB De La Guerre Kitchen Hood Controls	Tier 1	Design - Bid	2/1/2009	12/15/2011	103,952	983
SANTA BARBARA	H3053	08C8549	DE LA GUERRA	UCSB Portola (S. Catalina) Kitchen Hood Controls	Tier 1	Design - Bid	2/1/2009	12/15/2011	78,130	1,298
SANTA BARBARA	H3054	08C8551	PSYCHOLOGY	Monitoring Based Commissioning	Tier 1	In House	2/1/2009	12/15/2011	49,870	3,492
SANTA BARBARA	H3056	08C8553	SAN MIGUEL	Monitoring Based Commissioning	Tier 1	Undecided	2/1/2009	12/15/2011	65,769	8,968
SANTA BARBARA	H3058	08C8557	CHEMISTRY	Monitoring Based Commissioning	Tier 1	In House	1/1/2009	12/15/2011	235,817	13,112
SANTA BARBARA	H3059	08C8558	UNIV CENTER	Monitoring Based Commissioning	Tier 1	Undecided	1/1/2009	12/15/2011	37,455	15,638
SANTA BARBARA	H3060	08C8560	PHELPS HALL	Monitoring Based Commissioning	Tier 1	In House	2/1/2009	12/15/2011	101,300	13,814
SANTA BARBARA	H3062	08C8561	SAN NICOLAS	Monitoring Based Commissioning	Tier 1	Undecided	2/1/2009	12/15/2011	65,412	8,920
SANTA BARBARA	H3063	08C8562	CARRILLO COM	Monitoring Based Commissioning	Tier 1	Undecided	2/1/2009	12/15/2011	17,976	2,451
SANTA BARBARA	H3066	08C8565	ENV HLTH& SA	Monitoring Based Commissioning	Tier 1	In House	1/1/2009	12/15/2010	10,880	1,484
SANTA BARBARA	H3069	08C8571	BIOLOGY 2	Monitoring Based Commissioning	Tier 1	In House	1/1/2009	12/15/2011	253,223	22,716
SANTA BARBARA	H3070	08C8571	BIOLOGY 2	SBD, New/Renov - Biological Science II Lab Infrastructure Improvements	Tier 1	Design - Bid	1/1/2009	12/15/2011	68,659	3,272
SANTA BARBARA	H3071	08C8571	BIOLOGY 2	SBD, New/Renov - Biological Science II Lab Renovations/Stem Cell	Tier 1	Design - Bid	1/1/2009	12/15/2011	134,100	6,390
SANTA BARBARA	H3076	08C8586	SAN RAFAEL W	Monitoring Based Commissioning	Tier 1	Undecided	2/1/2009	12/15/2011	47,334	6,455
SANTA BARBARA	H3077	08C8615	MRL	Monitoring Based Commissioning	Tier 1	In House	2/1/2009	12/15/2011	117,271	529
SANTA BARBARA	H3078	08C8657	PSB NORTH	Monitoring Based Commissioning	Tier 1	In House	1/1/2009	12/15/2011	204,983	3,733
SANTA BARBARA	H3080	08C8860	FRANCISCO TO	Monitoring Based Commissioning	Tier 1	Undecided	2/1/2009	12/15/2011	193,347	26,366
SANTA BARBARA	H3081	08C8879	JALAMA	Monitoring Based Commissioning	Tier 1	Undecided	2/1/2009	12/15/2011	65,450	8,925
SANTA BARBARA	H3082	08C8927	STORKE-HOLL	Monitoring Based Commissioning	Tier 1	In House	2/1/2009	12/15/2011	12,040	1,642
SANTA BARBARA	H3083	08C8941	EMBARCADERO	Monitoring Based Commissioning	Tier 1	In House	2/1/2009	12/15/2011	9,020	1,230
SANTA BARBARA	H3086	08CWIDE	CAMPUSWIDE	Phase 2: Replace 200 additional stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in campus buildings	Tier 1	Design - Bid	1/1/2009	12/15/2009	70,000	-
SANTA BARBARA	H3087	08CWIDE	CAMPUSWIDE	Phase 3: Replace 50 additional stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in campus buildings	Tier 1	Design - Bid	1/1/2009	12/15/2009	17,500	-
SANTA BARBARA	H3088	08CWide	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2009	Tier 1	Design - Bid	2/1/2009	12/1/2011	454,550	-
SANTA BARBARA	H3089	08CWide	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2009	Tier 1	Design - Bid	2/1/2009	12/1/2011	454,550	-
SANTA BARBARA	H3090	08CWide	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2009	Tier 1	Design - Bid	1/1/2009	12/15/2011	-	28,409
SANTA BARBARA	H3091	08CWide	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2010	Tier 1	Design - Bid	1/1/2009	12/15/2011	454,550	-
SANTA BARBARA	H3092	08CWide	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2010	Tier 1	Design - Bid	1/1/2009	12/15/2011	454,550	-
SANTA BARBARA	H3094	08CWide	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2011	Tier 1	Design - Bid	1/1/2009	12/15/2011	454,550	-

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
SANTA BARBARA	H3095	08CWide	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2011	Tier 1	Design - Bid	1/1/2009	12/15/2011	454,550	-
SANTA BARBARA	H3111	08CWIDEH	CAMPUSWIDE - HOUSING	Phase 1: Replace 100 stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in residential buildings	Tier 1	Design - Bid	2/1/2009	12/15/2010	35,000	-
SANTA BARBARA	H3112	08CWIDEH	CAMPUSWIDE - HOUSING	Phase 2: Replace 100 additional stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in residential buildings	Tier 1	Design - Bid	2/1/2009	12/15/2010	35,000	-
SANTA BARBARA	H3117	08CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Storke Field Artificial Turf and Lighting	Tier 1	Design Build	2/1/2009	12/15/2010	14,086	1,320
SANTA BARBARA	H3124	08C8505	EVENTS CNTR	Replace Gen1 T8 and T12 mix w/ T8 dimmables; + Occupancy Sensors	Tier 1	Design - Bid	1/1/2009	12/15/2010	161,630	-
SANTA BARBARA	H3127	08C8516	RECCEN	Replace Gen1 T8 w/ T8 dimmables; + Occupancy Sensors	Tier 1	Design - Bid	1/1/2009	12/15/2010	190,314	-
SANTA BARBARA	H3128	08C8520	MAR SCI BLDG	Replace Gen1 T8 w/ T8 dimmables; + Occupancy Sensors	Tier 1	Design - Bid	1/1/2009	12/15/2010	154,771	-
SANTA BARBARA	H3129	08C8521	BREN	Replace Gen2 T8 w/ T8 dimmables + Occupancy Sensors	Tier 1	Design - Bid	1/1/2009	12/15/2011	108,773	-
SANTA BARBARA	H3130	08C8525	DAVIDSON LIB (Main)	Replace Gen2 T8 w/ T8 dimmables + Occupancy Sensors	Tier 1	Design - Bid	1/1/2009	12/15/2010	528,122	-
SANTA BARBARA	H3132	08C8527	SANTA ROSA	Replace Gen1 T8 and T12 mix w/ T8 dimmables; + Occupancy Sensors	Tier 1	Design - Bid	2/1/2009	12/15/2010	192,212	-
SANTA BARBARA	H3133	08C8528	SOUTH HALL	Replace Gen2 T8 w/ T8 dimmables + Occupancy Sensors	Tier 1	Design - Bid	1/1/2009	12/15/2009	237,879	-
SANTA BARBARA	H3135	08C8533	ROBERTSN GYM	Replace Gen2 T8 w/ T8 dimmables + Occupancy Sensors	Tier 1	Design - Bid	1/1/2009	12/15/2009	142,378	-
SANTA BARBARA	H3136	08C8534	ARTS	Replace Gen2 T8 w/ T8 dimmables + Occupancy Sensors	Tier 1	Design - Bid	1/1/2010	12/15/2011	119,131	-
SANTA BARBARA	H3137	08C8535	NORTH HALL	Replace Gen1 T8 w/ T8 dimmables; + Occupancy Sensors	Tier 1	Design - Bid	1/1/2009	12/15/2009	180,175	-
SANTA BARBARA	H3139	08C8547	ANACAPA	Replace Gen1 T8 and T12 mix w/ T8 dimmables; + Occupancy Sensors	Tier 1	Design - Bid	2/1/2009	12/15/2010	177,625	-
SANTA BARBARA	H3140	08C8548	SANTA CRUZ	Replace Gen1 T8 and T12 mix w/ T8 dimmables; + Occupancy Sensors	Tier 1	Design - Bid	2/1/2009	12/15/2010	177,186	-
SANTA BARBARA	H3141	08C8549	DE LA GUERRA	Replace Gen1 T8 w/ T8 dimmables; + Occupancy Sensors	Tier 1	Design - Bid	2/1/2009	12/15/2010	78,753	-
SANTA BARBARA	H3144	08C8553	SAN MIGUEL	Replace Gen1 T8 and T12 mix w/ T8 dimmables; + Occupancy Sensors	Tier 1	Design - Bid	2/1/2009	12/15/2010	194,094	-
SANTA BARBARA	H3145	08C8554	SNIDECOR HLL	Replace Gen1 T8 w/ T8 dimmables; + Occupancy Sensors	Tier 1	Design - Bid	1/1/2009	12/15/2009	91,554	-
SANTA BARBARA	H3146	08C8555	MAR BIO LAB	Replace Gen1 T8 w/ T8 dimmables; + Occupancy Sensors	Tier 1	Design - Bid	1/1/2009	12/15/2009	85,720	-
SANTA BARBARA	H3149	08C8558	UNIV CENTER	Replace Gen1 T8 and T12 mix w/ T8 dimmables; + Occupancy Sensors	Tier 1	Design - Bid	1/1/2009	12/15/2009	345,830	-
SANTA BARBARA	H3151	08C8561	SAN NICOLAS	Replace Gen1 T8 and T12 mix w/ T8 dimmables; + Occupancy Sensors	Tier 1	Design - Bid	2/1/2009	12/15/2010	193,703	-
SANTA BARBARA	H3153	08C8564	GIRVETZ HALL	Replace Gen2 T8 w/ T8 dimmables + Occupancy Sensors	Tier 1	Design - Bid	1/1/2009	12/15/2009	85,097	-
SANTA BARBARA	H3155	08C8568	SAASB	Replace Gen1 T8 w/ T8 dimmables; + Occupancy Sensors	Tier 1	Design - Bid	1/1/2009	12/15/2009	230,307	-
SANTA BARBARA	H3156	08C8571	BIOLOGY 2	Replace Gen2 T8 w/ T8 dimmables + Occupancy Sensors	Tier 1	Design - Bid	1/1/2009	12/15/2010	183,963	-
SANTA BARBARA	H3158	08C8580	HARDER STAD	Replace Gen1 T8 w/ T8 dimmables; + Occupancy Sensors	Tier 1	Design - Bid	1/1/2009	12/15/2009	78,364	-
SANTA BARBARA	H3159	08C8586	SAN RAFAEL W	Replace Gen1 T8 w/ T8 dimmables; + Occupancy Sensors	Tier 1	Design - Bid	2/1/2009	12/15/2010	151,963	-
SANTA BARBARA	H3160	08C8587	SAN RAFAEL M	Replace Gen1 T8 w/ T8 dimmables; + Occupancy Sensors	Tier 1	Design - Bid	2/1/2009	12/15/2010	117,496	-
SANTA BARBARA	H3162	08C8591	KERR HALL	Replace Gen1 T8 w/ T8 dimmables; + Occupancy Sensors	Tier 1	Design - Bid	1/1/2009	12/15/2009	100,070	-
SANTA BARBARA	H3165	08C8860	FRANCISCO TO	Replace Gen1 T8 and T12 mix w/ T8 dimmables; + Occupancy Sensors	Tier 1	Design - Bid	2/1/2009	12/15/2010	561,606	-
SANTA BARBARA	H3167	08C8945	ELDORADO APT	Replace Gen1 T8 w/ T8 dimmables; + Occupancy Sensors	Tier 1	Design - Bid	2/1/2009	12/15/2010	104,706	-
SANTA BARBARA	H3168	08C8947	WESTGATE APT	Replace Gen1 T8 w/ T8 dimmables; + Occupancy Sensors	Tier 1	Design - Bid	2/1/2009	12/15/2010	64,308	-
SANTA BARBARA	H3171	08CWIDE	CAMPUSWIDE	Lab Freezers Phase 1 of 2: 20 Lab Freezer Replacements	Tier 1	Design - Bid	1/1/2009	12/15/2010	77,280	-
SANTA BARBARA	H3173	08CWIDE	CAMPUSWIDE	Refrigerators Phase 1 of 3: 100 Energy Star Refrigerator Replacements	Tier 1	In House	1/1/2009	12/15/2010	224,300	-
SANTA BARBARA	H3174	08CWIDE	CAMPUSWIDE	Refrigerators Phase 2 of 3: 100 Energy Star Refrigerator Replacements	Tier 1	In House	2/1/2009	12/15/2011	224,300	-
SANTA BARBARA	H3175	08CWIDE	CAMPUSWIDE	Refrigerators Phase 3 of 3: 61 Energy Star Refrigerator Replacements	Tier 1	In House	2/1/2009	12/15/2011	136,823	-

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
SANTA BARBARA	H3177	08CWIDE	CAMPUSWIDE	Refrigerators Phase 2 of 3: 100 Energy Star Refrigerator Replacements	Tier 1	In House	2/1/2009	12/15/2011	224,300	-
SANTA BARBARA	H3178	08CWIDE	CAMPUSWIDE	Refrigerators Phase 3 of 3: 34 Energy Star Refrigerator Replacements	Tier 1	In House	2/1/2009	12/15/2011	76,262	-
SANTA BARBARA	H3179	08CWIDE	CAMPUSWIDE	LCD Phase 1 of 5: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	Tier 1	Design - Bid	1/1/2009	12/15/2010	213,796	-
SANTA BARBARA	H3180	08CWIDE	CAMPUSWIDE	LCD Phase 2 of 5: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	Tier 1	In House	1/1/2009	12/15/2010	213,796	-
SANTA BARBARA	H3181	08CWIDE	CAMPUSWIDE	LCD Phase 3 of 5: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	Tier 1	In House	1/1/2009	12/15/2010	213,796	-
SANTA BARBARA	H3184	08CWIDE	CAMPUSWIDE	Server Virtualization Phase 1 of 3: 10 VM Installations	Tier 1	In House	2/1/2009	12/15/2011	280,000	-
SANTA BARBARA	H3187	08C8571	BIOLOGY 2	Bio2 Heating System Upgrade	Tier 1	Design Build	1/1/2009	12/15/2011	-	33,379
SANTA BARBARA	H3189	08CWIDEH	CAMPUSWIDE - HOUSING	Housing Pool Covers	Tier 1		2/18/2010	12/15/2010	-	11,000
SANTA BARBARA	H3191	08CWIDE	CAMPUSWIDE	Low Pressure Drop Filters	Tier 1		2/18/2009	12/15/2009	1,155,706	-
SANTA BARBARA	H3192	08CWIDE	CAMPUSWIDE	Boiler and Heat Reclaim Projects	Tier 1		2/18/2009	12/15/2009	-	64,263
SANTA BARBARA	H3193	08CWIDE	CAMPUSWIDE	Server Virtualization & LCD Monitors - Campus IT Department Generated Specifics Group A	Tier 1		2/18/2009	12/15/2009	268,855	-
SANTA BARBARA	H3195	08CWIDE	CAMPUSWIDE	Chilled Water Loop Optimization & Additional Chiller	Tier 1		2/18/2009	12/15/2009	627,000	-
SANTA BARBARA	H4002	08C8552	CHEADLE HALL	EE Motors	Tier 1	In House	2/1/2009	12/15/2010	8,218	-
SANTA BARBARA	H4003	08C8557	CHEMISTRY	EE Motors	Tier 1	In House	2/1/2009	12/15/2010	30,020	-
SANTA BARBARA	H4004	08C8505	EVENTS CNTR	EE Motors	Tier 1	In House	2/1/2009	12/15/2010	2,395	-
SANTA BARBARA	H4005	08C8860	FRANCISCO TO	EE Motors	Tier 1	Design - Bid	2/1/2009	12/15/2011	4,368	-
SANTA BARBARA	H4006	08C8556	HAROLD FRANK	EE Motors	Tier 1	In House	2/1/2009	12/15/2010	15,349	-
SANTA BARBARA	H4007	08C8511	MAC	VFD on Exhaust Fans	Tier 1	Design - Bid	1/1/2009	12/15/2010	12,248	-
SANTA BARBARA	H4008	08C8520	MAR SCI BLDG	EE Motors	Tier 1	In House	2/1/2009	12/15/2010	7,466	-
SANTA BARBARA	H4009	08C8531	MUSIC	EE Motors	Tier 1	In House	2/1/2009	12/15/2010	12,425	-
SANTA BARBARA	H4010	08C8535	NORTH HALL	EE Motors	Tier 1	In House	2/1/2009	12/15/2010	1,121	-
SANTA BARBARA	H4011	08C8657	PSB NORTH	EE Motors	Tier 1	In House	2/1/2009	12/15/2010	32,572	-
SANTA BARBARA	H4013	08C8533	ROBERTSN GYM	EE Motors	Tier 1	In House	2/1/2009	12/15/2010	10,111	-
SANTA BARBARA	H4014	08C8568	SAASB	EE Motors	Tier 1	In House	2/1/2009	12/15/2010	2,879	-
SANTA BARBARA	H4016	08C8860	FRANCISCO TO	Refrigeration Compressors	Tier 1	Design - Bid	2/1/2009	12/15/2011	17,520	-
SANTA BARBARA	H4018	08C8266	CNSI	clean room humidity control seperation	Tier 1	In House	1/1/2009	12/15/2010	330,429	46,748
IRVINE	I1001	09C9003	ADMIN BLDG	AHU-1 (S-1) Spot Cooling and SP reset	Tier 1	Undecided	6/1/2008	12/15/2009	150,719	28,500
IRVINE	I1002	09C9003	ADMIN BLDG	AHU-2 (S-2) SP reset	Tier 1	Undecided	6/1/2008	12/15/2009	13,070	488
IRVINE	I1003	09C9003	ADMIN BLDG	AHU-3 (AC-3) SP reset	Tier 1	Undecided	6/1/2008	12/15/2009	20,457	975
IRVINE	I1004	09C9115	CROUL HALL	AHU 1 SP Reset	Tier 1	Undecided	6/1/2008	12/15/2009	16,583	1,738
IRVINE	I1005	09C9140	ENG GATEWAY	AHU 1 and 2 - SP Reset	Tier 1	Undecided	6/1/2008	12/15/2009	18,687	2,212
IRVINE	I1009	09C9125	ENG TOWER	AHU 10 and 20 - SP Reset	Tier 1	Undecided	6/1/2010	12/15/2011	42,541	700
IRVINE	I1012	09C9088	HEWITT HALL	AHU 1, 2 - Reduce ACH from 15 to 8 for 5 Hoods in Vivarium (Overall AHU goes from 8.36 to 6.52)	Tier 1	Undecided	6/1/2009	12/15/2010	530,173	25,331
IRVINE	I1013	09C9088	HEWITT HALL	AHU 3 - SP Reset	Tier 1	Undecided	6/1/2008	12/15/2009	19,980	2,175
IRVINE	I1015	09C9035	HIB	AHU 2H, 3H - SP Reset	Tier 1	Undecided	6/1/2008	12/15/2009	53,357	8,325
IRVINE	I1016	09C9132	IRVINE HALL	AHU 1, 5, 6, 7, 8, - SP Reset	Tier 1	Undecided	6/1/2009	12/15/2010	85,732	14,488
IRVINE	I1017	09C9132	IRVINE HALL	AHU 2,3,4A,4B, ATU 1,2,3 - SP Reset	Tier 1	Design - Bid	6/1/2009	12/15/2010	125,268	10,512
IRVINE	I1021	09C9328	MED SCI B	AHU B1 - SP Reset	Tier 1	Undecided	6/1/2009	12/15/2010	26,282	2,525
IRVINE	I1023	09C9322	MED SCI C	AHU C1 - SP Reset	Tier 1	Undecided	6/1/2009	12/15/2010	23,760	2,325
IRVINE	I1025	09C9323	MED SCI D	AHU D1 - SP Reset	Tier 1	Undecided	6/1/2009	12/15/2010	25,686	2,700
IRVINE	I1033	09C9090	NAT SCI 1	AHU 1 - SP Reset	Tier 1	Undecided	6/1/2008	12/15/2009	62,520	8,100
IRVINE	I1034	09C9091	NAT SCI 2	AHU 3 - SP Reset	Tier 1	Undecided	6/1/2008	12/15/2009	103,458	10,350
IRVINE	I1035	09C9108	REINES HALL	AHU 1,2 - Reduce ACH from 8.5 to 6	Tier 1	Undecided	6/1/2009	12/15/2011	1,830,956	104,712

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
IRVINE	I1036	09C9100	ROWLAND HALL	AHU 1,2,3,4 - SP Reset	Tier 1	Undecided	6/1/2008	12/15/2009	3,910,947	198,778
IRVINE	I1037	09C9107	BERKELEY PL	AC-1 SP Reset	Tier 1	Undecided	6/1/2008	12/15/2009	5,323	1,333
IRVINE	I1038	09C9107	BERKELEY PL	South Wing -AC-2,3,4 SP Reset	Tier 1	Undecided	6/1/2010	12/15/2011	15,264	3,628
IRVINE	I1039	09C9107	BERKELEY PL	North AC-1 SP Reset	Tier 1	Undecided	6/1/2008	12/15/2009	7,955	2,085
IRVINE	I1040	09C9107	BERKELEY PL	North Wing -AC-2,3 SP Reset	Tier 1	Undecided	6/1/2008	12/15/2009	25,421	5,937
IRVINE	I1045	09C9212	SOC SCI PL A	AHU 1 - SP Reset	Tier 1	Undecided	6/1/2010	12/15/2011	34,237	1,825
IRVINE	I1046	09C9221	SOC SCI PL B	AHU 2 - SP Reset	Tier 1	Undecided	6/1/2010	12/15/2011	53,805	6,450
IRVINE	I1054	09C9087	SPRAGUE HALL	AHU 3 - SP Reset	Tier 1	Undecided	6/1/2008	12/15/2009	20,692	1,832
IRVINE	I1055	09C9087	SPRAGUE HALL	AHU 1,2- SP Reset & VFD exhaust	Tier 1	Undecided	6/1/2009	12/15/2010	503,255	(75)
IRVINE	I1065	09C9118	CAL (IT)2	AHU 5,6,7 SP Reset	Tier 1	Undecided	6/1/2008	12/15/2009	45,469	3,538
IRVINE	I1068	09C9300	CRAWFORD HAL	DCV for a CAV system - AHU 1, 3 and 4	Tier 1	Undecided	6/1/2009	12/15/2010	133,563	4,100
IRVINE	I1069	09C9300	CRAWFORD HAL	AHU 2 - CAV to VAV	Tier 1	Undecided	6/1/2009	12/15/2010	4,238	675
IRVINE	I1070	09C9300	CRAWFORD HAL	AHU 5 - CAV to VAV & Economizer	Tier 1	Undecided	6/1/2009	12/15/2010	18,185	38
IRVINE MC	I1501	09C9722A	MC BLDG 22A	AH 1 - VIV to VAV & SP Reset	Tier 1	Undecided	6/1/2009	12/15/2010	59,129	6,112
IRVINE MC	I1502	09C9722C	MC BLDG 22C	AH 1 - CAV to VAV	Tier 1	Undecided	6/1/2010	12/15/2011	104,490	11,038
IRVINE MC	I1504	09C9723	MC BLDG 23	AH 3 - CAV SAT reset	Tier 1	Undecided	6/1/2009	12/15/2010	7,712	1,012
IRVINE MC	I1505	09C9755	MC BLDG 55	Ahu 1 - SP Reset	Tier 1	Undecided	6/1/2009	12/15/2010	10,090	832
IRVINE MC	I1508	09C9763	MC BLDG 63	AH 1 - SP Reset	Tier 1	Undecided	6/1/2009	12/15/2010	87,906	-
IRVINE MC	I1509	09C9770	MC BLDG 70	AH 1, 2 - SP Reset	Tier 1	Undecided	6/1/2009	12/15/2010	28,390	-
IRVINE MC	I1510	09CWIDEM	CAMPUSWIDE - MED CTR	Boiler Plant-Steam Trap Maintenance, VFD on boiler fans	Tier 1	Undecided	6/1/2009	12/15/2010	235,059	386,403
IRVINE MC	I1512	09C9703	MC BLDG 3	Replace Chiller, Convert to Variable Volume Chilled Water Pumping	Tier 1	Undecided	6/1/2009	12/15/2010	354,253	-
IRVINE MC	I1513	09C9723	MC BLDG 23	Replace Chiller, Add VFD to cooling tower, Convert to Variable Volume Chilled Water Pumping	Tier 1	Undecided	6/1/2009	12/15/2010	834,911	-
IRVINE MC	I1516	09C9701A	MC BLDG 1A	Replace Chillers, Replace Cooling Tower, Convert to Variable Volume Pumping	Tier 1	Undecided	6/1/2010	12/15/2011	659,692	-
IRVINE	I3003	09C9013	MESA PKG STR	Replace metal halide fixtures one-for-one with 2L-F32T8 HLO Fixtures and Install Occupancy Sensors for Bi-Level Control	Tier 1	Undecided	6/1/2008	12/15/2009	256,887	-
IRVINE	I3004	09C9012	PARK STRUC 1	Replace metal halide fixtures one-for-one with 2L-F32T8 HLO Fixtures and Install Occupancy Sensors for Bi-Level Control	Tier 1	Undecided	6/1/2008	12/15/2009	321,630	-
IRVINE	I3005	09C9022	SS PRKING ST	Replace metal halide fixtures one-for-one with 2L-F32T8 HLO Fixtures and Install Occupancy Sensors for Bi-Level Control	Tier 1	Undecided	6/1/2008	12/15/2009	584,003	-
IRVINE	I3006	09C9256	ENG PARK STR	Replace metal halide fixtures one-for-one with 2L-F32T8 HLO Fixtures and Install Occupancy Sensors for Bi-Level Control	Tier 1	Undecided	6/1/2009	12/15/2010	522,236	-
IRVINE	I3007	09C9256	ENG PARK STR	Retrofit existing HID roof lights with PSMH kits	Tier 1	Undecided	6/1/2009	12/15/2010	14,086	-
IRVINE	I3008	09C9013	MESA PKG STR	Retrofit existing HID roof lights with PSMH kits	Tier 1	Undecided	6/1/2008	12/15/2009	11,738	-
IRVINE	I3009	09C9022	SS PRKING ST	Retrofit existing HID roof lights with PSMH kits	Tier 1	Undecided	6/1/2008	12/15/2009	29,933	-
IRVINE	I3010	09C9012	PARK STRUC 1	Retrofit existing HID roof lights with PSMH kits	Tier 1	Undecided	6/1/2008	12/15/2009	9,391	-
IRVINE	I3012	09C9001	LANGSON LIBR	Zone DDC Upgrade	Tier 1	Undecided	6/1/2008	12/15/2009	78,459	3,621
IRVINE	I3013	09C9003	ADMIN BLDG	Demand Control Ventilation	Tier 1	Undecided	6/1/2008	12/15/2009	7,590	-
IRVINE	I3014	09C9003	ADMIN BLDG	Zone DDC Upgrade	Tier 1	Undecided	6/1/2008	12/15/2009	52,531	2,425
IRVINE	I3017	09C9052	SOTA DANCE	Retrofit 400W MH Low bays with 200W ceramic EHID low bays w/daylight controls	Tier 1	Undecided	6/1/2008	12/15/2009	31,000	-
IRVINE	I3018	09C9075	STEINHAUS H	Zone DDC Upgrade	Tier 1	Undecided	6/1/2008	12/15/2009	55,911	2,581
IRVINE	I3019	09C9082	GILESPIE BLD	Demand Control Ventilation	Tier 1	Undecided	6/1/2009	12/15/2010	6,230	-
IRVINE	I3022	09C9084	MCGAUGH HALL	Zone DDC Upgrade	Tier 1	Undecided	6/1/2008	12/15/2009	111,133	5,129
IRVINE	I3023	09C9087	SPRAGUE HALL	Aircuity - Reduce from 6 ACH to 4 ACH Occ & 2 Unocc	Tier 1	Undecided	6/1/2010	12/15/2011	325,503	51,262
IRVINE	I3029	09C9091	NAT SCI 2	Aircuity - Reduce from 6 ACH to 4 ACH Occ & 2 Unocc	Tier 1	Undecided	6/1/2009	12/15/2010	493,332	77,688
IRVINE	I3033	09C9107	BERKELEY PL	Zone DDC Upgrade	Tier 1	Undecided	6/1/2008	12/15/2009	59,280	2,736
IRVINE	I3035	09C9108	REINES HALL	Zone DDC Upgrade	Tier 1	Undecided	6/1/2008	12/15/2009	81,387	3,756

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
IRVINE	I3039	09C9118	CAL (IT)2	Aircuity - Reduce from 6 ACH to 4 ACH Occ & 2 Unocc	Tier 1	Undecided	6/1/2009	12/15/2010	443,155	69,788
IRVINE	I3042	09C9125	ENG TOWER	Zone DDC Upgrade	Tier 1	Undecided	6/1/2008	12/15/2009	59,249	2,735
IRVINE	I3044	09C9126	COMP SCI BLD	Zone DDC Upgrade	Tier 1	Undecided	6/1/2008	12/15/2009	31,553	1,456
IRVINE	I3046	09C9132	IRVINE HALL	Zone DDC Upgrade	Tier 1	Undecided	6/1/2008	12/15/2009	28,402	1,311
IRVINE	I3048	09C9140	ENG GATEWAY	Zone DDC Upgrade	Tier 1	Undecided	6/1/2008	12/15/2009	68,687	3,170
IRVINE	I3050	09C9204	SOCSCI TOWER	Zone DDC Upgrade	Tier 1	Undecided	6/1/2008	12/15/2009	43,599	2,012
IRVINE	I3052	09C9212	SOC SCI PL A	Zone DDC Upgrade	Tier 1	Undecided	6/1/2008	12/15/2009	24,169	1,116
IRVINE	I3054	09C9221	SOC SCI PL B	Zone DDC Upgrade	Tier 1	Undecided	6/1/2008	12/15/2009	25,521	1,178
IRVINE	I3056	09C9300	CRAWFORD HAL	Gym Lighting Retrofit - Implement recommendations in AEI Lighting Survey, with occupancy sensors	Tier 1	Undecided	6/1/2008	12/15/2009	77,280	-
IRVINE	I3058	09C9322	MED SCI C	Zone DDC Upgrade	Tier 1	Undecided	6/1/2008	12/15/2009	29,044	1,341
IRVINE	I3060	09C9323	MED SCI D	Zone DDC Upgrade	Tier 1	Undecided	6/1/2008	12/15/2009	37,419	1,727
IRVINE	I3062	09C9325	MED SCI A	Zone DDC Upgrade	Tier 1	Undecided	6/1/2008	12/15/2009	6,977	322
IRVINE	I3064	09C9328	MED SCI B	Zone DDC Upgrade	Tier 1	Undecided	6/1/2008	12/15/2009	18,649	861
IRVINE	I3074	09C9314	BREN EVENTS	Retrofit existing 1000-watt HIDs with fluorescent high bays, multiple switching	Tier 1	Undecided	6/1/2009	12/15/2010	110,160	-
IRVINE	I3076	09C9003	ADMIN BLDG	Monitoring Based Commissioning	Tier 1	Design - Bid	6/1/2010	12/15/2011	98,167	10,607
IRVINE	I3078	09C9035	HIB	Monitoring Based Commissioning	Tier 1	Design - Bid	6/1/2009	12/15/2010	1,210	7,779
IRVINE	I3088	09C9073	SCILIBRARY	Monitoring Based Commissioning	Tier 1	Design - Bid	6/1/2008	12/15/2009	89,918	19,907
IRVINE	I3089	09C9075	STEINHAUS H	Monitoring Based Commissioning	Tier 1	Design - Bid	6/1/2010	12/15/2011	200,745	21,827
IRVINE	I3090	09C9084	MCGAUGH HALL	Compressor and control upgrades, walk-in refrigeration units in McGaugh Hall. (18 units)	Tier 1	Undecided	6/1/2009	12/15/2010	128,788	-
IRVINE	I3091	09C9088	HEWITT HALL	Monitoring Based Commissioning	Tier 1	Design - Bid	6/1/2008	12/15/2009	309,927	16,011
IRVINE	I3092	09C9091	NAT SCI 2	Monitoring Based Commissioning	Tier 1	Design - Bid	6/1/2009	12/15/2010	220,794	14,312
IRVINE	I3093	09C9100	ROWLAND HALL	Monitoring Based Commissioning	Tier 1	Undecided	6/1/2010	12/15/2011	370,548	39,800
IRVINE	I3096	09C9114	M SCI & TECH	Monitoring Based Commissioning	Tier 1	Undecided	6/1/2010	12/15/2011	11,831	3,824
IRVINE	I3097	09C9115	CROUL HALL	Monitoring Based Commissioning	Tier 1	Undecided	6/1/2009	12/15/2010	112,640	13,433
IRVINE	I3098	09C9118	CAL (IT)2	Monitoring Based Commissioning	Tier 1	Design - Bid	6/1/2008	12/15/2009	141,864	24,332
IRVINE	I3100	09C9126	COMP SCI BLD	Monitoring Based Commissioning	Tier 1	Undecided	6/1/2010	12/15/2011	114,681	12,318
IRVINE	I3102	09C9132	IRVINE HALL	Monitoring Based Commissioning	Tier 1	Design - Bid	6/1/2010	12/15/2011	37,290	11,088
IRVINE	I3103	09C9140	ENG GATEWAY	Monitoring Based Commissioning	Tier 1	Design - Bid	6/1/2008	12/15/2009	257,543	26,814
IRVINE	I3106	09C9212	SOC SCI PL A	Monitoring Based Commissioning	Tier 1	Undecided	6/1/2009	12/15/2010	35,789	4,880
IRVINE	I3110	09C9300	CRAWFORD HAL	Monitoring Based Commissioning	Tier 1	Design - Bid	6/1/2010	12/15/2011	69,314	6,031
IRVINE	I3113	09C9322	MED SCI C	Monitoring Based Commissioning	Tier 1	Undecided	6/1/2010	12/15/2011	177,490	11,338
IRVINE	I3114	09C9323	MED SCI D	Monitoring Based Commissioning	Tier 1	Undecided	6/1/2010	12/15/2011	100,010	14,608
IRVINE	I3115	09C9325	MED SCI A	Monitoring Based Commissioning	Tier 1	Design - Bid	6/1/2010	12/15/2011	25,360	2,724
IRVINE	I3116	09C9328	MED SCI B	Monitoring Based Commissioning	Tier 1	Design - Bid	6/1/2010	12/15/2011	27,615	3,766
IRVINE	I3156	09CWIDE	CAMPUSWIDE	Retrofit office trailers with high efficiency heat pumps and occupancy sensors for air-conditioning.	Tier 1	Undecided	6/1/2008	12/15/2009	125,000	-
IRVINE	I3163	09CWIDE	CAMPUSWIDE	Lab Freezers Phase 1 of 3: 20 Lab Freezer Replacements	Tier 1	Undecided	6/1/2008	12/15/2009	77,280	-
IRVINE	I3164	09CWIDE	CAMPUSWIDE	Lab Freezers Phase 2 of 3: 20 Lab Freezer Replacements	Tier 1	Undecided	6/1/2009	12/15/2010	77,280	-
IRVINE	I3165	09CWIDE	CAMPUSWIDE	Lab Freezers Phase 3 of 3: 5 Lab Freezer Replacements	Tier 1	Undecided	6/1/2010	12/15/2011	19,320	-
IRVINE	I3166	09CWIDE	CAMPUSWIDE	Refrigerators Phase 1 of 4: 100 Energy Star Refrigerator Replacements	Tier 1	Undecided	6/1/2008	12/15/2009	224,300	-
IRVINE	I3167	09CWIDE	CAMPUSWIDE	Refrigerators Phase 2 of 4: 100 Energy Star Refrigerator Replacements	Tier 1	Undecided	6/1/2008	12/15/2009	224,300	-
IRVINE	I3168	09CWIDE	CAMPUSWIDE	Refrigerators Phase 3 of 4: 100 Energy Star Refrigerator Replacements	Tier 1	Undecided	6/1/2009	12/15/2010	224,300	-
IRVINE	I3169	09CWIDE	CAMPUSWIDE	Refrigerators Phase 4 of 4: 20 Energy Star Refrigerator Replacements	Tier 1	Undecided	6/1/2009	12/15/2010	44,860	-

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
IRVINE	I3176	09CWIDE	CAMPUSWIDE	LCD Phase 1 of 6: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	Tier 1	Undecided	6/1/2008	12/15/2009	213,796	-
IRVINE	I3178	09CWIDE	CAMPUSWIDE	LCD Phase 3 of 6: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	Tier 1	Undecided	6/1/2009	12/15/2010	213,796	-
IRVINE	I3180	09CWIDE	CAMPUSWIDE	LCD Phase 5 of 6: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	Tier 1	Undecided	6/1/2010	12/15/2011	213,796	-
IRVINE	I3182	09CWIDE	CAMPUSWIDE	Server Virtualization Phase 1 of 3: 10 VM Installations	Tier 1	Undecided	6/1/2008	12/15/2009	280,000	-
IRVINE	I3185	09C9001	LANGSON LIBR	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	Tier 1	Undecided	6/1/2008	12/15/2009	134,334	-
IRVINE	I3186	09C9003	ADMIN BLDG	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	Tier 1	Undecided	6/1/2008	12/15/2009	118,239	-
IRVINE	I3188	09C9035	HIB	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	Tier 1	Undecided	6/1/2008	12/15/2009	129,521	-
IRVINE	I3189	09C9050	W SMITH HALL	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	Tier 1	Undecided	6/1/2008	12/15/2009	15,263	-
IRVINE	I3190	09C9051	CTB THEATRE	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	Tier 1	Undecided	6/1/2008	12/15/2009	32,008	-
IRVINE	I3191	09C9053	SOTA PROD ST	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	Tier 1	Undecided	6/1/2008	12/15/2009	3,654	-
IRVINE	I3192	09C9054	SOTA DRAMA	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	Tier 1	Undecided	6/1/2008	12/15/2009	10,569	-
IRVINE	I3193	09C9055	UNIV ART GAL	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	Tier 1	Undecided	6/1/2008	12/15/2009	10,488	-
IRVINE	I3194	09C9056	SOTA ART STD	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	Tier 1	Undecided	6/1/2008	12/15/2009	8,044	-
IRVINE	I3195	09C9057	SOTA SCULPTR	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	Tier 1	Undecided	6/1/2008	12/15/2009	7,968	-
IRVINE	I3196	09C9073	SCILIBRARY	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	Tier 1	Undecided	6/1/2008	12/15/2009	174,472	-
IRVINE	I3197	09C9075	STEINHAUS H	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	Tier 1	Undecided	6/1/2008	12/15/2009	80,032	-
IRVINE	I3198	09C9084	MCGAUGH HALL	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	Tier 1	Undecided	6/1/2008	12/15/2009	144,537	-
IRVINE	I3200	09C9090	NAT SCI 1	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	Tier 1	Undecided	6/1/2008	12/15/2009	160,222	-
IRVINE	I3201	09C9091	NAT SCI 2	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	Tier 1	Undecided	6/1/2008	12/15/2009	105,987	-
IRVINE	I3202	09C9100	ROWLAND HALL	Retrofit T12 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	Tier 1	Undecided	6/1/2008	12/15/2009	560,348	-
IRVINE	I3203	09C9107	BERKELEY PL	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	Tier 1	Undecided	6/1/2008	12/15/2009	58,160	-
IRVINE	I3204	09C9108	REINES HALL	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	Tier 1	Undecided	6/1/2008	12/15/2009	110,221	-
IRVINE	I3205	09C9114	M SCI & TECH	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	Tier 1	Undecided	6/1/2008	12/15/2009	105,385	-
IRVINE	I3206	09C9115	CROUL HALL	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	Tier 1	Undecided	6/1/2008	12/15/2009	32,540	-
IRVINE	I3207	09C9118	CAL (IT)2	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	Tier 1	Undecided	6/1/2008	12/15/2009	117,494	-
IRVINE	I3208	09C9125	ENG TOWER	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	Tier 1	Undecided	6/1/2008	12/15/2009	85,968	-
IRVINE	I3209	09C9126	COMP SCI BLD	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	Tier 1	Undecided	6/1/2008	12/15/2009	60,192	-
IRVINE	I3210	09C9128	SOC ECOLOGY	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	Tier 1	Undecided	6/1/2008	12/15/2009	53,804	-

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
IRVINE	I3212	09C9140	ENG GATEWAY	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	Tier 1	Undecided	6/1/2008	12/15/2009	103,750	-
IRVINE	I3213	09C9204	SOCSCI TOWER	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	Tier 1	Undecided	6/1/2008	12/15/2009	74,870	-
IRVINE	I3214	09C9212	SOC SCI PL A	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	Tier 1	Undecided	6/1/2008	12/15/2009	81,270	-
IRVINE	I3215	09C9221	SOC SCI PL B	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	Tier 1	Undecided	6/1/2008	12/15/2009	86,390	-
IRVINE	I3216	09C9222	SOC ECOLOGY2	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	Tier 1	Undecided	6/1/2008	12/15/2009	55,525	-
IRVINE	I3217	09C9299	ANT REC CTR	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	Tier 1	Undecided	6/1/2009	12/15/2010	167,825	-
IRVINE	I3218	09C9300	CRAWFORD HAL	Replace 32W T8 lamps with 25W T8 lamps, and install occupancy and daylighting sensors in appropriate areas	Tier 1	Undecided	6/1/2008	12/15/2009	70,768	-
IRVINE	I3219	09C9314	BREN EVENTS	Retrofit T12 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	Tier 1	Undecided	6/1/2009	12/15/2010	306,179	-
IRVINE	I3224	09CTBD1	BREN HALL	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install daylighting sensors where appropriate	Tier 1	Undecided	6/1/2008	12/15/2009	151,218	-
IRVINE	I3305	09CWIDE	CAMPUSWIDE	Low Pressure Drop Filters (Additional)	Tier 1	Undecided	6/1/2008	12/15/2009	250,000	-
IRVINE	I3306	09CWIDE	CAMPUSWIDE	Replace Chilled Water Valves With Delta P Valves	Tier 1	Undecided	6/1/2009	12/15/2010	275,000	-
IRVINE	I3307	09CWIDE	CAMPUSWIDE	Wavelength Selective Window film	Tier 1	Undecided	6/1/2008	12/15/2009	57,000	-
IRVINE	I3308	09CWIDE	CAMPUSWIDE	Lighting Efficiency Improvement - Buildings < 50k GSF not in SEP	Tier 1	Undecided	6/1/2009	12/15/2010	1,100,000	-
IRVINE	I3309	09CWIDE	CAMPUSWIDE	Install Photo Sensors and Astronomical Time clocks to Control all exterior lighting.	Tier 1	Undecided	6/1/2009	12/15/2010	125,000	-
IRVINE	I3310	09CWIDE	CAMPUSWIDE	Replace -20/-30 Lab Freezers with Energy Star Units	Tier 1	Undecided	6/1/2010	12/15/2011	1,217,160	-
IRVINE	I3311	09CWIDE	CAMPUSWIDE	Replace Copiers with Energy Star w/ Quick Standby Recovery Features	Tier 1	Undecided	6/1/2009	12/15/2010	68,000	-
IRVINE	I3312	09CWIDE	CAMPUSWIDE	Replace existing Ice Machines with Energy Star Units	Tier 1	Undecided	6/1/2009	12/15/2010	57,000	-
IRVINE	I3313	09CWIDE	CAMPUSWIDE	Retrofit All Cold Room Compressors to Energy Star Replacement units.	Tier 1	Undecided	6/1/2008	12/15/2009	260,000	-
IRVINE	I3314	09CWIDE	CAMPUSWIDE	Lab Freezer Replace Remaining ULT Freezers	Tier 1	Undecided	6/1/2009	12/15/2010	650,000	-
IRVINE	I3315	09C9081	BONNEY RES L	Zone DDC Upgrade	Tier 1	Undecided	6/1/2009	12/15/2010	32,818	1,515
IRVINE	I3316	09C9081	BONNEY RES L	Monitoring Based Commisioning	Tier 1	Design - Bid	6/1/2009	12/15/2010	11,831	3,824
IRVINE MC	I3317	09C9755	MC BLDG 55	Health Sci Lab (MC Bldg. 55) Aircuity	Tier 1	Undecided	6/1/2009	12/15/2010	325,503	51,262
IRVINE MC	I3500	09CWIDEM	CAMPUSWIDE - MED CTR	Retrofit 250 Existing HIDs with PSMH kits	Tier 1	Undecided	6/1/2009	12/15/2010	81,030	-
IRVINE MC	I3501	09CWIDEM	CAMPUSWIDE - MED CTR	Replace existing HID fixtures with new fluorescent fixtures/sensors	Tier 1	Undecided	6/1/2009	12/15/2010	332,577	-
IRVINE MC	I3502	09C9335	GOTSHALK PLZ	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; + Occupancy Sensors + Daylighting	Tier 1	Undecided	6/1/2009	12/15/2010	88,778	-
IRVINE MC	I3504	09C9701A	MC BLDG 1A	Monitoring Based Commissioning	Tier 1	Undecided	6/1/2009	12/15/2010	191,088	20,524
IRVINE MC	I3505	09C9701A	MC BLDG 1A	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; + Occupancy Sensors + Daylighting	Tier 1	Undecided	6/1/2009	12/15/2010	184,858	-
IRVINE MC	I3506	09C9703	MC BLDG 3	Monitoring Based Commissioning	Tier 1	Undecided	6/1/2009	12/15/2010	153,767	16,516
IRVINE MC	I3507	09C9703	MC BLDG 3	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; + Occupancy Sensors + Daylighting	Tier 1	Undecided	6/1/2009	12/15/2010	162,493	-

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
IRVINE MC	I3509	09C9720	MC BLDG 20	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 1	Undecided	6/1/2009	12/15/2010	19,724	-
IRVINE MC	I3510	09C9722A	MC BLDG 22A	Monitoring Based Commissioning	Tier 1	Undecided	6/1/2009	12/15/2010	25,905	3,533
IRVINE MC	I3511	09C9722A	MC BLDG 22A	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 1	Undecided	6/1/2009	12/15/2010	82,283	-
IRVINE MC	I3512	09C9722B	MC BLDG 22B	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; + Occupancy Sensors + Daylighting	Tier 1	Undecided	6/1/2009	12/15/2010	11,383	-
IRVINE MC	I3513	09C9722C	MC BLDG 22C	Monitoring Based Commissioning	Tier 1	Undecided	6/1/2009	12/15/2010	33,092	3,554
IRVINE MC	I3515	09C9723	MC BLDG 23	Monitoring Based Commissioning	Tier 1	Undecided	6/1/2009	12/15/2010	54,946	7,493
IRVINE MC	I3516	09C9723	MC BLDG 23	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; + Occupancy Sensors + Daylighting	Tier 1	Undecided	6/1/2009	12/15/2010	146,138	-
IRVINE MC	I3517	09C9725	MC BLDG 25	Monitoring Based Commissioning	Tier 1	Undecided	6/1/2009	12/15/2010	69,550	7,470
IRVINE MC	I3518	09C9725	MC BLDG 25	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 1	Undecided	6/1/2009	12/15/2010	69,467	-
IRVINE MC	I3519	09C9726	MC BLDG 26	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 1	Undecided	6/1/2009	12/15/2010	12,399	-
IRVINE MC	I3520	09C9727	MC BLDG 27	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 1	Undecided	6/1/2009	12/15/2010	14,666	-
IRVINE MC	I3521	09C9729	MC BLDG 29	Monitoring Based Commissioning	Tier 1	Undecided	6/1/2009	12/15/2010	69,202	7,433
IRVINE MC	I3522	09C9729	MC BLDG 29	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; + Occupancy Sensors + Daylighting	Tier 1	Undecided	6/1/2009	12/15/2010	73,016	-
IRVINE MC	I3523	09C9729A	MC BLDG 29A	Monitoring Based Commissioning	Tier 1	Undecided	6/1/2009	12/15/2010	31,026	3,332
IRVINE MC	I3524	09C9729A	MC BLDG 29A	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 1	Undecided	6/1/2009	12/15/2010	27,968	-
IRVINE MC	I3525	09C9730	MC BLDG 30	Monitoring Based Commissioning	Tier 1	Undecided	6/1/2009	12/15/2010	35,012	3,761
IRVINE MC	I3526	09C9730	MC BLDG 30	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; + Occupancy Sensors + Daylighting	Tier 1	Design - Bid	6/1/2009	12/15/2010	36,099	-
IRVINE MC	I3527	09C9730A	MC BLDG 30A	Monitoring Based Commissioning	Tier 1	Undecided	6/1/2009	12/15/2010	35,857	3,851
IRVINE MC	I3528	09C9730A	MC BLDG 30A	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; + Occupancy Sensors + Daylighting	Tier 1	Undecided	6/1/2009	12/15/2010	36,436	-
IRVINE MC	I3529	09C9731	MC BLDG 31	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 1	Undecided	6/1/2009	12/15/2010	11,984	-
IRVINE MC	I3530	09C9733	MC BLDG 33	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 1	Undecided	6/1/2009	12/15/2010	10,718	-
IRVINE MC	I3531	09C9750	MC BLDG 50	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; + Occupancy Sensors + Daylighting	Tier 1	Undecided	6/1/2009	12/15/2010	9,339	-
IRVINE MC	I3532	09C9751	MC BLDG 51	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; + Daylighting	Tier 1	Undecided	6/1/2009	12/15/2010	10,273	-
IRVINE MC	I3533	09C9752	MC BLDG 52	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; + Occupancy Sensors + Daylighting	Tier 1	Undecided	6/1/2009	12/15/2010	9,760	-

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
IRVINE MC	I3534	09C9753	MC BLDG 53	Monitoring Based Commissioning	Tier 1	Undecided	6/1/2009	12/15/2010	97,407	10,462
IRVINE MC	I3535	09C9753	MC BLDG 53	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 1	Undecided	6/1/2009	12/15/2010	103,237	-
IRVINE MC	I3537	09C9755	MC BLDG 55	Monitoring Based Commissioning	Tier 1	Undecided	6/1/2010	12/15/2011	113,736	12,216
IRVINE MC	I3538	09C9755	MC BLDG 55	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 1	Undecided	6/1/2009	12/15/2010	86,318	-
IRVINE MC	I3540	09C9760	MC BLDG 60	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 1	Undecided	6/1/2009	12/15/2010	11,396	-
IRVINE MC	I3541	09C9763	MC BLDG 63	Monitoring Based Commissioning	Tier 1	Undecided	6/1/2010	12/15/2011	303,157	5,220
IRVINE MC	I3542	09C9763	MC BLDG 63	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 1	Undecided	6/1/2009	12/15/2010	299,318	-
IRVINE MC	I3543	09C9767	MC BLDG 67	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; + Occupancy Sensors + Daylighting	Tier 1	Undecided	6/1/2009	12/15/2010	25,438	-
IRVINE MC	I3544	09C9770	MC BLDG 70	Monitoring Based Commissioning	Tier 1	Undecided	6/1/2010	12/15/2011	56,840	1,189
IRVINE MC	I3545	09C9770	MC BLDG 70	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; + Occupancy Sensors + Daylighting	Tier 1	Undecided	6/1/2009	12/15/2010	101,947	-
IRVINE MC	I3548	09C9956	MC BLDG 56	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast + Daylighting	Tier 1	Undecided	6/1/2009	12/15/2010	46,596	-
IRVINE MC	I3549	09C9960	1915 ORGWOOD	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 1	Undecided	6/1/2009	12/15/2010	17,528	-
IRVINE MC	I3550	09C9971	FHC WESTMIN	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; + Occupancy Sensors + Daylighting	Tier 1	Undecided	6/1/2010	12/15/2011	18,385	-
IRVINE MC	I3551	09CWIDEM	CAMPUSWIDE - MED CTR	Phase 1: Replace 100 stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in medical center buildings	Tier 1	Undecided	6/1/2009	12/15/2010	35,000	-
IRVINE MC	I3552	09CWIDEM	CAMPUSWIDE - MED CTR	Phase 2: Replace 100 additional stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in medical center buildings	Tier 1	Undecided	6/1/2009	12/15/2010	35,000	-
IRVINE MC	I3554	09CWIDEM	CAMPUSWIDE - MED CTR	MBCx Central Plant	Tier 1	Undecided	6/1/2009	12/15/2010	150,000	12,000
IRVINE MC	I3556	09C9201	STDT HLTH CT	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast; Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff NLO Ballast in high light areas; + Occupancy Sensors + Daylighting	Tier 1	Undecided	6/1/2009	12/15/2010	29,608	-
IRVINE MC	I3557	09C9244	BECKMAN LASR	Retrofit 32W T8 lamps with w/ 28W T8 lamps & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 1	Undecided	6/1/2008	12/15/2009	55,179	-
Subtotal, 2009-11 Tier 1 Projects									159,377,492	10,205,750
2009-11 Tier 2 Projects										
BERKELEY	A1007	01C1231	LAW	SF 9, 16 - Dis Dmpr to VAV & SP Reset	Tier 2	Design - Bid	1/1/2010	11/1/2010	99,897	8,188
BERKELEY	A1008	01C1231	LAW	SF 24 - CAV to VAV & SP Reset	Tier 2	Job Order	1/1/2010	11/1/2010	103,580	34,500
BERKELEY	A1025	01C1594	UNIVERSITY	SF 3 - CAV to VAV & SP Reset	Tier 2	Design - Bid	1/1/2010	12/31/2010	25,813	11,700
BERKELEY	A1027	01C1552	WHEELER	AHU 1 - CAV to VAV	Tier 2	Design - Bid	1/1/2009	12/31/2009	23,986	3,150
BERKELEY	A1028	01C1552	WHEELER	AHU 2 - SP Reset	Tier 2	Design - Bid	1/1/2009	12/31/2009	3,575	-
BERKELEY	A1038	01C1236	HAAS FAC BLD	AHU 11- CAV to VAV	Tier 2	Design - Bid	1/1/2011	12/31/2011	14,387	3,450
BERKELEY	A1040	01C1234	HAAS STU BLD	AHU 2 - CAV to VAV & SP Reset	Tier 2	Design - Bid	1/1/2009	12/31/2009	54,826	275
BERKELEY	A1044	01C1488	STEPHENS	AHU 2 - CAV to VAV	Tier 2	Design - Bid	1/1/2009	12/31/2009	21,328	4,900
BERKELEY	A1060	01C1774	TOLMAN	AHU 3 - VIV to VAV & SP Reset	Tier 2	Design - Bid	1/1/2010	12/31/2010	51,375	7,112
BERKELEY	A1064	01C1783	ETCHEVERRY	AHU 1 to 3 - SP Reset	Tier 2	Design - Bid	1/1/2011	12/31/2011	54,633	6,225
BERKELEY	A1066	01C1796	KOSHLAND	CAV to VAV SP Reset -AHU 1, 2, 3, 4	Tier 2	Design - Bid	1/1/2010	12/31/2010	697,660	60,138

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
BERKELEY	A1071	01C1808	TAN	AC 5 - CAV to VAV & SP Reset	Tier 2	Design - Bid	1/1/2011	12/31/2011	2,939	2,350
BERKELEY	A1078	01C1382	MORGAN	AHU 1 - 2-speed to VAV	Tier 2	Design - Bid	1/1/2011	12/31/2011	12,042	5,762
BERKELEY	A3001	01CWIDE	CAMPUSWIDE	Replace existing HID fixtures with new fluorescent fixtures w/sensor	Tier 2	Design - Bid	1/1/2009	12/31/2009	5,454	-
BERKELEY	A3002	01CWIDE	CAMPUSWIDE	Retrofit existing HID fixtures with new PSMH kits	Tier 2	Design - Bid	1/1/2010	12/31/2010	16,206	-
BERKELEY	A3007	01C1084	FOOTHILL 4	Foothill Kitchen Hood Controls	Tier 2	Design - Bid	1/31/2010	8/1/2010	39,576	1,254
BERKELEY	A3008	01C1092	CHANNIN2535 (Channing-Bowditch Student Housing)	Monitoring Based Commissioning	Tier 2	Design - Bid	6/30/2009	3/31/2010	37,120	7,559
BERKELEY	A3009	01C1092	CHANNIN2535 (Channing-Bowditch Student Housing)	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; + Occupancy Sensors + Daylighting	Tier 2	Design - Bid	6/30/2009	3/31/2010	58,358	-
BERKELEY	A3011	01C1095	HEARST2195 (SRB1)	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts + Occupancy Sensors + Daylighting	Tier 2	Design - Bid	1/1/2010	12/31/2010	115,014	-
BERKELEY	A3012	01C1098	RESSTUSRVBLD (Central Dining/Cesar Chavez Stu Ctr)	Monitoring Based Commissioning	Tier 2	Design - Bid	9/30/2008	7/31/2009	224,407	9,020
BERKELEY	A3013	01C1098	RESSTUSRVBLD (Central Dining/Cesar Chavez Stu Ctr)	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts + Occupancy Sensors + Daylighting	Tier 2	Design - Bid	6/30/2010	3/31/2011	127,567	-
BERKELEY	A3026	01C1210	SPROUL	Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; + Occupancy Sensors + Daylighting	Tier 2	Design - Bid	1/1/2010	12/31/2010	222,387	-
BERKELEY	A3028	01C1220	BIRGE	Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts + Occupancy Sensors + Daylighting	Tier 2	Design - Bid	1/1/2010	12/31/2010	175,451	-
BERKELEY	A3037	01C1231	LAW	SBD, New/Renov - Law Building Renovation Step 3	Tier 2	Design - Bid	4/1/2008	12/31/2009	85,195	7,982
BERKELEY	A3038	01C1231	LAW	SBD, New/Renov - Law Building Infill	Tier 2	Design - Bid	4/1/2008	12/31/2009	249,750	23,400
BERKELEY	A3040	01C1234	HAAS STU BLD	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts	Tier 2	Design - Bid	1/1/2009	12/31/2009	96,421	-
BERKELEY	A3042	01C1236	HAAS FAC BLD	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts + Occupancy Sensors + Daylighting	Tier 2	Design - Bid	1/1/2009	12/31/2009	179,656	-
BERKELEY	A3043	01C1237	SODA	+ Daylighting	Tier 2	Design - Bid	1/1/2009	12/31/2009	4,531	-
BERKELEY	A3044	01C1270	CALIFORNIA	Monitoring Based Commissioning	Tier 2	Design - Bid	1/1/2009	12/31/2009	26,000	5,916
BERKELEY	A3050	01C1292	LEWIS	Monitoring Based Commissioning	Tier 2	Design - Bid	1/1/2011	12/31/2011	67,233	13,834
BERKELEY	A3052	01C1295	DWINELLE	Monitoring Based Commissioning	Tier 2	Design - Bid	1/1/2011	12/31/2011	34,110	32,053
BERKELEY	A3053	01C1295	DWINELLE	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts + Occupancy Sensors + Daylighting	Tier 2	Design - Bid	1/1/2010	12/31/2010	470,515	-
BERKELEY	A3054	01C1297	GARDNERSTACK	Monitoring Based Commissioning	Tier 2	Design - Bid	1/1/2011	12/31/2011	91,279	19,890
BERKELEY	A3055	01C1297	GARDNERSTACK	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts + Occupancy Sensors + Daylighting	Tier 2	Design - Bid	1/1/2010	12/31/2010	301,401	-
BERKELEY	A3059	01C1299	MOFFITT	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts	Tier 2	Design - Bid	1/1/2011	12/31/2011	131,387	-
BERKELEY	A3061	01C1301	DOE LIBRARY	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts + Occupancy Sensors + Daylighting	Tier 2	Design - Bid	1/1/2011	12/31/2011	278,494	-

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
BERKELEY	A3063	01C1302	MINOR ADDITN	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts + Occupancy Sensors + Daylighting	Tier 2	Design - Bid	1/1/2009	12/31/2009	88,794	-
BERKELEY	A3067	01C1323	DAVIS	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts + Occupancy Sensors + Daylighting	Tier 2	Design - Bid	1/1/2009	12/31/2009	198,136	-
BERKELEY	A3069	01C1346	MULFORD	Monitoring Based Commissioning	Tier 2	Design - Bid	1/1/2010	12/31/2010	39,610	9,809
BERKELEY	A3070	01C1346	MULFORD	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast	Tier 2	Design - Bid	1/1/2010	12/31/2010	80,391	-
BERKELEY	A3072	01C1355	GIANNINI	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts + Occupancy Sensors + Daylighting	Tier 2	Design - Bid	1/1/2010	12/31/2010	99,190	-
BERKELEY	A3077	01C1371	HAVILAND	Monitoring Based Commissioning	Tier 2	Design - Bid	1/1/2011	12/31/2011	14,111	5,357
BERKELEY	A3078	01C1371	HAVILAND	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts + Occupancy Sensors + Daylighting	Tier 2	Design - Bid	1/1/2011	12/31/2011	82,825	-
BERKELEY	A3079	01C1372	HEARST GYM	Monitoring Based Commissioning	Tier 2	Design - Bid	1/1/2010	12/31/2010	53,750	13,041
BERKELEY	A3080	01C1372	HEARST GYM	Replace F40T12 MB w/ 28W T8 & Prem Eff RLO Ballast; + Occupancy Sensors + Daylighting	Tier 2	Design - Bid	1/1/2009	12/31/2009	177,910	-
BERKELEY	A3082	01C1373	HEARST MIN	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast	Tier 2	Design - Bid	1/1/2010	12/31/2010	155,473	-
BERKELEY	A3084	01C1376	HILGARD	Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; + Occupancy Sensors + Daylighting	Tier 2	Design - Bid	1/1/2010	12/31/2010	97,859	-
BERKELEY	A3086	01C1382	MORGAN	Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts + Occupancy Sensors + Daylighting	Tier 2	Design - Bid	1/1/2010	12/31/2010	104,730	-
BERKELEY	A3090	01C1405	LE CONTE	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; + Occupancy Sensors + Daylighting	Tier 2	Design - Bid	1/1/2010	12/31/2010	197,174	-
BERKELEY	A3091	01C1406	VALLEY LSB	Monitoring Based Commissioning	Tier 2	Design - Bid	1/1/2011	12/31/2011	315,205	84,998
BERKELEY	A3092	01C1406	VALLEY LSB	+ Occupancy Sensors + Daylighting	Tier 2	Design - Bid	1/1/2011	12/31/2011	158,893	-
BERKELEY	A3094	01C1419	DONNER LAB	Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; + Occupancy Sensors + Daylighting	Tier 2	Design - Bid	1/1/2010	12/31/2010	68,829	-
BERKELEY	A3098	01C1488	STEPHENS	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts + Occupancy Sensors + Daylighting	Tier 2	Design - Bid	1/1/2010	12/31/2010	98,804	-
BERKELEY	A3102	01C1520	UCB ART MUSE	+ Occupancy Sensors + Daylighting	Tier 2	Design - Bid	1/1/2010	12/31/2010	34,197	-
BERKELEY	A3103	01C1552	WHEELER	Monitoring Based Commissioning	Tier 2	Design - Bid	1/1/2011	12/31/2011	52,073	14,620
BERKELEY	A3109	01C1761	BARROWS	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast + Daylighting	Tier 2	Design - Bid	1/1/2011	12/31/2011	176,311	-
BERKELEY	A3112	01C1774	TOLMAN	Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts + Occupancy Sensors + Daylighting	Tier 2	Design - Bid	1/1/2010	12/31/2010	287,287	-
BERKELEY	A3119	01C1783	ETCHEVERRY	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts + Occupancy Sensors + Daylighting	Tier 2	Design - Bid	1/1/2010	12/31/2010	236,029	-
BERKELEY	A3120	01C1784	CHAVEZ (Golden Bear)	Monitoring Based Commissioning	Tier 2	Design - Bid	1/1/2011	12/31/2011	37,716	11,074
BERKELEY	A3121	01C1784	CHAVEZ (Golden Bear)	Replace F40T12 MB w/ 28W T8 & Prem Eff RLO Ballast; + Occupancy Sensors + Daylighting	Tier 2	Design - Bid	1/1/2010	12/31/2010	137,087	-
BERKELEY	A3126	01C1793	BARKER	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 2	Design - Bid	1/1/2011	12/31/2011	125,282	-
BERKELEY	A3132	01C1800	LAWRENCE	+ Occupancy Sensors + Daylighting	Tier 2	Design - Bid	1/1/2010	12/31/2010	48,261	-
BERKELEY	A3134	01C1802	ZELLERBACH	+ Occupancy Sensors + Daylighting	Tier 2	Design - Bid	1/1/2010	12/31/2010	85,431	-

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
BERKELEY	A3138	01C1809	HILDEBRAND	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; Replace 2-lamp F96T12 w/ 4-lamp 28W T8 & Prem Eff RLO Ballasts + Occupancy Sensors + Daylighting	Tier 2	Design - Bid	1/1/2009	12/31/2009	163,903	-
BERKELEY	A3139	01CTBD1	HELIOS ENERGY RESEARCH FACILITY	SBD, New/Renov - Helios Energy Research Facility	Tier 2	Design - Bid	4/1/2008	12/31/2010	1,180,080	56,232
BERKELEY	A3141	01CWIDE	CAMPUSWIDE	Phase 2: Replace 200 additional stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in campus buildings	Tier 2	Design - Bid	1/1/2010	12/31/2010	70,000	-
BERKELEY	A3160	01CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 2	Undecided	7/1/2008	7/1/2010	67,616	6,335
BERKELEY	A3161	01CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 2	Undecided	7/1/2009	7/1/2011	67,616	6,335
BERKELEY	A3164	01CWIDEH	CAMPUSWIDE - HOUSING	Phase 1: Replace 100 stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in residential buildings	Tier 2	Design - Bid	2/28/2011	11/30/2011	35,000	-
BERKELEY	A3165	01CWIDEH	CAMPUSWIDE - HOUSING	Phase 2: Replace 100 additional stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in residential buildings	Tier 2	Design - Bid	2/28/2011	11/30/2011	35,000	-
SAN FRANCISCO	B1025	02C2415	MISSION CTR	SF 2.2, 3.1, 4.1, 4.2 - VIV to VAV & SP Reset	Tier 2	Design Build	1/1/2010	11/1/2010	734,667	72,542
SAN FRANCISCO	B3013	02C2252	MED SCIENCES	Monitoring Based Commissioning	Tier 2	Undecided	2/1/2010	4/1/2010	713,942	140,554
SAN FRANCISCO	B3019	02C2410	NURSING	Monitoring Based Commissioning	Tier 2	Undecided	2/1/2010	8/30/2011	79,155	18,000
SAN FRANCISCO	B3020	02C2412	DENTISTRY	Monitoring Based Commissioning	Tier 2	Undecided	1/1/2010	3/1/2011	210,621	43,383
SAN FRANCISCO	B3031	02C3008	HSIR EAST	Monitoring Based Commissioning	Tier 2	Undecided	1/1/2010	3/1/2011	550,719	78,151
SAN FRANCISCO	B3032	02C3009	HSIR WEST	Monitoring Based Commissioning	Tier 2	Undecided	1/1/2010	3/1/2011	623,357	88,458
SAN FRANCISCO	B3095	02C2450	LAUREL HTS	Retrofit T8 Fixtures with 28W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	Tier 2	Conventional	1/1/2011	11/1/2011	597,354	-
SAN FRANCISCO	B3096	02C3000	PSSRB	Retrofit T8 Fixtures with 28W T8 lamps and RLO ballasts	Tier 2	Design - Bid	2/1/2009	6/1/2010	115,189	-
SAN FRANCISCO	B3100	02C3008	HSIR EAST	Implement recommendations in 2007 ARUP Study and install additional occupancy and daylighting sensors	Tier 2	Design - Bid	2/1/2009	6/1/2010	511,148	-
SAN FRANCISCO	B3101	02C3009	HSIR WEST	Implement recommendations in 2007 ARUP Study and install additional occupancy and daylighting sensors	Tier 2	Design - Bid	2/1/2009	6/1/2010	438,509	-
SAN FRANCISCO	B3104	02C3035	MB HOUSING W	Retrofit T8 Fixtures with 28W T8 lamps and RLO ballasts, and Install occupancy sensors where appropriate	Tier 2	Design - Bid	1/1/2010	3/1/2011	48,399	-
SAN FRANCISCO	B3105	02C3036	MB HOUSING S	Retrofit T8 Fixtures with 28W T8 lamps and RLO ballasts, and Install occupancy sensors where appropriate	Tier 2	Design - Bid	1/1/2010	3/1/2011	69,303	-
SAN FRANCISCO	B3106	02C3037	MB HOUSING N	Retrofit T8 Fixtures with 28W T8 lamps and RLO ballasts, and Install occupancy sensors where appropriate	Tier 2	Design - Bid	1/1/2010	3/1/2011	102,935	-
SAN FRANCISCO	B3107	02C3038	MB HOUSING E	Retrofit T8 Fixtures with 28W T8 lamps and RLO ballasts, and Install occupancy sensors where appropriate	Tier 2	Design - Bid	1/1/2010	3/1/2011	75,781	-
SAN FRANCISCO	B3108	02C2450	LAUREL HTS	Replace existing 8' SL & HO fixtures fixtures with new fluorescent fixtures with sensors	Tier 2		1/1/2011	11/1/2011	174,066	-
SAN FRANCISCO MC	B3534	02C2026	MTZ BLDG G	Retrofit T8 and T12 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy and Daylighting Sensors in Appropriate Areas	Tier 2	Undecided	2/1/2009	12/1/2010	17,677	-
SAN FRANCISCO MC	B3537	02C2033	MTZ BLDG N	Retrofit T8 and T12 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy and Daylighting Sensors in Appropriate Areas	Tier 2	Undecided	2/1/2009	12/1/2010	24,101	-
SAN FRANCISCO MC	B3548	02C2408	UC CLINICS (ACC)	Monitoring Based Commissioning	Tier 2	Undecided	2/1/2009	12/1/2010	210,383	74,002
SAN FRANCISCO MC	B3551	02C2971	2380 SUTTER	Retrofit T8 and T12 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy and Daylighting Sensors in Appropriate Areas	Tier 2	Undecided	2/1/2009	12/1/2010	31,015	-
DAVIS	C3103	03CWIDE	CAMPUSWIDE	Phase 2: Replace 200 additional stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in campus buildings	Tier 2	Job Order	9/30/2009	12/30/2011	70,000	-
DAVIS	C3160	03CWIDE	CAMPUSWIDE	Server Virtualization Phase 1 of 4: 10 VM Installations	Tier 2			12/30/2011	280,000	-
DAVIS	C3161	03CWIDE	CAMPUSWIDE	Server Virtualization Phase 2 of 4: 10 VM Installations	Tier 2			12/30/2011	280,000	-
DAVIS	C3162	03CWIDE	CAMPUSWIDE	Server Virtualization Phase 3 of 4: 10 VM Installations	Tier 2			12/30/2011	280,000	-
DAVIS	C3166	03C3207	HART	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 2			12/30/2011	118,308	-

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
DAVIS	C3167	03C3237	ROBBNS	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 2			12/30/2011	113,405	-
DAVIS	C3168	03C3264	FAC SHOPS	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 2			12/30/2011	38,352	-
DAVIS	C3169	03C3266	YOUNG	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 2			12/30/2011	137,591	-
DAVIS	C3170	03C3275	SOUTH	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 2			12/30/2011	47,936	-
DAVIS	C3176	03C3390	LIB	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 2			12/30/2010	1,066,998	-
DAVIS	C3177	03C3421	HUNT	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 2			12/30/2010	100,509	-
DAVIS	C3178	03C3422	ASMDSN	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 2			12/30/2010	38,314	-
DAVIS	C3179	03C3458	VMEYER	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 2			12/30/2010	39,999	-
DAVIS	C3180	03C3459	COWELL	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 2			12/30/2010	61,786	-
DAVIS	C3181	03C3460	MU	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 2			12/30/2010	215,253	-
DAVIS	C3182	03C3493	HARING	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 2			12/30/2010	222,343	-
DAVIS	C3183	03C3607	HOAGLD	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 2			12/30/2010	83,985	-
DAVIS	C3184	03C3745	VRHIES	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 2			12/30/2010	90,413	-
DAVIS	C3284	03C3961B	CHEM ANX	Non-Lab VAV Retrofit	Tier 2			12/30/2011	150,778	29,125
RIVERSIDE	E3003	05CP5186	BIOLOGIC SCI	Monitoring Based Commissioning	Tier 2	Design - Bid	1/1/2010	6/1/2010	102,627	11,023
RIVERSIDE	E3004	05CP5194	ENGINEERING2	Monitoring Based Commissioning	Tier 2	Design - Bid	1/1/2009	6/1/2009	298,595	32,071
RIVERSIDE	E3005	05CP5261	BOURNS	Monitoring Based Commissioning	Tier 2	Design - Bid	1/1/2010	6/1/2010	297,087	31,909
RIVERSIDE	E3006	05CP5307	HUM & SOC SC	Monitoring Based Commissioning	Tier 2	Design - Bid	1/1/2009	6/1/2009	81,594	11,126
RIVERSIDE	E3007	05CP5323	SPIETH	Monitoring Based Commissioning	Tier 2	Design - Bid	1/1/2011	6/1/2011	190,752	20,488
RIVERSIDE	E3008	05CP5334	PE	Monitoring Based Commissioning	Tier 2	Design - Bid	1/1/2009	6/1/2009	51,078	6,965
RIVERSIDE	E3009	05CP5335	GEOLOGY	Monitoring Based Commissioning	Tier 2	Design - Bid	1/1/2010	6/1/2010	181,476	19,492
RIVERSIDE	E3010	05CP5341	BOYCE	SBD, New/Renov - Boyce Hall and Webber Hall Renovations	Tier 2	Design - Bid	1/1/2009	6/1/2009	1,248,096	59,473
RIVERSIDE	E3013	05CP5354	WATKINS	Monitoring Based Commissioning	Tier 2	Design - Bid	1/1/2011	6/1/2011	117,628	12,634
RIVERSIDE	E3014	05CP5380	CAMPUS SURGE	Monitoring Based Commissioning	Tier 2	Design - Bid	1/1/2010	6/1/2010	55,702	7,596
RIVERSIDE	E3015	05CP5411	ARTS	Monitoring Based Commissioning	Tier 2	Design - Bid	1/1/2010	6/1/2010	82,127	11,199
RIVERSIDE	E3017	05CP5417	ENTOMOLOGY	Monitoring Based Commissioning	Tier 2	Design - Bid	1/1/2010	6/1/2010	131,198	14,092
RIVERSIDE	E3018	05CP5497	OLMSTED	Monitoring Based Commissioning	Tier 2	Design - Bid	1/1/2009	6/1/2009	71,297	9,722
RIVERSIDE	E3019	05CP5501	BATCHELOR	Monitoring Based Commissioning	Tier 2	Design - Bid	1/1/2011	6/1/2011	199,081	21,383
RIVERSIDE	E3022	05CP5508	PIERCE	Monitoring Based Commissioning	Tier 2	Design - Bid	1/1/2009	6/1/2009	267,161	28,695
RIVERSIDE	E3025	05CP5523	SPROUL	Monitoring Based Commissioning	Tier 2	Design - Bid	1/1/2011	6/1/2011	60,702	8,278
SAN DIEGO	F2050	06C6115	RIMAC	AHU'S - CV TO VAV RETROFIT	Tier 2	Design - Bid	1/1/2010	6/1/2011	1,948,115	173,588
SAN DIEGO	F2075	06C6701	PRICE CTR	AHU's - CV to VAV Retrofit	Tier 2	Design - Bid	1/1/2010	12/1/2011	352,547	9,825
SAN DIEGO	F3010	06C6119	MTF	Monitoring Based Commissioning	Tier 2	Design Build	1/1/2009	12/1/2011	177,811	9
SAN DIEGO	F3011	06C6119	MTF	Install occupancy sensors in classrooms, offices, and appropriate library aras, as well as photocell sensors where appropriate	Tier 2	Job Order	1/1/2009	12/1/2011	49,125	-
SAN DIEGO	F3013	06C6129	CMRR	Monitoring Based Commissioning	Tier 2	Design Build	1/1/2009	12/1/2011	20,210	4,584
SAN DIEGO	F3014	06C6129	CMRR	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	Tier 2	Job Order	1/1/2009	6/1/2011	42,495	-
SAN DIEGO	F3015	06C6131	ENG UNIT 1	Monitoring Based Commissioning	Tier 2	Design Build	1/1/2009	12/1/2011	322,043	13
SAN DIEGO	F3017	06C6132	ENG UNIT 2	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	Tier 2	Job Order	1/1/2010	6/1/2011	145,493	-
SAN DIEGO	F3018	06C6135	CENT MOL GEN	Monitoring Based Commissioning	Tier 2	Design Build	1/1/2009	12/1/2011	84,793	38

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
SAN DIEGO	F3019	06C6135	CENT MOL GEN	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	Tier 2	Job Order	1/1/2009	6/1/2011	33,805	-
SAN DIEGO	F3020	06C6137	SUPERCOMPUTR	Monitoring Based Commissioning	Tier 2	Design Build	1/1/2009	12/1/2011	976,127	11,991
SAN DIEGO	F3022	06C6143	CMM WEST	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	Tier 2	Job Order	1/1/2009	6/1/2011	124,224	-
SAN DIEGO	F3023	06C6156	CLIN SCI BLD	Monitoring Based Commissioning	Tier 2	Design Build	1/1/2009	12/1/2011	292,521	54
SAN DIEGO	F3024	06C6156	CLIN SCI BLD	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	Tier 2	Job Order	1/1/2009	12/1/2011	112,211	-
SAN DIEGO	F3025	06C6172	WAR LEC HALL	Monitoring Based Commissioning	Tier 2	Design Build	1/1/2009	12/1/2011	103,740	7,729
SAN DIEGO	F3029	06C6188	SCI ENG RSCH	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	Tier 2	Job Order	1/1/2010	6/1/2011	94,190	-
SAN DIEGO	F3033	06C6246	NIEREN ANNEX	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	Tier 2	Job Order	1/1/2009	12/1/2009	9,557	-
SAN DIEGO	F3039	06C6335	CENT UTLTIES	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	Tier 2	Job Order	1/1/2009	12/1/2009	93,256	-
SAN DIEGO	F3044	06C6352	MAYER HALL	Install occupancy sensors in classrooms, offices, and appropriate library aras, as well as photocell sensors where appropriate	Tier 2	Job Order	1/1/2009	12/1/2009	34,093	-
SAN DIEGO	F3046	06C6353	BONNER HALL	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	Tier 2	Job Order	1/1/2009	12/1/2009	134,474	-
SAN DIEGO	F3050	06C6357	GALBRTH HALL	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	Tier 2	Job Order	1/1/2009	12/1/2010	147,379	-
SAN DIEGO	F3054	06C6365	TOR PINE NOR	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	Tier 2	Job Order	1/1/2010	6/1/2011	196,778	-
SAN DIEGO	F3060	06C6405	CENTER HALL	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	Tier 2	Job Order	1/1/2010	12/1/2011	67,883	-
SAN DIEGO	F3067	06C6510	GYMNASIUM	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	Tier 2	Job Order	1/1/2009	12/1/2011	76,293	-
SAN DIEGO	F3068	06C6548	EBU 3B	Monitoring Based Commissioning	Tier 2	Design Build	1/1/2009	12/1/2011	234,059	15,729
SAN DIEGO	F3072	06C6598	MANDEVILLE	Monitoring Based Commissioning	Tier 2	Design Build	1/1/2009	12/1/2011	98,252	12,156
SAN DIEGO	F3073	06C6598	MANDEVILLE	SBD, New/Renov - Mandeville Auditorium Upgrade	Tier 2	Design - Bid	1/1/2009	12/1/2011	99,900	9,360
SAN DIEGO	F3074	06C6598	MANDEVILLE	Install occupancy sensors in classrooms, offices, and appropriate library aras, as well as photocell sensors where appropriate	Tier 2	Job Order	1/1/2009	12/1/2011	76,049	-
SAN DIEGO	F3075	06C6599	GEISEL LIB	Monitoring Based Commissioning	Tier 2	Design Build	1/1/2009	12/1/2011	443,671	44,335
SAN DIEGO	F3077	06C6600	AP M BLDG	Monitoring Based Commissioning	Tier 2	Design Build	1/1/2009	12/1/2011	250,865	39,518
SAN DIEGO	F3078	06C6600	AP M BLDG	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	Tier 2	Job Order	1/1/2009	12/1/2011	267,932	-
SAN DIEGO	F3079	06C6601	BIOLOGY BLDG	Monitoring Based Commissioning	Tier 2	Design Build	1/1/2009	12/1/2011	150,399	23
SAN DIEGO	F3082	06C6602	MCGILL/MANDLER BLDG	Monitoring Based Commissioning	Tier 2	Design Build	1/1/2009	12/1/2011	142,909	16,401
SAN DIEGO	F3083	06C6602	MCGILL/MANDLER BLDG	Install occupancy sensors in classrooms, offices, and appropriate library aras, as well as photocell sensors where appropriate	Tier 2	Job Order	1/1/2009	12/1/2011	26,920	-
SAN DIEGO	F3084	06C6603	H SS BLDG	Monitoring Based Commissioning	Tier 2	Design Build	1/1/2009	12/1/2011	63,504	8,497
SAN DIEGO	F3085	06C6603	H SS BLDG	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	Tier 2	Job Order	1/1/2009	12/1/2011	133,924	-
SAN DIEGO	F3091	06C6611	CHEM RES BLD	Monitoring Based Commissioning	Tier 2	Design Build	1/1/2009	12/1/2011	87,795	1,092
SAN DIEGO	F3092	06C6611	CHEM RES BLD	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	Tier 2	Job Order	1/1/2010	12/1/2011	47,117	-
SAN DIEGO	F3093	06C6612	COG SCI BLDG	Monitoring Based Commissioning	Tier 2	Design Build	1/1/2009	12/1/2011	75,317	5,991
SAN DIEGO	F3094	06C6612	COG SCI BLDG	Install occupancy sensors in classrooms, offices, and appropriate library aras, as well as photocell sensors where appropriate	Tier 2	Job Order	1/1/2009	12/1/2011	49,898	-
SAN DIEGO	F3106	06C6811	SOC SCI BLDG	Monitoring Based Commissioning	Tier 2	Design Build	1/1/2009	12/1/2011	60,970	7,141
SAN DIEGO	F3107	06C6811	SOC SCI BLDG	Install occupancy sensors in classrooms, offices, and appropriate library aras, as well as photocell sensors where appropriate	Tier 2	Job Order	1/1/2009	12/1/2011	89,461	-

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
SAN DIEGO	F3134	06CWIDE	CAMPUSWIDE	Phase 1: Replace 200 stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in campus buildings	Tier 2	Job Order	1/1/2009	12/1/2009	70,000	-
SAN DIEGO	F3135	06CWIDE	CAMPUSWIDE	Phase 2: Replace 200 additional stairwell light fixtures with bi-level stairwell fixtures with occupancy sensors in campus buildings	Tier 2	Job Order	1/1/2010	12/1/2010	70,000	-
SAN DIEGO	F3136	06CWide	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2009	Tier 2	Design - Bid	1/1/2009	12/1/2010	454,550	-
SAN DIEGO	F3137	06CWide	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2009	Tier 2	Design - Bid	1/1/2010	12/1/2011	454,550	-
SAN DIEGO	F3138	06CWide	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2009	Tier 2	Design - Bid	1/1/2009	12/1/2010	-	28,409
SAN DIEGO	F3139	06CWide	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2010	Tier 2	Design - Bid	1/1/2010	12/1/2011	454,550	-
SAN DIEGO	F3140	06CWide	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2010	Tier 2	Design - Bid	1/1/2010	12/1/2011	454,550	-
SAN DIEGO	F3141	06CWide	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2009	Tier 2	Design - Bid	1/1/2010	12/1/2011	-	28,409
SAN DIEGO	F3177	06CWIDE	CAMPUSWIDE	Refrigerators Phase 1 of 3: 100 Energy Star Refrigerator Replacements	Tier 2	Design Build	1/1/2009	12/1/2010	224,300	-
SAN DIEGO	F3178	06CWIDE	CAMPUSWIDE	Refrigerators Phase 2 of 3: 100 Energy Star Refrigerator Replacements	Tier 2	Design Build	1/1/2010	12/1/2011	224,300	-
SAN DIEGO	F3181	06CWIDE	CAMPUSWIDE	LCD Phase 2 of 6: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	Tier 2	Other	1/1/2010	12/1/2010	213,796	-
SAN DIEGO	F3186	06CWIDE	CAMPUSWIDE	Server Virtualization Phase 1 of 5: 10 VM Installations	Tier 2	Other	1/1/2009	12/1/2009	280,000	-
SAN DIEGO	F3187	06CWIDE	CAMPUSWIDE	Server Virtualization Phase 2 of 5: 10 VM Installations	Tier 2	Other	1/1/2010	12/1/2010	280,000	-
SANTA CRUZ	G1001	07C7775	EARTH MAR SC	Ahu 137 - VIV to VAV	Tier 2	Design - Bid	6/1/2010	12/1/2011	12,191	-
SANTA CRUZ	G1016	07C7376	KERR HALL	FS 96 - CAV to VAV	Tier 2	Design - Bid	6/1/2009	10/1/2011	13,212	3,350
SANTA CRUZ	G1021	07C7775	EARTH MAR SC	Ahu 138 - CAV to VAV	Tier 2	Design - Bid	6/1/2010	12/1/2011	157,807	19,738
SANTA CRUZ	G3007	07C7194	J BASKIN ENG	Tie Existing EMS System to Tridium	Tier 2	Design - Bid	1/1/2010	10/1/2011	74,707	321
SANTA CRUZ	G3012	07C7376	KERR HALL	Tie Existing EMS System to Tridium	Tier 2	Design - Bid	1/1/2011	11/1/2011	28,628	886
SANTA CRUZ	G3015	07C7782	SCI &ENG LIB	Tie Existing EMS System to Tridium	Tier 2	Design - Bid	1/1/2009	3/1/2010	35,303	268
SANTA CRUZ	G3016	07C7920	SOC SCI 1	Tie Existing EMS System to Tridium	Tier 2	Design - Bid	10/1/2010	11/1/2011	16,772	902
SANTA CRUZ	G3017	07C7921	SOC SCI 2	Tie Existing EMS System to Tridium	Tier 2	Design - Bid	7/1/2010	7/1/2011	16,317	898
SANTA CRUZ	G3033	07C7194	J BASKIN ENG	Monitoring Based Commissioning	Tier 2	Design - Bid	6/1/2010	12/1/2011	156,885	1,574
SANTA CRUZ	G3038	07C7306	PORTER ACAD D	Monitoring Based Commissioning	Tier 2	Design - Bid	1/1/2011	12/1/2011	14,063	1,979
SANTA CRUZ	G3039	07C7376	KERR HALL	Monitoring Based Commissioning	Tier 2	Design - Bid	1/1/2010	9/1/2011	66,800	3,101
SANTA CRUZ	G3040	07C7744	SINSHEIMR LB	Monitoring Based Commissioning	Tier 2	Design - Bid	1/1/2010	9/1/2011	245,596	26,209
SANTA CRUZ	G3044	07C7920	SOC SCI 1	Monitoring Based Commissioning	Tier 2	Design - Bid	1/1/2010	9/1/2011	39,134	3,157
SANTA CRUZ	G3115	07C7376	KERR HALL	Replace Gen1 T8 w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 2	Design - Bid	1/1/2009	8/1/2010	158,846	-
SANTA CRUZ	G5010	07C7775	EARTH MAR SC	Operate Both Secondary CHW Pumps Simutanously @ Lower Speed	Tier 2	Design - Bid	6/1/2010	12/1/2011	11,353	-
SANTA CRUZ	G5011	07C7775	EARTH MAR SC	Retrofit Screw Chillers with frictionless Turbocor Compressors	Tier 2	Design - Bid	6/1/2009	9/1/2010	531,700	-
SANTA CRUZ	G5022	07C7179	NAT SCI 2	Differential Pressure reset on HW Pumps	Tier 2	Design - Bid	1/1/2010	10/1/2010	1,402	-
SANTA CRUZ	G5032	07C7921	SOC SCI 2	Retrofit Air Cooled Chiller with frictionless Turborcor Compressors	Tier 2	Design - Bid	1/1/2010	2/1/2011	127,100	-
SANTA BARBARA	H1013	08C8557	CHEMISTRY	4th Floor FH Exhaust - add VFD	Tier 2	Design - Bid	1/1/2009	12/15/2011	37,927	8,592
SANTA BARBARA	H3098	08CWide	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2012	Tier 2	In House	1/1/2009	12/15/2010	454,550	-
SANTA BARBARA	H3131	08C8526	WEBB HALL	Replace Gen2 T8 w/ T8 dimmables + Occupancy Sensors	Tier 2	Design - Bid	1/1/2009	12/15/2009	69,879	-
SANTA BARBARA	H3148	08C8557	CHEMISTRY	Replace Gen2 T8 w/ T8 dimmables + Occupancy Sensors	Tier 2	Design - Bid	1/1/2009	12/15/2010	142,590	-
SANTA BARBARA	H3172	08CWIDE	CAMPUSWIDE	Lab Freezers Phase 2 of 2: 17 Lab Freezer Replacements	Tier 2	Design - Bid	1/1/2010	12/15/2011	65,688	-
SANTA BARBARA	H3188	08C8505	EVENTS CNTR	Chilled Water Loop Extension	Tier 2		8/22/2010	12/15/2011	300,000	-
SANTA BARBARA	H3194	08CWIDE	CAMPUSWIDE	Server Virtualization & LCD Monitors - Campus IT Department Generated Specifics Group B	Tier 2		2/18/2009	12/15/2009	268,855	-
IRVINE	I1006	09C9140	ENG GATEWAY	AHU 3 thru 8 - Reduce ACH from 7 to 6 for 20 Hoods	Tier 2		6/1/2009	12/15/2010	86,745	4,875
IRVINE	I1007	09C9140	ENG GATEWAY	AHU 10 SP Reset & DCV	Tier 2	Undecided	6/1/2008	12/15/2009	1,282	(38)
IRVINE	I1008	09C9125	ENG TOWER	AHU-1,2 - CAV to VAV, SP Reset & Add Economizer	Tier 2	Undecided	6/1/2010	12/15/2011	354,284	34,112
IRVINE	I1010	09C9082	GILESPIE BLD	AHU 2 - Reduce ACH from 15 to 8 for 5 Hoods in Vivarium	Tier 2	Undecided	6/1/2008	12/15/2009	382,236	24,030
IRVINE	I1011	09C9082	GILESPIE BLD	AHU 1 - VAV Aircuity (4 ACH Occ & 2 Unocc)	Tier 2		6/1/2009	12/15/2010	813,643	53,312

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
IRVINE	I1014	09C9035	HIB	AHU 1H - CAV to VAV & SP Reset	Tier 2	Undecided	6/1/2008	12/15/2009	21,061	2,512
IRVINE	I1018	09C9001	LANGSON LIBR	AHU-3 thru AHU 16 - CAV to VAV and DART & Economizers	Tier 2	Undecided	6/1/2010	12/15/2011	438,382	67,625
IRVINE	I1019	09C9325	MED SCI A	AHU A1,A2, - Reduce ACH from 13.72 to 8	Tier 2	Undecided	6/1/2009	12/15/2010	112,515	4,838
IRVINE	I1020	09C9299	ANT REC CTR	DCV & Scheduling Controls for a VAV system (1A, 1B, 2 and 6)	Tier 2	Undecided	6/1/2010	12/15/2011	103,098	19,190
IRVINE	I1022	09C9328	MED SCI B	AHU B2, B3 - Reduce ACH from 7 to 6	Tier 2	Undecided	6/1/2009	12/15/2010	201,606	8,475
IRVINE	I1024	09C9322	MED SCI C	AHU C2, C3 - Reduce ACH from 7 to 6	Tier 2	Undecided	6/1/2009	12/15/2010	246,077	10,338
IRVINE	I1026	09C9323	MED SCI D	AHU D2, D3 - Reduce ACH from 7 to 6	Tier 2	Undecided	6/1/2009	12/15/2010	292,986	12,312
IRVINE	I1032	09C9114	M SCI & TECH	AHU 1,2 - VIV to VAV & SP Reset	Tier 2	Undecided	6/1/2009	12/15/2010	119,733	11,130
IRVINE	I1041	09C9128	SOC ECOLOGY	AHU 1 - SP Reset	Tier 2	Undecided	6/1/2009	12/15/2010	6,866	-
IRVINE	I1042	09C9128	SOC ECOLOGY	AHU 2,3 - SP Reset	Tier 2	Undecided	6/1/2009	12/15/2010	6,026	-
IRVINE	I1043	09C9128	SOC ECOLOGY	AHU 4 - Reduce ACH from 7 to 6	Tier 2	Undecided	6/1/2010	12/15/2011	44,236	2,675
IRVINE	I1044	09C9222	SOC ECOLOGY2	AHU 3C - SP Reset	Tier 2	Undecided	6/1/2009	12/15/2010	41,995	3,362
IRVINE	I1047	09C9204	SOCSCI TOWER	AHU-B1,B2,D1,D2 - SP Reset & Add Economizer	Tier 2	Undecided	6/1/2010	12/15/2011	95,158	10,962
IRVINE	I1048	09C9204	SOCSCI TOWER	AHU-B3, B4 - SP Reset & Add Economizer	Tier 2	Undecided	6/1/2010	12/15/2011	57,575	7,862
IRVINE	I1049	09C9204	SOCSCI TOWER	AHU C1 - CAV to VAV, DCV, SP Reset	Tier 2	Undecided	6/1/2010	12/15/2011	24,967	1,725
IRVINE	I1050	09C9056	SOTA ART STD	AHU-1- SP Reset	Tier 2	Undecided	6/1/2010	12/15/2011	4,990	1,025
IRVINE	I1051	09C9054	SOTA DRAMA	AHU-1- SP Reset	Tier 2	Undecided	6/1/2009	12/15/2010	5,533	1,188
IRVINE	I1059	09C9005	UCI STU CNTR	AHU 1 SP reset	Tier 2	Undecided	6/1/2009	12/15/2010	40,526	3,175
IRVINE	I1060	09C9005	UCI STU CNTR	AHU 2,3 SP reset	Tier 2	Undecided	6/1/2009	12/15/2010	71,554	5,812
IRVINE	I1061	09C9052	SOTA DANCE	AHU-1 SP reset	Tier 2	Undecided	6/1/2009	12/15/2010	63,207	12,938
IRVINE	I1063	09C9055	UNIV ART GAL	AHU 1 - CAV to VAV, SP Reset and DCV	Tier 2	Undecided	6/1/2008	12/15/2009	33,418	(362)
IRVINE	I1064	09C9050	W SMITH HALL	AHU 1 - CAV to VAV	Tier 2	Undecided	6/1/2009	12/15/2010	126,068	22,862
IRVINE	I1066	09C9126	COMP SCI BLD	AHU-1 SP reset & Add Economizer Controls	Tier 2	Undecided	6/1/2008	12/15/2009	58,465	3,662
IRVINE	I1067	09C9126	COMP SCI BLD	AHU-2 SP reset & VIV to VAV & Add Economizer	Tier 2	Undecided	6/1/2009	12/15/2010	30,126	812
IRVINE	I1071	09C9084	MCGAUGH HALL	AHU 1, 2, 3 - Reduce ACH from 14 to 6	Tier 2	Undecided	6/1/2009	12/15/2010	1,669,096	73,075
IRVINE	I1072	09C9299	ANT REC CTR	AHU3,4,5,7 Convert to VAV & DCV from CAV system	Tier 2	Undecided	6/1/2009	12/15/2010	121,474	(388)
IRVINE	I1075	09C9073	SCILIBRARY	AHU 1 thru 5 - SP Reset & DCV	Tier 2	Undecided	6/1/2008	12/15/2009	316,191	32,625
IRVINE	I1076	09C9222	SOC ECOLOGY2	AHU 3H - Reduce ACH from 7 to 6	Tier 2	Undecided	6/1/2010	12/15/2011	65,627	475
IRVINE	I1078	09C9051	CTB THEATRE	AHU-1 (AC-1) Spot Cooling and SP reset	Tier 2	Undecided	6/1/2009	12/15/2010	45,540	11,438
IRVINE MC	I1506	09C9755	MC BLDG 55	EC 2 - VAV rebalance	Tier 2	Undecided	6/1/2009	12/15/2010	12,268	1,640
IRVINE MC	I1507	09C9755	MC BLDG 55	EC 3 - VAV rebalance	Tier 2	Undecided	6/1/2009	12/15/2010	30,337	9,042
IRVINE MC	I1514	09C9763	MC BLDG 63	Replace Chiller, Convert to Variable Volume Chilled Water Pumping	Tier 2	Undecided	6/1/2009	12/15/2010	187,257	-
IRVINE MC	I1515	09C9770	MC BLDG 70	Replace Chiller, Convert to Variable Volume Chilled Water Pumping	Tier 2	Undecided	6/1/2009	12/15/2010	98,631	-
IRVINE	I3011	09C9001	LANGSON LIBR	Demand Control Ventilation	Tier 2	Undecided	6/1/2010	12/15/2011	11,336	-
IRVINE	I3015	09C9005	UCI STU CNTR	Demand Control Ventilation	Tier 2	Undecided	6/1/2009	12/15/2010	12,324	-
IRVINE	I3016	09C9035	HIB	Demand Control Ventilation	Tier 2	Undecided	6/1/2009	12/15/2010	5,566	-
IRVINE	I3024	09C9087	SPRAGUE HALL	Demand Control Ventilation	Tier 2	Undecided	6/1/2009	12/15/2010	6,777	-
IRVINE	I3026	09C9088	HEWITT HALL	Aircuity - Reduce Vivarium from 15 to 8 ACH, Labs from 6 ACH to 4 & 2 ACH	Tier 2	Undecided	6/1/2009	12/15/2010	244,534	38,512
IRVINE	I3027	09C9088	HEWITT HALL	Demand Control Ventilation	Tier 2	Undecided	6/1/2009	12/15/2010	5,925	-
IRVINE	I3028	09C9090	NAT SCI 1	Demand Control Ventilation	Tier 2	Undecided	6/1/2008	12/15/2009	9,084	-
IRVINE	I3030	09C9091	NAT SCI 2	Demand Control Ventilation	Tier 2	Undecided	6/1/2008	12/15/2009	10,240	-
IRVINE	I3032	09C9107	BERKELEY PL	Demand Control Ventilation	Tier 2	Undecided	6/1/2009	12/15/2010	8,565	-
IRVINE	I3037	09C9114	M SCI & TECH	Demand Control Ventilation	Tier 2	Undecided	6/1/2009	12/15/2010	4,741	-
IRVINE	I3038	09C9114	M SCI & TECH	Zone DDC Upgrade	Tier 2	Undecided	6/1/2008	12/15/2009	32,818	1,515
IRVINE	I3040	09C9118	CAL (IT)2	Demand Control Ventilation	Tier 2	Undecided	6/1/2010	12/15/2011	9,005	-
IRVINE	I3041	09C9125	ENG TOWER	Demand Control Ventilation	Tier 2	Undecided	6/1/2010	12/15/2011	8,560	-

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
IRVINE	I3043	09C9126	COMP SCI BLD	Demand Control Ventilation	Tier 2	Undecided	6/1/2009	12/15/2010	4,559	-
IRVINE	I3045	09C9128	SOC ECOLOGY	Demand Control Ventilation	Tier 2	Undecided	6/1/2010	12/15/2011	4,132	-
IRVINE	I3049	09C9140	ENG GATEWAY	EF VFDs	Tier 2	Undecided	6/1/2008	12/15/2009	290,796	-
IRVINE	I3051	09C9212	SOC SCI PL A	Demand Control Ventilation	Tier 2	Undecided	6/1/2010	12/15/2011	3,492	-
IRVINE	I3053	09C9221	SOC SCI PL B	Demand Control Ventilation	Tier 2	Undecided	6/1/2010	12/15/2011	3,687	-
IRVINE	I3055	09C9222	SOC ECOLOGY2	Demand Control Ventilation	Tier 2	Undecided	6/1/2010	12/15/2011	2,873	-
IRVINE	I3067	09CTBD1	BREN HALL	Demand Control Ventilation	Tier 2	Undecided	6/1/2009	12/15/2010	11,117	-
IRVINE	I3073	09CWIDE	CAMPUSWIDE	Install controller on vending machine (e.g. Vending Miser)	Tier 2	Undecided	6/1/2009	12/15/2010	92,724	-
IRVINE	I3077	09C9005	UCI STU CNTR	Monitoring Based Commissioning	Tier 2	Design - Bid	6/1/2010	12/15/2011	126,312	17,224
IRVINE	I3079	09C9050	W SMITH HALL	Monitoring Based Commissioning	Tier 2	Undecided	6/1/2009	12/15/2010	12,176	993
IRVINE	I3080	09C9051	CTB THEATRE	Monitoring Based Commissioning	Tier 2	Design - Bid	6/1/2009	12/15/2010	15,690	2,140
IRVINE	I3081	09C9052	SOTA DANCE	Monitoring Based Commissioning	Tier 2	In House	6/1/2009	12/15/2010	9,815	1,338
IRVINE	I3082	09C9053	SOTA PROD ST	Monitoring Based Commissioning	Tier 2	Design - Bid	6/1/2009	12/15/2010	3,079	544
IRVINE	I3083	09C9054	SOTA DRAMA	Monitoring Based Commissioning	Tier 2	Design - Bid	6/1/2009	12/15/2010	26,317	921
IRVINE	I3084	09C9055	UNIV ART GAL	Monitoring Based Commissioning	Tier 2	Undecided	6/1/2009	12/15/2010	6,868	937
IRVINE	I3086	09C9057	SOTA SCULPTR	Monitoring Based Commissioning	Tier 2	Undecided	6/1/2009	12/15/2010	19,836	1,144
IRVINE	I3094	09C9107	BERKELEY PL	Replace air handlers in Berkeley Place (Deferred Maintenance, to be combined with other retrofits)	Tier 2	Undecided	6/1/2010	12/15/2011	278,788	11,220
IRVINE	I3095	09C9108	REINES HALL	Monitoring Based Commissioning	Tier 2	Design - Bid	6/1/2009	12/15/2010	318,219	31,772
IRVINE	I3101	09C9128	SOC ECOLOGY	Monitoring Based Commissioning	Tier 2	Undecided	6/1/2009	12/15/2010	103,950	11,165
IRVINE	I3108	09C9222	SOC ECOLOGY2	Monitoring Based Commissioning	Tier 2	Undecided	6/1/2009	12/15/2010	35,108	3,754
IRVINE	I3117	09C9329	MED SURG 2	Monitoring Based Commissioning	Tier 2	Design - Bid	6/1/2010	12/15/2011	114,754	12,228
IRVINE	I3118	09C9518	MESA CEN SER	Mesa Commons Kitchen Hood Controls	Tier 2	Undecided	6/1/2009	12/15/2010	30,578	315
IRVINE	I3119	09C9530	M E BRDYWINE	Brandywine Kitchen Hood Controls	Tier 2	Undecided	6/1/2009	12/15/2010	6,305	103
IRVINE	I3120	09C9557	ME PIPPIN	Pippin Kitchen Hood Controls	Tier 2	Undecided	6/1/2009	12/15/2010	28,530	230
IRVINE	I3121	09C9653	VERANO 400	SBD, New/Renov - Verano Place Unit 4 Renovation	Tier 2	Undecided	6/1/2009	12/15/2010	212,411	19,902
IRVINE	I3122	09C9655	VERANO 600	SBD, New/Renov - Verano Place Unit 6 Renovation	Tier 2	Undecided	6/1/2010	12/15/2011	191,575	17,949
IRVINE	I3125	09CTBD1	BREN HALL	Monitoring Based Commissioning	Tier 2	Design - Bid	6/1/2009	12/15/2010	113,941	15,537
IRVINE	I3126	09CTBD2	BIOLOGICAL SCIENCES 3 LABORATORY	SBD, New/Renov - Biological Sciences 3 Laboratory Conversion	Tier 2	Undecided	6/1/2009	12/15/2010	206,514	9,841
IRVINE	I3133	09CWide	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2009	Tier 2	Undecided	6/1/2008	12/15/2009	454,550	-
IRVINE	I3135	09CWide	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2009	Tier 2	Undecided	6/1/2008	12/15/2009	-	28,409
IRVINE	I3136	09CWide	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2010	Tier 2	Undecided	6/1/2009	12/15/2010	454,550	-
IRVINE	I3138	09CWide	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2009	Tier 2	Undecided	6/1/2009	12/15/2010	-	28,409
IRVINE	I3139	09CWide	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2011	Tier 2	Undecided	6/1/2010	12/15/2011	454,550	-
IRVINE	I3141	09CWide	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2009	Tier 2	Undecided	6/1/2010	12/15/2011	-	28,409
IRVINE	I3151	09CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 2	Undecided	6/1/2008	12/15/2009	84,519	7,919
IRVINE	I3152	09CWIDE	CAMPUSWIDE	SBD, New/Renov - Classroom Renovations Phase 6	Tier 2	Undecided	6/1/2008	12/15/2009	22,478	2,106
IRVINE	I3153	09CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 2	Undecided	6/1/2009	12/15/2010	84,519	7,919
IRVINE	I3154	09CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 2	Undecided	6/1/2010	12/15/2011	84,519	7,919
IRVINE	I3157	09CWIDE	CAMPUSWIDE	Install occupancy sensor switches for restroom fans, and right size motors wherever cost-feasible campus wide.	Tier 2	Undecided	6/1/2009	12/15/2010	263,485	-
IRVINE	I3170	09CWIDE	CAMPUSWIDE	Refrigerators Phase 1 of 6: 100 Energy Star Refrigerator Replacements	Tier 2	Undecided	6/1/2008	12/15/2009	224,300	-
IRVINE	I3171	09CWIDE	CAMPUSWIDE	Refrigerators Phase 2 of 6: 100 Energy Star Refrigerator Replacements	Tier 2	Undecided	6/1/2009	12/15/2010	224,300	-
IRVINE	I3172	09CWIDE	CAMPUSWIDE	Refrigerators Phase 3 of 6: 100 Energy Star Refrigerator Replacements	Tier 2	Undecided	6/1/2009	12/15/2010	224,300	-
IRVINE	I3173	09CWIDE	CAMPUSWIDE	Refrigerators Phase 4 of 6: 100 Energy Star Refrigerator Replacements	Tier 2	Undecided	6/1/2009	12/15/2010	224,300	-

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
IRVINE	I3174	09CWIDE	CAMPUSWIDE	Refrigerators Phase 5 of 6: 100 Energy Star Refrigerator Replacements	Tier 2	Undecided	6/1/2009	12/15/2010	224,300	-
IRVINE	I3175	09CWIDE	CAMPUSWIDE	Refrigerators Phase 6 of 6: 9 Energy Star Refrigerator Replacements	Tier 2	Undecided	6/1/2009	12/15/2010	20,187	-
IRVINE	I3177	09CWIDE	CAMPUSWIDE	LCD Phase 2 of 6: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	Tier 2	Undecided	6/1/2008	12/15/2009	213,796	-
IRVINE	I3179	09CWIDE	CAMPUSWIDE	LCD Phase 4 of 6: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	Tier 2	Undecided	6/1/2009	12/15/2010	213,796	-
IRVINE	I3181	09CWIDE	CAMPUSWIDE	LCD Phase 6 of 6: 565 Verdiem (PC Power Management) Installations and 23 CRT Replacements	Tier 2	Undecided	6/1/2010	12/15/2011	120,795	-
IRVINE	I3183	09CWIDE	CAMPUSWIDE	Server Virtualization Phase 2 of 3: 10 VM Installations	Tier 2	Undecided	6/1/2009	12/15/2010	280,000	-
IRVINE	I3184	09CWIDE	CAMPUSWIDE	Server Virtualization Phase 3 of 3: 10 VM Installations	Tier 2	Undecided	6/1/2010	12/15/2011	280,000	-
IRVINE	I3187	09C9005	UCI STU CNTR	Retrofit T8 fixtures with 25W T8 lamps and RLO ballasts, and install occupancy and daylighting sensors where appropriate	Tier 2	Undecided	6/1/2009	12/15/2010	245,322	-
IRVINE	I3242	09CWIDEH	CAMPUSWIDE - HOUSING	Replace Refrigerators with Energy Star units	Tier 2	Undecided	6/1/2010	12/15/2011	975,000	-
IRVINE	I3243	09CWIDE	CAMPUSWIDE	Monitoring Based Commisioning - Buildings < 50k GSF not in SEP	Tier 2	Undecided	6/1/2010	12/15/2011	1,100,000	58,000
IRVINE	I3244	09CWIDEH	CAMPUSWIDE - HOUSING	Install LED w/ Occupancy Sensors in Restrooms, Dimmable Photo Sensing Ballast in Common Areas	Tier 2	Undecided	6/1/2010	12/15/2011	225,000	-
IRVINE	I3245	09CWIDE	CAMPUSWIDE	Implement Demand Control Ventilation - Buildings < 50k GSF not in SEP	Tier 2	Undecided	6/1/2010	12/15/2011	430,000	9,500
IRVINE	I3246	09CWIDEH	CAMPUSWIDE - HOUSING	Install Bi-level Stairwell Fixture, Replace Incandescent Lamps w/ CFLs	Tier 2	Undecided	6/1/2010	12/15/2011	450,000	-
IRVINE	I3247	09CWIDE	CAMPUSWIDE	Occupancy Based Ventilation Control	Tier 2	Undecided	6/1/2009	12/15/2010	225,000	5,200
IRVINE	I3248	09CWIDEH	CAMPUSWIDE - HOUSING	Install Occupancy Sensors wherever applicable and Retrofit Lighting systems.	Tier 2	Undecided	6/1/2009	12/15/2010	125,000	-
IRVINE	I3249	09CWIDE	CAMPUSWIDE	Data Center Energy Efficiency Project	Tier 2	Undecided	6/1/2009	12/15/2010	77,000	-
IRVINE	I3250	09CWIDE	CAMPUSWIDE	Path, Area, and Parking Lot Lighting Upgrade to LED, High Efficiency Lighting Systems	Tier 2	Undecided	6/1/2009	12/15/2010	785,000	-
IRVINE	I3251	09CWIDE	CAMPUSWIDE	Reduced Exhaust Stack Velocity and Eliminate Make Up Air in Lab Exhaust Systems	Tier 2	Undecided	6/1/2009	12/15/2010	650,000	25,000
IRVINE	I3252	09CWIDEH	CAMPUSWIDE - HOUSING	Install Occupancy Sensors in Laundry Rooms and Restrooms to control Exhaust Fans.	Tier 2	Undecided	6/1/2009	12/15/2010	95,000	-
IRVINE	I3253	09CWIDE	CAMPUSWIDE	Replace Chillers, Heat Exchangers, Air Handlers, Pumps, Motors, and Controls with < 10 Yr. Payback.	Tier 2	Undecided	6/1/2009	12/15/2010	775,000	-
IRVINE	I3254	09CWIDE	CAMPUSWIDE	Replace Stand Alone Packaged DX Units < 8 SEER	Tier 2	Undecided	6/1/2010	12/15/2011	180,000	2,500
IRVINE	I3255	09CWIDEH	CAMPUSWIDE - HOUSING	Replace Inefficient Packaged HVAC and Chiller units with high SEER units.	Tier 2	Undecided	6/1/2010	12/15/2011	125,000	4,100
IRVINE	I3256	09CWIDE	CAMPUSWIDE	Compressed and Vacuum Air System Efficiency Retrofit	Tier 2	Undecided	6/1/2010	12/15/2011	350,000	-
IRVINE	I3257	09CWIDE	CAMPUSWIDE	Reduce ACH Using Low Flow Fumehoods	Tier 2	Undecided	6/1/2010	12/15/2011	445,000	42,000
IRVINE	I3258	09CWIDE	CAMPUSWIDE	Remove Sound Attenuators to Reduce Pressure Drop on Fan System	Tier 2	Undecided	6/1/2010	12/15/2011	185,000	-
IRVINE	I3259	09CWIDEH	CAMPUSWIDE - HOUSING	Replace remaining old Boilers with high Efficient units.	Tier 2	Undecided	6/1/2010	12/15/2011	-	26,000
IRVINE	I3260	09CWIDE	CAMPUSWIDE	HVAC Efficiency Improvement - Buildings < 50k GSF not in SEP	Tier 2	Undecided	6/1/2009	12/15/2010	345,000	65,000
IRVINE	I3261	09CWIDE	CAMPUSWIDE	Upgrade and Enhance EMS as needed to manage, monitor, and maintain measures embodied in the SEP.	Tier 2	Undecided	6/1/2009	12/15/2010	1,200,000	35,000
IRVINE	I3262	09CWIDE	CAMPUSWIDE	EMS Control Upgrade - Buildings < 50k GSF not in SEP	Tier 2	Undecided	6/1/2009	12/15/2010	645,000	22,500
IRVINE	I3263	09CWIDEH	CAMPUSWIDE - HOUSING	Replace Kitchen Appliances with Energy Star units where opportunities exist.	Tier 2	Undecided	6/1/2009	12/15/2010	42,000	2,800
IRVINE	I3264	09CWIDE	CAMPUSWIDE	Chillers, heat exchangers, air-handlers, duct streamlining measures (e.g., radial ducts where right-angle transitions exist), pumps, controls, and motors with <10 year payback.	Tier 2	Undecided	6/1/2009	12/15/2010	225,000	-

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
IRVINE	I3265	09CWIDE	CAMPUSWIDE	Install Efficient HTW Solution for Health Sciences	Tier 2	Undecided	6/1/2009	12/15/2010	-	345,000
IRVINE	I3266	09CWIDEH	CAMPUSWIDE - HOUSING	Replace All Hot Water Heaters w/ Highest Efficiency Units	Tier 2	Undecided	6/1/2009	12/15/2010	-	13,500
IRVINE	I3267	09CWIDEH	CAMPUSWIDE - HOUSING	Install Solar Water Heating System in Housing Units with Central Heating Water Heating System	Tier 2	Undecided	6/1/2009	12/15/2010	-	15,000
IRVINE	I3268	09CWIDE	CAMPUSWIDE	DDC Conversion and Control Upgrade - Buildings < 50k GSF not in SEP	Tier 2	Undecided	6/1/2008	12/15/2009	345,000	15,100
IRVINE	I3269	09C9302	CENTRL PLANT	Equipment Efficiency Upgrade	Tier 2	Undecided	6/1/2010	12/15/2011	240,000	15,000
IRVINE	I3270	09C9051	CTB THEATRE	DDC Conversion	Tier 2	Undecided	6/1/2010	12/15/2011	25,000	1,500
IRVINE	I3271	09C9202	SOCSCI HALL	Air Handler Replacement	Tier 2	Undecided	6/1/2010	12/15/2011	27,500	1,800
IRVINE	I3272	09C9653	VERANO 400	Replace Heating Furnace (780 units)	Tier 2	Undecided	6/1/2008	12/15/2009	-	36,316
IRVINE	I3273	09C9653	VERANO 400	Water Heater Replacement	Tier 2	Undecided	6/1/2010	12/15/2011	-	6,350
IRVINE	I3279	09C9082	GILESPIE BLD	CAV to VAV Fume Hoods Proposed from Previous MBCx study by EMC	Tier 2	Undecided	6/1/2008	12/15/2009	198,663	-
IRVINE	I3280	09CWIDE	CAMPUSWIDE	Daylighting controls-MED SCI A,B,C,D	Tier 2	Undecided	6/1/2008	12/15/2009	35,000	-
IRVINE MC	I3281	09C9755	MC BLDG 55	VFD or Roof Exhaust for CV w/ Bypass	Tier 2	Undecided	6/1/2008	12/15/2009	26,580	-
IRVINE MC	I3282	09CWIDEM	MED CTR-WIDE	Replace 15 -30/-80 freezers to be selected at a later date	Tier 2	Undecided	6/1/2010	12/15/2011	100,000	-
IRVINE MC	I3283	09CWIDEM	B-20	1 package g/p - B-20	Tier 2	Undecided	6/1/2010	12/15/2011	10,555	-
IRVINE MC	I3284	09C9729	MC BLDG 29	3 package g/p	Tier 2	Undecided	6/1/2010	12/15/2011	31,665	-
IRVINE MC	I3285	09C9725	MC BLDG 25	13 package g/p	Tier 2	Undecided	6/1/2010	12/15/2011	137,213	-
IRVINE MC	I3286	09C9730A	MC BLDG 30A	13 split	Tier 2	Undecided	6/1/2009	12/15/2010	3,794	-
IRVINE MC	I3287	09C9726	MC BLDG 26	4 package g/p	Tier 2	Undecided	6/1/2009	12/15/2010	42,219	-
IRVINE MC	I3288	09C9710	MC BLDG 10	1 package Cool only	Tier 2	Undecided	6/1/2010	12/15/2011	10,555	-
IRVINE MC	I3289	09C9751	MC BLDG 51	5 package g/p	Tier 2	Undecided	6/1/2010	12/15/2011	52,772	-
IRVINE MC	I3290	09C9760	MC BLDG 60	4 package g/p	Tier 2	Undecided	6/1/2010	12/15/2011	42,219	-
IRVINE MC	I3291	09C9760	MC BLDG 60A	1 package g/p	Tier 2	Undecided	6/1/2009	12/15/2010	10,555	-
IRVINE MC	I3295	09C9730A	MC BLDG 30A	expand building management controls to include AH#1, AH#2, AH#4, VFD condensor water and cooling tower	Tier 2	Undecided	6/1/2009	12/15/2010	167,724	-
IRVINE MC	I3296	09C9729	MC BLDG 29	Lighting controller	Tier 2	Undecided	6/1/2010	12/15/2011	8,694	-
IRVINE MC	I3297	09CWIDEM	MC BLDG 3 & 1A	Buildings 3 &1A central chilled water loop.	Tier 2	Undecided	6/1/2010	12/15/2011	896,765	-
IRVINE MC	I3298	09CWIDEM	MC BLDG 25,22A,22b, 22C 23	Buildings 25,22A, 22b, 22C &23 central chilled water loop.	Tier 2	Undecided	6/1/2010	12/15/2011	756,424	-
IRVINE	I3299	09C9005	UCI STU CNTR	Replace 5 Rooftop DX units	Tier 2	Undecided	6/1/2010	12/15/2011	25,000	-
IRVINE	I3302	09CWIDEH	CAMPUSWIDE - HOUSING	Housing Parking Lot HID Fixture Retrofit	Tier 2	Undecided	6/1/2009	12/15/2010	40,000	-
IRVINE	I3303	09CWIDEH	CAMPUSWIDE - HOUSING	Housing Pathway/Exterior HID and Incan. Retrofit	Tier 2	Undecided	6/1/2009	12/15/2010	40,000	-
IRVINE	I3304	09C9080	QURESHEY LAB	Monitoring Based Commisioning	Tier 2	Undecided	6/1/2009	12/15/2010	11,831	3,824
IRVINE	I6005	09C9073	SCILIBRARY	HHWP VFD Retrofit	Tier 2	Undecided	6/1/2008	12/15/2009	7,237	-
BERKELEY		01C1149	STANLEY	Chiller Use Reduction	Tier 2	Design - Bid	1/1/2009	12/31/2009	450,000	
BERKELEY		01CWIDE	CHEMISTRY BLDGS	CAV to VAV & SP Reset	Tier 2	Design - Bid	1/1/2009	7/1/2010	500,000	
MERCED			Pump House	Pot Water Pump Downsize	Tier 2	Design - Bid	9/1/2008	11/1/2009	57,000	
MERCED			Valley Dining Commons	Demand Controlled Exhaust	Tier 2	Undecided	6/1/2009	11/1/2010	32,000	500
MERCED			S&E I	Lab Freezer Rebates	Tier 2	Other	10/1/2009	12/1/2011	28,105	
Subtotal, 2009-11 Tier 2 Projects									63,027,660	3,342,867
2012-14 Program Cycle										
2012-14 Tier 1 Projects										
BERKELEY	A3107	01C1760	CAMPBELL	SBD, New/Renov - Campbell Hall Seismic Replacement Building	Tier 1	Design - Bid	4/1/2008	10/1/2012	716,765	34,155
SAN FRANCISCO	B1026	02C3002	GENENTECH HA	CV to VAV with Automatic Sash Closures	Tier 1	Undecided	1/1/2010	2/1/2013	1,439,313	82,066

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
DAVIS	C1001	03C3803	OLSON	AC1 / AC2 - Spot Cooling & CAV to VAV	Tier 1	Job Order	9/30/2010	12/30/2013	566,929	40,725
DAVIS	C1003	03C4267	VMTH	convert CAV to VAV - SF1 thru SF 5	Tier 1	Job Order	9/30/2010	9/30/2014	758,231	78,150
DAVIS	C1004	03C3266	YOUNG	AC-1, 3- CAV to VAV	Tier 1	Job Order	9/30/2010	12/30/2013	79,489	8,800
DAVIS	C1005	03C3266	YOUNG	AC 4 - Spot Cooling & CAV to VAV	Tier 1	Job Order	9/30/2010	12/30/2013	51,823	19,162
DAVIS	C1012	03C4556	MEYER	AC 3 to 5, 7 - CAV to VAV	Tier 1	Job Order	1/1/2011	3/30/2013	790,702	82,500
DAVIS	C1013	03C4633	KEMPER	AHU 1 - CAV to VAV & SP Reset	Tier 1	Job Order	1/1/2011	3/30/2013	449,525	15,138
DAVIS	C1014	03C4633	KEMPER	AHU 2, 3 - SP Reset	Tier 1	In House	1/1/2011	3/30/2013	47,563	6,362
DAVIS	C1015	03C4633	KEMPER	AHU 7 - CAV to VAV & SP Reset	Tier 1	Job Order	1/1/2011	3/30/2013	86,572	13,300
DAVIS	C1016	03C4633	KEMPER	SF 1, 2 - CAV to VAV	Tier 1	Job Order	1/1/2011	3/30/2013	1,354,899	77,288
DAVIS	C1017	03C4633	KEMPER	AHU 8 - SP Reset	Tier 1	In House	1/1/2011	3/30/2013	34,298	-
DAVIS	C1024	03C4073	STORER	AH 00 to 06 - CAV to VAV	Tier 1	Job Order	1/1/2011	3/30/2013	505,095	94,312
DAVIS	C1028	03C4098	SURGE 3	AC 1, 2 - CAV to VAV	Tier 1	Job Order	1/1/2011	3/30/2013	47,608	10,662
DAVIS	C1029	03C4098	SURGE 3	AC 3, 4 - CAV to VAV	Tier 1	Job Order	1/1/2011	3/30/2013	157,022	14,500
DAVIS	C1030	03C4716	MADDY LAB	AHU 1, 2 - CAV to VAV & SP Reset	Tier 1	Job Order	6/30/2011	9/30/2013	564,586	32,300
DAVIS	C1031	03C3460	MU	S-4 CAV to VAV & SP Reset	Tier 1	Job Order	1/1/2011	3/30/2013	144,504	5,638
DAVIS	C1035	03C3460	MU	AC 4 CAV to VAV	Tier 1	Job Order	1/1/2011	3/30/2013	122,850	24,525
DAVIS	C1037	03C4428	MED SCI I B	CAV to VAV - AC 6	Tier 1	Job Order	9/30/2010	12/30/2012	18,868	188
DAVIS	C1039	03C9968	DV 3820 CHLS	DV 3820 Chiles - MZ 1,2,3 - CAV to VAV & TOD Controls	Tier 1	Job Order	1/1/2011	3/30/2013	292,709	54,356
DAVIS	C1040	03C9968	DV 3820 CHLS	AC 3 - CAV to VAV & TOD Controls	Tier 1	Job Order	1/1/2011	3/30/2013	49,671	8,979
DAVIS	C1041	03C4266	PHYGEO	AHU 1, 3, 4, 5- CAV to VAV	Tier 1	Job Order	1/1/2011	3/30/2013	479,365	66,038
DAVIS	C1044	03C4799	ARC	DCV for a VAV system - AHU 3, 4	Tier 1	In House	9/30/2010	6/30/2013	3,029	-
DAVIS	C1046	03C4444	ARC PAVILION	DCV for a VAV system - AC 1 thru 4	Tier 1	Job Order	9/30/2010	12/30/2012	6,182	-
DAVIS	C1047	03C4444	ARC PAVILION	AH3 CAV to VAV	Tier 1	Job Order	9/30/2010	12/30/2012	85,726	7,462
DAVIS	C1048	03C4444	ARC PAVILION	DCV for a VAV system - AH 4	Tier 1	Job Order	9/30/2010	12/30/2012	39,691	7,388
DAVIS	C1052	03C3773	FRBORN	AHU-1 CAV to VAV & DCV	Tier 1	Job Order	9/30/2010	12/30/2012	172,509	(888)
DAVIS	C1053	03C3773	FRBORN	S-2-MZ AHU-CAV to VAV	Tier 1	Job Order	9/30/2010	12/30/2012	80,262	7,325
DAVIS	C1054	03C4656	SOCSCI&HUMAN	Spot cooling, CAV to VAV & DCV AH 1, 2	Tier 1	Job Order	9/30/2010	12/30/2012	35,012	8,525
DAVIS	C3038	03C3351	WICKSN	SBD, New/Renov - Wickson Renovation (2 of 2)	Tier 1	Undecided	1/1/2009	6/30/2012	458,407	21,844
DAVIS	C3068	03C4466	VET MED 2	SBD, New/Renov - Veterinary Medicine 3B	Tier 1	Design - Bid	1/1/2009	12/1/2013	1,024,944	48,840
DAVIS	C3095	03CTBD2	SOUTH VALLEY ANIMAL HEALTH LABORATORY	SBD, New/Renov - South Valley Animal Health Laboratory	Tier 1	Undecided	7/1/2010	9/1/2013	295,020	14,058
DAVIS	C3097	03CTBD4	HEALTH AND WELLNESS CENTER	SBD, New/Renov - Health and Wellness Center	Tier 1	Undecided	7/1/2010	9/1/2013	563,220	26,838
DAVIS	C3148	03CWIDE	CAMPUSWIDE	Refrigerators Phase 1 of 5: 100 Energy Star Refrigerator Replacements	Tier 1	Other	3/30/2011	9/1/2012	224,300	-
DAVIS	C3149	03CWIDE	CAMPUSWIDE	Refrigerators Phase 2 of 5: 100 Energy Star Refrigerator Replacements	Tier 1	Other	3/30/2011	9/1/2012	224,300	-
DAVIS	C3150	03CWIDE	CAMPUSWIDE	Refrigerators Phase 3 of 5: 100 Energy Star Refrigerator Replacements	Tier 1	Other	3/30/2011	9/1/2013	224,300	-
DAVIS	C3151	03CWIDE	CAMPUSWIDE	Refrigerators Phase 4 of 5: 100 Energy Star Refrigerator Replacements	Tier 1	Other	3/30/2011	9/1/2013	224,300	-
DAVIS	C3152	03CWIDE	CAMPUSWIDE	Refrigerators Phase 5 of 5: 80 Energy Star Refrigerator Replacements	Tier 1	Other	3/30/2011	9/1/2014	179,440	-
DAVIS	C3153	03CWIDE	CAMPUSWIDE	LCD Phase 1 of 7: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	Tier 1	Other	3/30/2009	9/1/2012	213,796	-
DAVIS	C3154	03CWIDE	CAMPUSWIDE	LCD Phase 2 of 7: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	Tier 1	Other	3/30/2009	9/1/2012	213,796	-
DAVIS	C3155	03CWIDE	CAMPUSWIDE	LCD Phase 3 of 7: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	Tier 1	Other	3/30/2009	9/1/2012	213,796	-
DAVIS	C3156	03CWIDE	CAMPUSWIDE	LCD Phase 4 of 7: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	Tier 1	Other	3/30/2010	9/1/2013	213,796	-
DAVIS	C3157	03CWIDE	CAMPUSWIDE	LCD Phase 5 of 7: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	Tier 1	Other	3/30/2010	9/1/2013	213,796	-
DAVIS	C3158	03CWIDE	CAMPUSWIDE	LCD Phase 6 of 7: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements	Tier 1	Other	3/30/2010	9/1/2013	213,796	-
DAVIS	C3287	03CWIDEO	CAMPUSWIDE - OTHER	Campuswide 92 GH retrofit	Tier 1	Job Order	4/1/2009	9/30/2014	-	157,596
DAVIS	C3288	03C4051	KING	HVAC System Upgrade	Tier 1	Job Order	4/1/2009	9/30/2012	516,599	185,413

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
DAVIS	C3290	03C4098	SURGE 3	FH RCx & ACR Reduction	Tier 1	Job Order	7/1/2010	9/30/2013	180,604	37,972
DAVIS	C3291	03C3844	PRIM CTR LAB	FH RCx & ACR Reduction	Tier 1	Job Order	7/1/2011	9/30/2014	88,321	16,813
DAVIS	C3292	03C3839	FOOD SC&TECH	FH RCx & ACR Reduction	Tier 1	Job Order	7/1/2011	9/30/2014	54,811	9,263
DAVIS	C3293	03C4820	VM EQUINE LB	FH RCx & ACR Reduction	Tier 1	Job Order	7/1/2011	9/30/2014	120,189	21,871
RIVERSIDE	E3084	05CP5323	SPIETH	Placeholder HVAC Project - Projected from Systemwide Average of SEP Audits to Date	Tier 1	Undecided	6/1/2011	6/1/2012	419,110	35,240
RIVERSIDE	E3089	05CP5354	WATKINS	Placeholder HVAC Project - Projected from Systemwide Average of SEP Audits to Date	Tier 1	Undecided	6/1/2011	6/1/2012	258,440	21,730
RIVERSIDE	E3092	05CP5414	PHYSICAL SCI	Placeholder HVAC Project - Projected from Systemwide Average of SEP Audits to Date	Tier 1	Undecided	6/1/2011	6/1/2012	559,390	47,030
RIVERSIDE	E3097	05CP5501	BATCHELOR	Placeholder HVAC Project - Projected from Systemwide Average of SEP Audits to Date	Tier 1	Undecided	6/1/2011	6/1/2012	437,410	36,780
RIVERSIDE	E3098	05CP5504	PHYSICS	Placeholder HVAC Project - Projected from Systemwide Average of SEP Audits to Date	Tier 1	Undecided	6/1/2011	6/1/2012	371,830	31,260
RIVERSIDE	E3101	05CP5523	SPROUL	Placeholder HVAC Project - Projected from Systemwide Average of SEP Audits to Date	Tier 1	Undecided	6/1/2011	6/1/2012	136,290	15,690
SAN DIEGO	F2058	06C6172	WAR LEC HALL	AHU'S - CV TO VAV RETROFIT	Tier 1	Design - Bid	1/1/2011	4/1/2012	456,714	59,775
SAN DIEGO	F2066	06C6353	BONNER HALL	AH-1,2,&3 - CV TO VAV FUMEHOOD	Tier 1	Design - Bid	1/1/2011	6/1/2012	2,051,225	95,450
SAN DIEGO	F2067	06C6361	YORK HALL	AHU'S 1,2,&3 - CV TO VAV FUMEHOOD	Tier 1	Design - Bid	1/1/2011	6/1/2012	3,758,093	237,838
SAN DIEGO	F2074	06C6603	H SS BLDG	SF-1 to SF-6 Retrofit	Tier 1	Design - Bid	1/3/2011	6/1/2012	941,174	97,250
SAN DIEGO	F2077	06C6811	SOC SCI BLDG	AHU-1 & 2 Retrofit	Tier 1	Design Build	1/1/2010	6/1/2013	98,063	10,812
SAN DIEGO	F2083	06C6600	AP M BLDG	CV to VAV Lab Hoods	Tier 1	Design - Bid	1/1/2011	6/1/2012	607,971	33,938
SAN DIEGO	F2085	06C6602	MCGILL/MANDLER BLDG	CV to VAV Lab Hoods	Tier 1	Design - Bid	1/2/2011	6/1/2012	241,789	16,650
SAN DIEGO	F3230	06CWide	CAMPUSWIDE	Solar Pool Water Heater	Tier 1	Design - Bid	1/1/2009	6/1/2012	-	16,878
SAN DIEGO MC	F3501	06C6157	PERLMAN HOSP	Retrofit T8 Fixtures with 28 watt T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	Tier 1	Design Build	1/1/2011	12/1/2012	114,805	-
SAN DIEGO MC	F3507	06C6658	UH AMB CARE	Retrofit T8 Fixtures with 28 watt T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	Tier 1	Design Build	1/1/2011	12/1/2012	102,052	-
SAN DIEGO MC	F3513	06C6976	UH OUTPT CTR	Retrofit T8 Fixtures with 28 watt T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	Tier 1	Design Build	1/1/2011	12/1/2012	130,889	-
SANTA BARBARA	H1012	08C8557	CHEMISTRY	AHU S4, S5 - CAV to VAV retrofit	Tier 1	Design - Bid	1/1/2009	12/15/2014	594,604	51,865
SANTA BARBARA	H1020	08C8525	DAVIDSON LIB (Main)	L4 - S1, S2 - CAV to VAV for RF only	Tier 1	Design - Bid	1/1/2009	12/15/2014	163,921	-
SANTA BARBARA	H3010	08CWIDE	CAMPUSWIDE	Replace HPS Street Lights with LED Street Lights	Tier 1	Design - Bid	1/1/2011	12/15/2012	188,467	-
SANTA BARBARA	H3035	08C8525	DAVIDSON LIB (Main)	Monitoring Based Commissioning	Tier 1	Undecided	6/1/2011	12/15/2014	160,632	3,074
SANTA BARBARA	H3040	08C8533	ROBERTSN GYM	Monitoring Based Commissioning	Tier 1	In House	6/1/2011	12/15/2014	58,917	8,034
SANTA BARBARA	H3057	08C8556	HAROLD FRANK	Monitoring Based Commissioning	Tier 1	In House	6/1/2011	12/15/2014	189,096	20,310
SANTA BARBARA	H3064	08C8563	ELLISON HALL	Monitoring Based Commissioning	Tier 1	In House	6/1/2011	12/15/2014	87,177	11,888
SANTA BARBARA	H3085	08CNEW1	STUDENT RESOURCES BLDG (BLDG 221)	Monitoring Based Commissioning	Tier 1	Design - Bid	6/1/2011	12/15/2014	48,504	563
SANTA BARBARA	H3120	08C8243	ICA	Replace Gen1 T8 w/ T8 dimmables; + Occupancy Sensors	Tier 1	Design - Bid	6/1/2011	12/15/2014	95,457	-
SANTA BARBARA	H3121	08C8251	PSYCH ADDITI	Replace Gen1 T8 w/ T8 dimmables; + Occupancy Sensors	Tier 1	Design - Bid	1/1/2011	12/15/2012	66,484	-
SANTA BARBARA	H3125	08C8511	MAC	Replace Gen2 T8 w/ T8 dimmables + Occupancy Sensors	Tier 1	Design - Bid	6/1/2011	12/15/2014	97,717	-
SANTA BARBARA	H3126	08C8515	HSSB	Replace Gen2 T8 w/ T8 dimmables + Occupancy Sensors	Tier 1	Design - Bid	1/1/2011	12/15/2012	254,695	-
SANTA BARBARA	H3138	08C8544	NOBLE HALL	Replace Gen1 T8 w/ T8 dimmables; + Occupancy Sensors	Tier 1	Design - Bid	1/1/2011	12/15/2012	104,837	-
SANTA BARBARA	H3143	08C8552	CHEADLE HALL	Replace Gen2 T8 w/ T8 dimmables + Occupancy Sensors	Tier 1	Design - Bid	1/1/2011	12/15/2012	128,696	-
SANTA BARBARA	H3150	08C8560	PHELPS HALL	Replace Gen1 T8 w/ T8 dimmables; + Occupancy Sensors	Tier 1	Design - Bid	1/1/2011	12/15/2012	357,121	-
SANTA BARBARA	H3152	08C8563	ELLISON HALL	Replace Gen2 T8 w/ T8 dimmables + Occupancy Sensors	Tier 1	Design - Bid	1/1/2011	12/15/2012	190,765	-
SANTA BARBARA	H3163	08C8615	MRL	Replace Gen1 T8 w/ T8 dimmables; + Occupancy Sensors	Tier 1	Design - Bid	6/1/2011	12/15/2014	94,820	-
SANTA BARBARA	H3176	08CWIDE	CAMPUSWIDE	Refrigerators Phase 1 of 3: 100 Energy Star Refrigerator Replacements	Tier 1	Design - Bid	1/1/2011	12/15/2014	224,300	-
SANTA BARBARA	H4001	08CWIDE	CAMPUSWIDE	VSD on (55) CHW, HW & CW Pumps	Tier 1	Design - Bid	1/1/2011	12/15/2014	293,784	-
IRVINE	I3075	09C9001	LANGSON LIBR	Monitoring Based Commissioning	Tier 1	Design - Bid	6/1/2011	12/15/2012	131,684	15,843
IRVINE	I3099	09C9125	ENG TOWER	Monitoring Based Commissioning	Tier 1	Design - Bid	6/1/2011	12/15/2012	92,453	23,130
IRVINE	I3104	09C9204	SOCSCI TOWER	Monitoring Based Commissioning	Tier 1	Design - Bid	6/1/2011	12/15/2012	145,072	8,804
IRVINE	I3107	09C9221	SOC SCI PL B	Monitoring Based Commissioning	Tier 1	Design - Bid	6/1/2011	12/15/2012	37,790	5,153
IRVINE	I3112	09C9314	BREN EVENTS	Monitoring Based Commissioning	Tier 1	Design - Bid	6/1/2012	12/15/2013	74,889	10,212
Subtotal, 2012-14 Tier 1 Projects									29,409,456	2,254,661

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
2012-14 Tier 2 Projects										
BERKELEY	A1042	01C1098	RESSTUSRVBLD (Central Dining/Cesar Chavez Stu Ctr)	AHU 4, 5 - Spot Cooling & SP Reset	Tier 2	Design - Bid	9/30/2011	9/30/2012	55,395	7,592
BERKELEY	A3014	01C1098	RESSTUSRVBLD (Central Dining/Cesar Chavez Stu Ctr)	Crossroads Kitchen Hood Controls	Tier 2	Design - Bid	9/30/2011	6/30/2012	39,576	1,575
BERKELEY	A3015	01C1145	RH1 CHRSTIAN	Monitoring Based Commissioning	Tier 2	Design - Bid	4/30/2011	9/30/2012	30,124	6,971
BERKELEY	A3016	01C1145	RH1 CHRSTIAN	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; + Occupancy Sensors + Daylighting	Tier 2	Design - Bid	4/30/2011	9/30/2012	56,081	-
BERKELEY	A3017	01C1146	RH1 SLOTTMAN	Monitoring Based Commissioning	Tier 2	Design - Bid	4/30/2011	9/30/2012	32,849	7,355
BERKELEY	A3018	01C1146	RH1 SLOTTMAN	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; + Occupancy Sensors + Daylighting	Tier 2	Design - Bid	4/30/2011	9/30/2012	58,886	-
BERKELEY	A3019	01C1147	RH2 TOWLE	Monitoring Based Commissioning	Tier 2	Design - Bid	7/31/2011	1/31/2013	31,953	7,051
BERKELEY	A3020	01C1147	RH2 TOWLE	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; + Occupancy Sensors + Daylighting	Tier 2	Design - Bid	7/31/2011	1/31/2013	56,386	-
BERKELEY	A3021	01C1148	RH2 WADA	Monitoring Based Commissioning	Tier 2	Design - Bid	7/31/2011	1/31/2013	33,240	7,223
BERKELEY	A3022	01C1148	RH2 WADA	Replace 32W T8 w/ 28W T8 & Prem Eff RLO Ballast; Replace F40T12 EB w/ 28W T8 & Prem Eff RLO Ballast; + Occupancy Sensors + Daylighting	Tier 2	Design - Bid	7/31/2011	1/31/2013	57,883	-
BERKELEY	A3024	01C1208	ART GALLERY	SBD, New/Renov - Berkeley Art Museum and Pacific Film Archive	Tier 2	Design - Bid	4/1/2008	10/1/2013	1,206,900	57,510
BERKELEY	A3031	01C1225	LS ADDITION	+ Occupancy Sensors + Daylighting	Tier 2	Design - Bid			25,036	-
BERKELEY	A3096	01C1486	KROEBER	+ Daylighting	Tier 2	Design - Bid			3,303	-
BERKELEY	A3135	01C1803	RH3 DINING	Café 3 Kitchen Hood Controls	Tier 2	Design - Bid	9/30/2011	6/30/2012	5,176	345
BERKELEY	A3162	01CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 2	Undecided	7/1/2010	7/1/2012	67,616	6,335
BERKELEY	A3163	01CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 2	Undecided	7/1/2011	7/1/2013	67,616	6,335
BERKELEY	A3190	01CWIDE	CAMPUSWIDE	LCD Phase 7 of 8: 1000 Verdiem (PC Power Management) Installations and 40 CRT Replacements					213,796	-
BERKELEY	A3191	01CWIDE	CAMPUSWIDE	LCD Phase 8 of 8: 300 Verdiem (PC Power Management) Installations and 13 CRT Replacements					64,139	-
SAN FRANCISCO	B1015	02C2412	DENTISTRY	SF 1-1, 1-2, 2-1 to 2-3, 3-1, 3-2, 4-1, 4-2, B1 - CAV to VAV & SP Reset	Tier 2	Undecided	1/1/2011	8/30/2013	451,167	14,688
SAN FRANCISCO	B1029	02C2012	LIBRARY	Installing VFD driven Centrifugal Chiller (150 Ton) with suitable CHW primary pump, VFD driven secondary pump, condenser pump; VFD on existing CT fan & retrofitting the same to handle lower water flow rate	Tier 2	Undecided	2/1/2010	4/1/2013	411,533	158,384
SAN FRANCISCO MC	B1511	02C2408	UC CLINICS (ACC)	AHU 1, 2, 3, 4 - CAV to VAV & SP Reset	Tier 2	Undecided	2/1/2011	3/1/2012	1,315,709	176,700
SAN FRANCISCO MC	B1518	02C2408	UC CLINICS (ACC)	Remove ACC-RAC-14 (chiller supplying cooling to AC-05) & connect to rooftop chiller ACC-CHR.3 piping. Convert Chilled Water CV pumping to Variable volume pumping.	Tier 2	Undecided	2/1/2011	3/1/2012	101,020	-
SAN FRANCISCO MC	B3536	02C2031	MTZ BLDG J (2356 Sutter)	Retrofit T8 and T12 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy and Daylighting Sensors in Appropriate Areas	Tier 2	Undecided	2/1/2011	3/1/2012	164,905	-
DAVIS	C3113	03CWide	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2012	Tier 2	Undecided		12/30/2012	454,550	-
DAVIS	C3114	03CWide	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2012	Tier 2	Undecided		12/30/2012	454,550	-
DAVIS	C3116	03CWide	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2013	Tier 2			12/30/2013	454,550	-
DAVIS	C3117	03CWide	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2013	Tier 2			12/30/2013	454,550	-
DAVIS	C3119	03CWide	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2014	Tier 2			12/30/2014	454,550	-
DAVIS	C3120	03CWide	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2014	Tier 2			12/30/2014	454,550	-

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
DAVIS	C3124	03CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 2	Undecided		6/30/2012	28,172	2,640
DAVIS	C3125	03CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 2	Undecided		12/30/2012	28,172	2,640
DAVIS	C3127	03CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 2	Undecided		6/30/2013	28,172	2,640
DAVIS	C3128	03CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 2	Undecided		12/30/2013	28,172	2,640
DAVIS	C3129	03CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 2	Undecided		6/30/2014	28,172	2,640
DAVIS	C3130	03CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 2	Undecided		12/30/2014	28,172	2,640
DAVIS	C3139	03CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 2	Undecided	7/1/2010	12/30/2012	11,269	1,056
DAVIS	C3140	03CWIDEO	CAMPUSWIDE - OTHER	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 2	Undecided	7/1/2011	12/30/2013	11,269	1,056
DAVIS	C3159	03CWIDE	CAMPUSWIDE	LCD Phase 7 of 7: 556 Verdiem (PC Power Management) Installations and 23 CRT Replacements	Tier 2	Other	3/30/2011	9/1/2014	118,870	-
DAVIS	C3171	03C3280	FAC SERVICES	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 2			12/30/2012	53,710	-
DAVIS	C3172	03C3320	CRUESS	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 2			12/30/2012	75,169	-
DAVIS	C3173	03C3331	HICKEY GYM	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 2			12/30/2012	173,583	-
DAVIS	C3174	03C3350	EVERSN	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 2			12/30/2012	67,521	-
DAVIS	C3175	03C3351	WICKSN	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 2			12/30/2012	162,376	-
DAVIS	C3188	03C3773	FRBORN	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 2			12/30/2013	95,874	-
DAVIS	C3189	03C3788	HUTCH	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 2			12/30/2013	153,535	-
DAVIS	C3197	03C4004	BAINER	Retrofit 32W T8 fixtures with w/ 28W T8 & Prem Eff RLO Ballast + Occupancy Sensors + Daylighting	Tier 2			12/30/2013	233,584	-
SAN DIEGO	F3026	06C6172	WAR LEC HALL	Retrofit T8 Fixtures with 28W F32T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	Tier 2	Job Order	1/1/2011	4/1/2012	113,933	-
SAN DIEGO	F3034	06C6315	CANYON VISTA	UCSD Earl Warren - Canyon Vista Kitchen Hood Controls	Tier 2	Design Build	1/1/2011	12/1/2012	27,963	194
SAN DIEGO	F3041	06C6336	UREY HALL	Monitoring Based Commissioning	Tier 2	Design Build	1/2/2011	12/1/2012	293,905	9
SAN DIEGO	F3042	06C6336	UREY HALL	Install occupancy sensors in classrooms, offices, and appropriate library aras, as well as photocell sensors where appropriate	Tier 2	Job Order	1/2/2011	12/1/2012	48,837	-
SAN DIEGO	F3052	06C6361	YORK HALL	Install occupancy sensors in classrooms, offices, and appropriate library aras, as well as photocell sensors where appropriate	Tier 2	Job Order	1/1/2011	6/1/2012	32,957	-
SAN DIEGO	F3063	06C6461	BAS SCI BLDG	Install occupancy sensors in classrooms, offices, and appropriate library areas, as well as photocell sensors where appropriate	Tier 2	Job Order	1/1/2011	12/1/2012	141,197	-
SAN DIEGO	F3080	06C6601	BIOLOGY BLDG	SBD, New/Renov - Biological and Physical Sciences Building	Tier 2	Design - Bid	1/1/2011	12/1/2012	734,868	35,017
SAN DIEGO	F3081	06C6601	BIOLOGY BLDG	Install occupancy sensors in classrooms, offices, and appropriate library aras, as well as photocell sensors where appropriate	Tier 2	Job Order	1/1/2011	12/1/2012	17,259	-
SAN DIEGO	F3112	06C7008	CAFEVENTANAS	UCSD Eleanor - Café Ventanas Kitchen Hood Controls	Tier 2	Design Build	1/1/2011	12/1/2012	27,963	194
SAN DIEGO	F3122	06CTBD1	CAMPUS WELLNESS CTR	SBD, New/Renov - Campus Wellness Center	Tier 2	Design - Bid	1/1/2011	6/1/2013	643,680	30,672
SAN DIEGO	F3123	06CTBD10	TELEMEDICINE AND PRIME FACILITY	SBD, New/Renov - Telemedicine and PRIME Education Facility	Tier 2	Design - Bid	1/1/2011	12/1/2013	654,408	31,183
SAN DIEGO	F3124	06CTBD11	CTR FOR MARINE BIOTECHNOLOGY AND BIOMEDICINE	SBD, New/Renov - The Center for Marine Biotechnology and Biomedicine	Tier 2	Design - Bid	1/1/2011	12/1/2013	327,875	15,624
SAN DIEGO	F3125	06CTBD12	BIRCH AQUARIUM EXPANSION	SBD, New/Renov - The Stephen Birch Aquarium Museum Expansion at Scripps Institution of Oceanography	Tier 2	Design - Bid	1/1/2011	6/1/2013	522,990	24,921
SAN DIEGO	F3126	06CTBD2	CTR FOR INTEGRATIVE NEUROSCIENCES	SBD, New/Renov - Center for Integrative Neurosciences	Tier 2	Design - Bid	1/1/2011	12/1/2013	670,500	31,950

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
SAN DIEGO	F3128	06CTBD4	HEALTH SCIENCES BIOMEDICAL RESEARCH BLDF	SBD, New/Renov - Health Sciences Biomedical Research Building	Tier 2	Design - Bid	1/1/2011	12/1/2013	1,139,850	54,315
SAN DIEGO	F3129	06CTBD5	HOUSING AND DINING SVCS ADMIN BLDG	SBD, New/Renov - Housing and Dining Services Administrative Building and Catering Facility	Tier 2	Design - Bid	1/1/2011	12/1/2013	114,885	10,764
SAN DIEGO	F3130	06CTBD6	INSTITUTE FOR TRANS-SCALE THEORY	SBD, New/Renov - Institute for Trans-scale Theory	Tier 2	Design - Bid	1/1/2011	12/1/2013	670,500	31,950
SAN DIEGO	F3132	06CTBD8	SIO RESEARCH SUPPORT FACILITY	SBD, New/Renov - SIO Research Support Facilities	Tier 2	Design - Bid	1/1/2011	12/1/2013	205,173	9,777
SAN DIEGO	F3133	06CTBD9	STUDENT ON-CAMPUS HOUSING EXPANSION	SBD, New/Renov - Student On-Campus Housing Expansion	Tier 2	Design - Bid	1/1/2011	12/1/2013	1,831,217	171,573
SAN DIEGO	F3142	06CWide	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2011	Tier 2	Design - Bid	1/1/2011	12/1/2012	454,550	-
SAN DIEGO	F3143	06CWide	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2011	Tier 2	Design - Bid	1/1/2011	12/1/2013	454,550	-
SAN DIEGO	F3144	06CWide	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2009	Tier 2	Design - Bid	1/2/2011	12/1/2013	-	28,409
SAN DIEGO	F3145	06CWide	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2012	Tier 2	Design - Bid	1/3/2011	12/1/2013	454,550	-
SAN DIEGO	F3146	06CWide	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2012	Tier 2	Design - Bid	1/4/2011	12/1/2013	454,550	-
SAN DIEGO	F3147	06CWide	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2009	Tier 2	Design - Bid	1/5/2011	12/1/2013	-	28,409
SAN DIEGO	F3148	06CWide	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2013	Tier 2	Design - Bid	1/6/2011	12/1/2013	454,550	-
SAN DIEGO	F3149	06CWide	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2013	Tier 2	Design - Bid	1/7/2011	12/1/2013	454,550	-
SAN DIEGO	F3150	06CWide	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2009	Tier 2	Design - Bid	1/8/2011	12/1/2013	-	28,409
SAN DIEGO	F3151	06CWide	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2014	Tier 2	Design - Bid	1/9/2011	12/1/2013	454,550	-
SAN DIEGO	F3152	06CWide	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2014	Tier 2	Design - Bid	1/10/2011	12/1/2013	454,550	-
SAN DIEGO	F3153	06CWide	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2009	Tier 2	Design - Bid	1/11/2011	12/1/2013	-	28,409
SAN DIEGO	F3154	06CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 2	Design - Bid	1/1/2009	12/1/2013	28,172	2,640
SAN DIEGO	F3155	06CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 2	Design - Bid	1/2/2009	12/1/2013	11,269	1,056
SAN DIEGO	F3156	06CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 2	Design - Bid	1/1/2010	12/1/2013	28,172	2,640
SAN DIEGO	F3157	06CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 2	Design - Bid	1/2/2010	12/1/2013	11,269	1,056
SAN DIEGO	F3158	06CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 2	Design - Bid	1/3/2010	12/1/2013	28,172	2,640
SAN DIEGO	F3159	06CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 2	Design - Bid	1/1/2011	12/1/2013	11,269	1,056
SAN DIEGO	F3160	06CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 2	Design - Bid	1/2/2011	12/1/2013	28,172	2,640
SAN DIEGO	F3161	06CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 2	Design - Bid	1/3/2011	12/1/2013	11,269	1,056
SAN DIEGO	F3163	06CWIDE	CAMPUSWIDE	SBD, New/Renov - Satellite Utilities Plant	Tier 2	Design - Bid	1/3/2011	12/1/2013	264,946	12,625
SAN DIEGO	F3176	06CWIDE	CAMPUSWIDE	Refrigerators Phase 4 of 4: 33 Energy Star Refrigerator Replacements	Tier 2	Design Build	1/2/2011	12/1/2012	74,019	-
SAN DIEGO MC	F3506	06C6658	UH AMB CARE	Monitoring Based Commissioning	Tier 2	Design Build	1/2/2011	12/1/2012	99,905	2,325
SAN DIEGO MC	F3511	06C6974	U HOSPITAL	Implement Recommendations in March 2006 SDREO Lighting Feasilibity Report and Install Occupancy Sensors in Offices and Storage Areas without them	Tier 2	Design Build	1/2/2011	12/1/2012	397,909	-
SAN DIEGO MC	F3514	06C6978	UH T LINK	Implement Recommendations in March 2006 SDREO Lighting Feasilibity Report and Install Occupancy Sensors	Tier 2	Design Build	1/2/2011	12/1/2012	34,118	-
SAN DIEGO MC	F3516	06C6983	UH SOUTH WNG	Retrofit T8 Fixtures with 28 watt T8 Lamps and Premium Efficiency RLO Ballasts, and Install Occupancy Sensors	Tier 2	Design Build	1/2/2011	12/1/2012	114,172	-
SANTA BARBARA	H1008	08C8572	BROIDA HALL (Physics)	S-1, S2, S3, S8 - CAV to VAV	Tier 2	Design - Bid	1/1/2011	12/15/2014	134,035	14,082
SANTA BARBARA	H1011	08C8657	PSB NORTH	AHU 1, 2, 3, 3B - CAV to VAV retrofit and AutoSash Closure	Tier 2	Design - Bid	1/1/2011	12/15/2013	2,347,783	281,429
SANTA BARBARA	H3013	08CWIDE	CAMPUSWIDE	Solar Pool Water Heater - Rec Center Pools	Tier 2	Design - Bid	1/1/2011	12/15/2014	-	40,326
SANTA BARBARA	H3014	08CWIDE	CAMPUSWIDE	Solar Pool Water Heater - Campus Pool	Tier 2	Design - Bid	1/1/2011	12/15/2014	-	23,849
SANTA BARBARA	H3032	08C8511	MAC	Monitoring Based Commissioning	Tier 2	Design - Bid	1/1/2011	12/15/2014	41,244	5,624
SANTA BARBARA	H3038	08C8528	SOUTH HALL	Monitoring Based Commissioning	Tier 2	Design - Bid	1/1/2011	12/15/2014	80,921	3,763
SANTA BARBARA	H3061	08C8560	PHELPS HALL	SBD, New/Renov - Phelps Hall Renovation	Tier 2	Design - Bid	1/1/2011	12/15/2014	213,786	20,030
SANTA BARBARA	H3065	08C8563	ELLISON HALL	SBD, New/Renov - Ellison Hall Renovation	Tier 2	Design - Bid	1/1/2011	12/15/2014	272,228	25,506
SANTA BARBARA	H3075	08C8581	FACULTY CLUB	Monitoring Based Commissioning	Tier 2	Design - Bid	6/1/2011	12/15/2014	10,381	1,416
SANTA BARBARA	H3097	08CWide	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2012	Tier 2	Design - Bid	1/1/2011	12/15/2014	454,550	-
SANTA BARBARA	H3100	08CWide	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2013	Tier 2	Design - Bid	1/1/2011	12/1/2014	454,550	-

Table 11.2: Project Committments by Campus (Continued)

Campus Name	SEP ID#	Building Key	Building Name	Project Name	Project Tier	Project Delivery Method	Start Preliminary Engineering	Project Complete	Committed Electric Savings (kWh/yr)*	Committed Gas Savings (Therms/yr)*
SANTA BARBARA	H3101	08CWide	CAMPUSWIDE	Second Electric Savings Component of DM and CR Projects 2013	Tier 2	Design - Bid	1/1/2011	12/15/2014	454,550	-
SANTA BARBARA	H3103	08CWide	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2014	Tier 2	Design - Bid	1/1/2011	12/15/2014	454,550	-
SANTA BARBARA	H3106	08CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 2	Design - Bid	1/1/2011	12/15/2014	16,903	1,584
SANTA BARBARA	H3107	08CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 2	Design - Bid	1/1/2011	12/15/2014	16,903	1,584
SANTA BARBARA	H3108	08CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 2	Design - Bid	1/1/2011	12/15/2014	16,903	1,584
SANTA BARBARA	H3109	08CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 2	Design - Bid	1/1/2011	12/15/2014	16,903	1,584
SANTA BARBARA	H3110	08CWIDE	CAMPUSWIDE	SBD, New/Renov - Devereux/West Campus Building Renovations	Tier 2	Design - Bid	1/1/2011	12/15/2014	224,775	21,060
SANTA BARBARA	H3118	08C8225	ENG SCI	Replace Gen2 T8 w/ T8 dimmables + Occupancy Sensors	Tier 2	Design - Bid	1/1/2011	12/15/2012	113,705	-
SANTA BARBARA	H3119	08C8235	LIFESCI	Replace Gen2 T8 w/ T8 dimmables + Occupancy Sensors	Tier 2	Design - Bid	1/1/2011	12/15/2012	98,322	-
SANTA BARBARA	H3122	08C8266	CNSI	Replace Gen2 T8 w/ T8 dimmables + Occupancy Sensors	Tier 2	Design - Bid	1/1/2011	12/15/2012	147,478	-
SANTA BARBARA	H3134	08C8531	MUSIC	Replace Gen2 T8 w/ T8 dimmables + Occupancy Sensors	Tier 2	Design - Bid	1/1/2011	12/15/2012	127,113	-
SANTA BARBARA	H3142	08C8551	PSYCHOLOGY	Replace Gen2 T8 w/ T8 dimmables + Occupancy Sensors	Tier 2	Design - Bid	1/1/2011	12/15/2012	72,996	-
SANTA BARBARA	H3154	08C8567	KOHN HALL	Replace Gen2 T8 w/ T8 dimmables + Occupancy Sensors	Tier 2	Design - Bid	6/1/2011	12/15/2014	61,659	-
SANTA BARBARA	H3157	08C8572	BROIDA HALL (Physics)	Replace Gen2 T8 w/ T8 dimmables + Occupancy Sensors	Tier 2	Design - Bid	1/1/2011	12/15/2012	201,858	-
SANTA BARBARA	H3170	08CNEW1	STUDENT RESOURCES BLDG (BLDG 221)	Replace Gen2 T8 w/ T8 dimmables	Tier 2	Design - Bid	6/1/2011	12/15/2014	93,384	-
SANTA BARBARA	H3185	08CWIDE	CAMPUSWIDE	Server Virtualization Phase 2 of 3: 10 VM Installations	Tier 2	Design - Bid	1/1/2011	12/15/2014	280,000	-
IRVINE	I1056	09C9314	BREN EVENTS	AHU 1 and 3 - Convert to VAV and SP reset	Tier 2	Undecided	6/1/2011	12/15/2012	603,650	40,575
IRVINE	I1057	09C9314	BREN EVENTS	DCV for a CAV system - AHU 2 and AHU 5	Tier 2	Undecided	6/1/2011	12/15/2012	37,169	2,112
IRVINE	I1077	09C9314	BREN EVENTS	AHU 4 and 6 - VIV to VAV and SP reset	Tier 2	Undecided	6/1/2011	12/15/2012	41,250	2,988
IRVINE	I3057	09C9314	BREN EVENTS	Zone DDC Upgrade	Tier 2	Undecided	6/1/2011	12/15/2012	50,575	2,334
IRVINE	I3059	09C9322	MED SCI C	EF VFDs	Tier 2	Undecided	6/1/2011	12/15/2012	84,423	-
IRVINE	I3061	09C9323	MED SCI D	EF VFDs	Tier 2	Undecided	6/1/2011	12/15/2012	78,158	-
IRVINE	I3063	09C9325	MED SCI A	EF VFDs	Tier 2	Undecided	6/1/2011	12/15/2012	203,212	-
IRVINE	I3065	09C9328	MED SCI B	EF VFDs	Tier 2	Undecided	6/1/2011	12/15/2012	73,475	-
IRVINE	I3070	09CWIDE	CAMPUSWIDE	Solar Pool Water Heater - Anteater Pool	Tier 2	Undecided	6/1/2011	12/15/2012	-	13,908
IRVINE	I3085	09C9056	SOTA ART STD	Monitoring Based Commissioning	Tier 2	Design - Bid	6/1/2011	12/15/2012	12,176	1,110
IRVINE	I3087	09C9058	ARTS TECH	SBD, New/Renov - Arts Building	Tier 2	Undecided	6/1/2011	12/15/2012	189,810	17,784
IRVINE	I3105	09C9208	SCH BUSINESS	SBD, New/Renov - School of Business Building	Tier 2	Undecided	6/1/2011	12/15/2012	249,750	23,400
IRVINE	I3109	09C9299	ANT REC CTR	Monitoring Based Commissioning	Tier 2	Design - Bid	6/1/2011	12/15/2012	68,776	11,970
IRVINE	I3127	09CTBD3	BIOMEDICAL RESEARCH FACILITY 4 - STEM CELL	SBD, New/Renov - Irvine Biomedical Research Facility - 4 (Stem Cell)	Tier 2	Undecided	6/1/2011	12/15/2012	701,343	33,420
IRVINE	I3128	09CTBD4	HEALTH SCIENCES ACADEMIC BUILDING	SBD, New/Renov - Health Sciences Academic Building	Tier 2	Undecided	6/1/2012	12/15/2013	241,380	11,502
IRVINE	I3129	09CTBD5	TELEMEDICINE/PRIME-LC FACILITY	SBD, New/Renov - Telemedicine/PRIME-LC Facilities	Tier 2	Undecided	6/1/2011	12/15/2012	402,300	19,170
IRVINE	I3142	09CWide	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2012	Tier 2	Undecided	6/1/2011	12/15/2012	454,550	-
IRVINE	I3144	09CWide	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2009	Tier 2	Undecided	6/1/2011	12/15/2012	-	28,409
IRVINE	I3145	09CWide	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2013	Tier 2	Undecided	6/1/2012	12/15/2013	454,550	-
IRVINE	I3147	09CWide	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2009	Tier 2	Undecided	6/1/2012	12/15/2013	-	28,409
IRVINE	I3148	09CWide	CAMPUSWIDE	First Electric Savings Component of DM and CR Projects 2014	Tier 2	Undecided	6/1/2013	12/15/2014	454,550	-
IRVINE	I3150	09CWide	CAMPUSWIDE	Natural Gas Component of DM and CR Projects 2009	Tier 2	Undecided	6/1/2013	12/15/2014	-	28,409
IRVINE	I3155	09CWIDE	CAMPUSWIDE	SBD, New/Renov - Campus Approved Projects Under $5 Million	Tier 2	Undecided	6/1/2011	12/15/2012	84,519	7,919
IRVINE	I3558	09C9140	ENG GATEWAY	Replace Old CRAC Units with New CRAC Units, Install Air Side Economizer & Separate Hot & Cold Aisle					91,104	
IRVINE	I6001	09C9299	ANT REC CTR	CW Reset & MBCx Chiller Plant(in addition to MBCx of Building)	Tier 2	Undecided	6/1/2011	12/15/2012	316,372	-
IRVINE	I6002	09C9314	BREN EVENTS	ECM- Install Air Curtain At Loading Dock (Bren Events Center)	Tier 2	Undecided	6/1/2012	12/15/2013	(2,820)	2,150
MERCED			S&E II	Savings By Design	Tier 2	Design - Bid	2/1/2010	5/1/2013	1,433,000	56,087
Subtotal, 2012-14 Tier 1 Projects									34,333,326	1,842,606
Total Campus Tier 1 & 2 Projects									286,147,935	17,645,885

* Committed energy savings based on preliminary project list published March 28, 2008 and may vary slightly from final energy savings in this report

12. ENERGY & GHG FORECAST

The University of California 2007 Policy of Sustainable Practices sets the goal of reducing greenhouse gas emissions to 2000 levels by 2014 and to 1990 levels by 2020. Each campus will need to develop complete greenhouse gas emissions calculations for the baseline years of 1990 and 2000. In order to determine the potential impact of energy efficiency and renewable energy projects identified in the Strategic Energy Plan, current, past, and future greenhouse gas emissions from purchased electricity and natural gas have been estimated based on information provided on energy purchases for fiscal years 1999-2000 and 2006-2007. Greenhouse gas emissions savings for the projects identified have also been calculated in order to compare their impact with the greenhouse gas emissions reduction goals. While these emissions calculations do not include all sources of campus greenhouse gas emissions, they do provide a way of measuring the impact of the projects identified in the SEP in relation to electricity and natural gas usage.

12.1 Electricity Emissions Factors

Although some California utilities publish greenhouse gas emissions factors for their delivered power, a complete record of historical and current factors is not available. Therefore, in accordance with the California Climate Action Registry (CCAR) General Reporting Protocol, EPA's eGRID emissions factor for the CALI – WECC California subregion for 2000 of 0.000366 metric tons of CO_2e/kWh was used to calculate greenhouse gas emissions from purchased electricity. This number includes greenhouse gas emissions of carbon dioxide, methane, and nitrous oxide and uses global warming potential factors published in the IPCC's Third Assessment Report to convert methane and nitrous oxide emissions to carbon dioxide equivalents. The emissions factor is reported in metric tons of carbon dioxide equivalent per kWh (CO_2e/kWh) of electricity purchased. While the emissions factor does normally vary by year based on the actual fuel mix used, a constant value was used to isolate the impacts of energy efficiency and renewable energy projects. Each campus may choose to develop utility and year specific emissions factors when filing their greenhouse gas emissions with the California Climate Action Registry.

12.2 Gas Emissions Factors

The emission factors provided in the California Climate Action Registry General Reporting Protocol, Tables C.5 and C.6 were used to calculate the greenhouse gas emissions associated with natural gas purchases. This number is 0.005295 metric tons of CO_2e per therm.

12.3 Current Energy Usage and Emissions

Current emissions from purchased utilities are shown in Table 1.1

12.4 2014 Goals

The University of California has set the goal of meeting 2000 greenhouse gas emission by 2014. In 2000 many campuses were purchasing their energy from Enron which relied on a different power mix than the state-wide average. This information is not accurately reflected in the average state-wide emissions factor and therefore actual greenhouse gas emissions for campuses purchasing Enron power will be much higher than calculated. In addition to

the campus wide greenhouse gas emissions goal, the campus also needs to meet the goal of reducing growth adjusted electricity consumption to 10% below 2000 levels by 2014. The energy consumption and greenhouse gas emissions associated with the 2014 goals are shown in Table 1.1. The emissions are based on the statewide average emissions factor.

12.5 2020 Goals

While the goal of achieving a reduction of greenhouse gas emissions to 1990 levels by 2020 has been set, the lack of data on energy consumption and emission factors in 1990 has made it infeasible to determine an accurate baseline.

12.6 SEP Energy Efficiency and Renewable Energy Projects

The Strategic Energy Plan has identified energy efficiency and renewable energy projects to help meet the greenhouse gas emissions targets of each campus. The impact of these proposed projects on greenhouse gas emissions is shown in Table 1.1. If the campus chooses to install the photovoltaic systems proposed in the SEP, they will need to retain ownership of the renewable energy credits (RECs) associated with the production of electricity from the PV panels in order to claim credit for the greenhouse gas emissions reductions from the system.

13. CONCLUSIONS

13.1 Next Steps and Recommendations

13.1.1 Action Plan

The UC Strategic Energy Plan was driven by the UC's Policy on Sustainable Practices, Section II d., which stipulates that the system (1) reduce systemwide growth-adjusted energy consumption by 10 percent or more by 2014 from the year 2000 base consumption level, and (2) reduce GHG emissions to 2000 levels by 2014.

To accomplish these goals, the campus must create a strategic action plan for implementing energy-saving projects through the year 2014. The plan should address both State and Non-state funded facilities. The SEP project list should be used as a starting point to guide these action plans, but the University should continuously evaluate the feasibility of additional energy-saving measures. Every campus has begun to develop an action plan through 2011. For each year in the six year program, the University should re-evaluate and modify the action plan to reflect actual progress towards goals and necessary future steps.

13.1.2 College Performance: Measurement and Reporting

To ensure meeting the goals and requirements of the UC Policy on Sustainable Practices, the campus must measure, evaluate, and report energy use and greenhouse gas emissions regularly.

A Climate Change Working Group at each campus is currently developing a protocol to allow for growth adjustment and normalization of data and accurate reporting procedures. These Working Groups will monitor progress toward reaching the stated goals for GHG reduction, and will evaluate suggestions for programs to reach these goals.

13.2 Funding Sources

Significant financial investment will be required to accomplish the UC Policy on Sustainable Practices goals. A variety of financing programs and funding sources are available to the Universities. Two major funding sources designed specifically to support energy efficiency projects are the Utility Incentive Programs and the UCOP's Energy Efficiency Financing program.

13.2.1 Utility Incentive Programs

Most Utilities in California offer incentives to customers to support the implementation of energy-saving projects.

The University of California/California State University/Investor-Owned Utility (UC/CSU/IOU) Energy Efficiency Partnership Program provides funding to all campuses served by San Diego Gas and Electric (SDG&E), Southern California Gas (SCG), Southern California Edison (SCE), Pacific Gas and Electric (PG&E). Through the Partnership, these IOUs distribute incentives from Public Purpose Programs (formerly Publics Good Charges) that customers pay on their utility bills. Since 2004, the IOUs have paid UC almost $20 million in incentives through this Partnership, and the IOUs have offered to increase UC funding in

future years. As a preliminary step within the Strategic Energy Plan, commitments were made to the IOUs to coincide with CPUC filing deadlines and it is anticipated that funding levels will be granted for the commitment. Current UC/CSU/IOU Partnership incentive rates are $0.24 per kilowatt-hour saved in the first year and $1.00 per therm saved in the first year, and the Partnership will pay up to 80% of the project cost. This incentive structure is anticipated to remain unchanged on average in the future program years.

Publicly-Owned Utilities, such as Los Angeles Department of Public Works (LADWP), Sacramento Municipal Utility District (SMUD), Riverside Public Utilities (RPU) also manage energy efficiency incentive programs that have historically paid substantial incentives to Universities in their territories. There have been discussions with each of these utilities to negotiate similar incentive rates, which may be firmed up in the coming months. In either case, Universities served by these Utilities are strongly encouraged to participate in the Utility incentive programs available.

13.2.2 UCOP Energy Efficiency Financing

UCOP has designed a program to work in concert with the Utility incentive programs to provide low-interest loan to cover the cost to the campuses after the incentives. Campuses will pay back the loans to UCOP using the energy cost savings. To do so will require Department of Finance approval to allow for capital debt service to be paid with energy cost savings. In order to be eligible for the UCOP borrowed funds, a portfolio of projects must meet minimum, although liberal, project cost return requirement. The anticipated criteria include a 85% ratio of loan payment to energy savings, which equates to approximately 15 year simple payback on the portfolio of projects.

UCOP is prepared to lend up to $500 million to campuses through 2014 to support energy-saving projects.

To learn more about UCOP Energy Efficiency Project Financing, contact

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APPENDICES

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Appendix A
Campus Reports

(Electronic copies only – see folder “Appendix A – Campus Reports” on disk)

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Appendix B
Savings Calculations

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Appendix C
Other Calculations and Data

(Electronic copies only – see folder “Appendix C-Other Calculations” on disk)