City of Santa Barbara Zero Net Energy Roadmap

Energy Efficiency and Renewables Preliminary Feasibility Study

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Disclaimer

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Table of Contents

Table of Figures

Table of Tables

1 Executive Summary

The purpose of this energy efficiency and renewable energy feasibility study is to identify ways to save energy, achieve City and state climate action planning goals with the ongoing reduction of greenhouse gas (GHG) emissions, and realize portfolio zero net energy (ZNE) status for the City of Santa Barbara's Facilities (City) by 2030. To achieve this, Santa Barbara will need to include the following new distributed energy resources (DER):

- Energy Efficiency Measures (EEM)
- Solar Photovoltaic (PV) and Battery Energy Storage Systems (BESS)
- Solar Water Heating

Thirty-six sites, with a total of 104 buildings, parks, and other properties, were analyzed in this study. Table 1 presents the EEMs proposed for these sites as well as their respective savings, cost, and payback. Because the audited sites make up less than 20 percent of the total energy consumption of the City of Santa Barbara, the study estimated the high level of energy efficiency savings that may be obtained if energy audits were performed for all the City's sites. Estimated high level energy savings were developed based on the 2017 annual energy use report provided by the utility. It is important to note that the 2017 energy report data pre-dated the desalination plant; therefore, this load was not able to be accounted for in this analysis. Associated implementation costs ($/kWh) used to extrapolate capital costs for projects was high enough to be applied to energy efficiency, solar, and battery storage projects. This approach was employed to ensure that in situations where energy efficiency projects are not financially feasible, renewable generation projects could be pursued instead to offset energy consumption for relatively equivalent implementation costs.

Since an in-depth analysis could not be realized at these remaining sites and loads, the energy savings from EEMs were forecasted by applying the total percent reduction in energy usage calculated at the sites analyzed.

Energy Efficiency Measure (EEM)	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Simple Payback Period
	(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	527,635	113.83	-950.54	$116,709	$1,317,404	11.3
EEM 2: Replacement of interior fluorescent, high intensity discharge (HID), and incandescent lamps and fixtures with new LED lamps and fixtures	433,539	58.14	-879.99	$84,634	$535,649	6.3
EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	353,375	0.00	0.00	$69,422	$396,410	5.7
EEM 4: Upgrade existing HID tennis lighting to LED	17,211	0.00	0.00	$4,769	$74,938	15.7
EEM 5: Programmable thermostats	52,578	10.39	150.76	$9,608	$43,680	4.6

EEM 6: Heating, ventilation, and air conditioning (HVAC) systems advanced maintenance	99,518	112.76	3,387.77	$20,331	$72,370	3.6
EEM 7: Evaporator fan motor replacement	5,121	0.00	0.00	$925	$8,100	8.8
EEM 8: Computer room air conditioning (CRAC) units evaporator fan motor replacement	2,615	0.23	0.00	$405	$1,800	4.4
EEM 9: Exposed rooftop ductwork spray-on insulation	5,940	2.81	2,484.00	$3,447	$3,580	1.0
EEM 10: Kitchen hood exhaust	13,269	1.65	0.00	$2,294	$5,973	2.6
EEM 11: Circulating block heater for emergency generators	52,433	6.57	471.00	$8,823	$8,335	0.9
EEM 12: Vending miser controller	3,565	0.00	0.00	$804	$1,895	2.4
EEM 13: Domestic hot water (DHW) heater replacement	3,167	0.00	3,075.29	$3,506	$26,862	7.7
EEM 14: Advanced package unit controllers	234,241	13.29	360.05	$41,223	$452,177	11.0
EEM 15: Replace package units, split systems, and window units	72,161	53.80	12.37	$11,922	$266,678	22.4
EEM 16: Duct sealing*	335	0.70	31.05	$86	$26,750	> 30
EEM 17: Replace furnace with high energy efficiency furnaces*	0	0.00	18.80	$17	$10,369	> 30
TOTAL	**1,876,702**	**374.16**	**8,160.56**	**$378,924**	**$3,252,969**	**8.6**

Table 1: EEM Description

Table 2 summarizes the EEM and DER proposed, as well as their perspective savings, cost, and payback. If the City implements all the EEM and DER listed, it will be able to reduce its utility purchased energy by 66 percent. This energy reduction is not inclusive of the desalination plant, which became operational following the analysis based on 2017 energy usage in this report. Please note that the table includes both the analysis performed at the audited sites as well as the forecasted values estimated in the remaining sites and properties owned by the City.

Distributed Energy Resource (DER)	Electricity Savings	Natural Gas Savings	Annual Cost Savings	Implementation Cost	Simple Payback Period
	(MWh/yr)	(thm/yr)	($)	($)	($)
Energy Efficiency	12,532	18,398	$2.43M	$20.83M	8.6
Solar PV & BESS	9,830	0	$1.13M	$12.93M	11.5
Solar Water Heating	32	5,400	$12,291	$96,000	7.8
TOTAL	**22,393**	**23,798**	**$3.56M**	**$33.86M**	**9.5**

Table 2: Proposed EEM and DER Savings and Cost Summary

By following the approach outlined in this report, the City would only achieve 67 percent and 15 percent of its electric and gas portfolio ZNE goals, respectively. **Unless the City can generate an additional 11GWh of renewable energy, it will not be able to meet its electric portfolio ZNE goal.** With that being said, the city does have a number of good ZNE *building* candidates, see additional details in Section 7 ZNE Roadmap.

Additionally, unless the City electrifies most of its gas-fired equipment, it will be very challenging to meet the City's overall portfolio ZNE goal. It is not cost efficient to 1) generate renewable natural gas to provide the amount of natural gas currently used by the City or to 2) generate additional renewable electricity to offset the amount of energy used by the City's gas-fired equipment. These ZNE conclusions are discussed in detail in Section 7 ZNE Roadmap.

Figure 1 below provides a hypothetical energy savings forecast over ten years for five different annual allocated budget amounts. These budgets were used as thresholds for the maximum allocated annual amount during any of the 10 years. Additionally, unspent budgets amounts in any given year were assumed to be capable of rolling over to the next year for project implementation. The model explores how energy savings would be realized annually based on the energy efficiency and generation projects implemented. It is important to note that the drastic increase in 2025 is attributed to a major assumption that a 7MW offsite ground mounted solar array would be implemented to generate the 11GWh of renewable energy needed to meet the City's electric portfolio ZNE goal, as noted above.

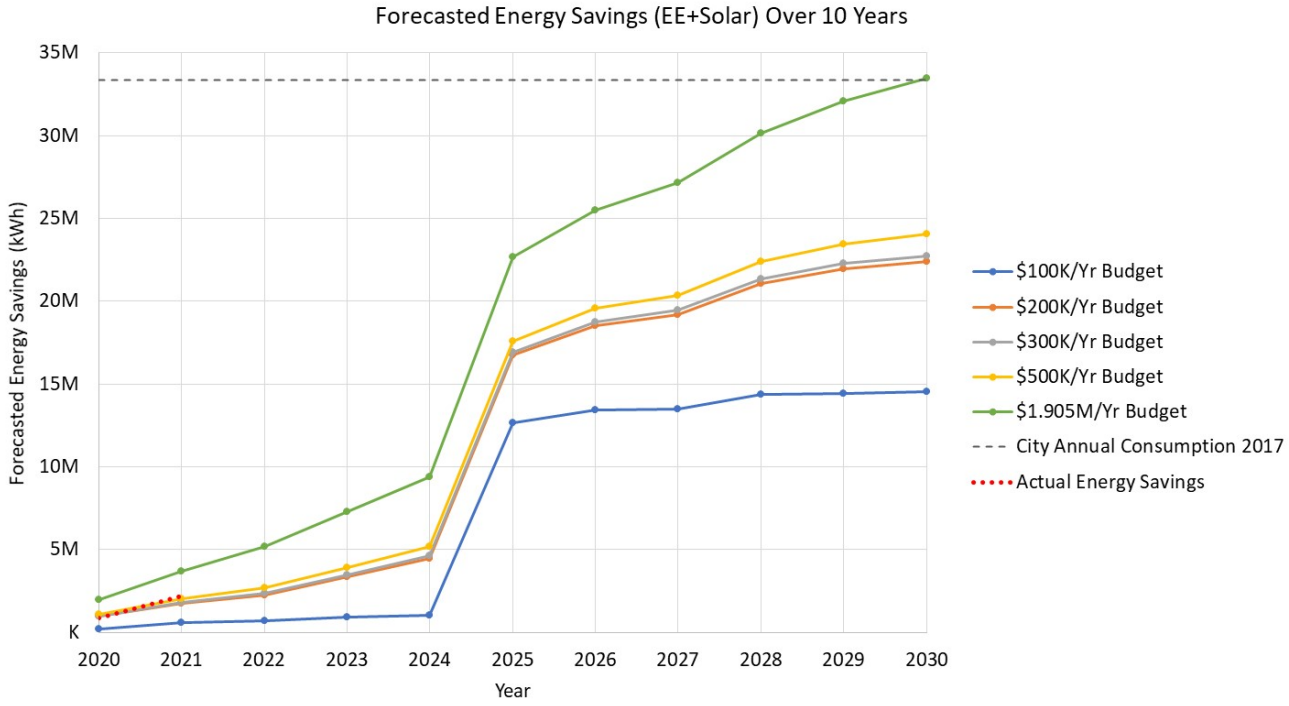


Figure 1: Forecasted Energy Savings Based on five annual budget scenarios.

The red dotted line indicates the actual energy savings associated with implemented energy efficiency and generation projects through January 2021. The green line represents the estimated required annual budget to achieve the City's electric portfolio ZNE goal[1].

[1] Note, this analysis does not include the load associated with the desalination plant, as the 2017 data used in this analysis pre-dated the facility's operation.

2 Portfolio Summary

A total of 73 sites have been included in this feasibility study. An in-depth analysis was conducted at 36 sites (with a total of 104 buildings, parks, and other properties) as presented in Table 3. This table describes the basic characteristics of each of facility, and the respective energy report card. Refer to Appendix A – Site General Descriptions for the facilities general descriptions and schedules and refer to Appendix B – Existing Equipment Inventory for the mechanical, lighting, water heater, and electrical generation inventory of each of the facilities listed in Appendix A – Site General Descriptions.

Report Card Page	Department/ Division	Site & Facility Name	Address	Building/Facility Type	Rate Structure
17	General	Animal Control	415 E. Sola St	Office - Small	TOU-GS1A
18	Airport	Airport - Bldg 349: Paint	1699 Firestone Rd	Assembly	TOU-GS1B
19	Fire Station	Fire Station 7	2411 Stanwood	Lodging - Motel	TOU-GS1A
20	Fire Station	Fire Station 6	1802 Cliff Dr	Lodging - Motel	TOU-GS1A
21	Fire Station	Fire Station 3	415 E Sola St	Lodging - Motel	TOU-GS1A
22	Fire Station	Fire Station 1	121 W Carrillo	Lodging - Motel	TOU-GS2B
23	Fire Station	Fire Station 4	19 N Ontare	Lodging - Motel	TOU-GS1A
24	Fire Station	Fire Station 5	2505 Modoc Rd	Lodging - Motel	TOU-GS1A
25	Library	Eastside Library	1120 E Montecito	Miscellaneous Commercial	TOU-GS2A
26	Library	Central Library - Faulkner Gallery	40 E Anapamu	Miscellaneous Commercial	TOU-GS2B
26	Library	Central Library - Library	40 E Anapamu	Miscellaneous Commercial	TOU-GS2B
27	General	Spencer Adams Lawn Bowling - Club House	1216 De La Vina St	Assembly	TOU-GS1A
28	Parks & Rec	Oak Park - Field	2323 Oak Park Ln	Storage - Unconditioned	TOU-GS1A
29	Parks & Rec	Mckenzie Park - Restroom & Storage	3111 State St	Storage - Unconditioned	TOU-GS1A
30	Police	Police Station	215 E Figueroa	Office - Large	TOU-GS2B
31	Parks & Rec	Louise Lowry Davis Center - Rec Center	1232 De La Vina St	Assembly	TOU-GS1A
32	Parks & Rec	Mckenzie Park - Park Adult	3111 State St	Miscellaneous Commercial	TOU-GS1A
33	Parks & Rec	Ortega Park - Pool	N Salsipuedes St & E Ortega St	Miscellaneous Commercial	TOU-GS1A
33	Parks & Rec	Ortega Park - Restroom	N Salsipuedes St & E Ortega St	Miscellaneous Commercial	TOU-GS1A
33	Parks & Rec	Ortega Park - Welcome House	N Salsipuedes St & E Ortega St	Miscellaneous Commercial	TOU-GS1A
34	Parks & Rec	Los Banos Pool	401 W Cabrillo Blvd	Miscellaneous Commercial	TOU-PA2B
35	Parks & Rec	Carrillo Gym - Gym	102 E Carrillo St	Miscellaneous Commercial	TOU-GS2B
35	Parks & Rec	Carrillo Rec Center - Rec Center	100 E Carrillo St	Miscellaneous Commercial	TOU-GS2B
36	Fire Station	Fire Department Admin - Office	925 Chapala	Office - Large	TOU-GS1A
37	Wastewater	El Estero WWTP - Administration	520 E Yanonali	Office - Large	TOU-8-R

Report Card Page	Department/ Division	Site & Facility Name	Address	Building/Facility Type	Rate Structure
37	Wastewater	El Estero WWTP - Crews Quarter	520 E Yanonali	Lodging - Motel	TOU-8-R
37	Wastewater	El Estero WWTP - Digester Control	520 E Yanonali	Manufacturing - Light Industrial	TOU-8-R
37	Wastewater	El Estero WWTP - Influent Pump Station	520 E Yanonali	Manufacturing - Light Industrial	TOU-8-R
37	Wastewater	El Estero WWTP - Maintenance	520 E Yanonali	Manufacturing - Light Industrial	TOU-8-R
37	Wastewater	El Estero WWTP - Parking	520 E Yanonali	Storage - Unconditioned	TOU-8-R
37	Wastewater	El Estero WWTP – Primary & Second Process	520 E Yanonali	Manufacturing - Light Industrial	TOU-8-R
37	Wastewater	El Estero WWTP - Sludge Digester Control	520 E Yanonali	Manufacturing - Light Industrial	TOU-8-R
37	Wastewater	El Estero WWTP - Sludge Handling	520 E Yanonali	Manufacturing - Light Industrial	TOU-8-R
38	Parks & Rec	Building Maintenance - Garage	616 Laguna St	Manufacturing - Light Industrial	TOU-GS2R
38	Parks & Rec	Building Maintenance - Offices	616 Laguna St	Office - Small	TOU-GS2R
38	Parks & Rec	Building Maintenance - Shops	616 Laguna St	Manufacturing - Light Industrial	TOU-GS2R
38	Parks & Rec	Parks Department - Administration Office	420 E Ortega St	Office - Small	TOU-GS2A
38	Parks & Rec	Public Works - Central Stores & Purchasing	635 Laguna St	Miscellaneous Commercial	TOU-GS2A
38	Parks & Rec	Public Works - Central Stores Offices	635 Laguna St	Office - Small	TOU-GS2A
38	Parks & Rec	Public Works - Motor Pool & Eng Annex	625 Laguna St	Miscellaneous Commercial	TOU-GS2R
38	Parks & Rec	Public Works - Motor Pool Vehicle Bays	625 Laguna St	Miscellaneous Commercial	TOU-GS2R
38	Parks & Rec	Public Works - Water Dist/Collections	625 Laguna St	Miscellaneous Commercial	TOU-GS2R
38	Parks & Rec	Recreation Department - Administration Office	620 Laguna St	Office - Small	TOU-GS2A
39	General	Comm Dev Center	630 Garden St	Education - Primary School	TOU-GS2R
40	General	City Surveyor's Office - Office	220 E Ortega	Office - Small	TOU-GS1A
41	Parks & Rec	Westside Comm Center	423 W Victoria St	Office - Large	TOU-GS2A
42	Fire Station	Fire Station 2	819 Cacique St	Lodging - Motel	TOU-GS1A
43	Parks & Rec	Franklin Center	1136 E Montecito St	Miscellaneous Commercial	TOU-GS2B
44	Parks & Rec	Casa Las Palmas - Rec Center	323 E Cabrillo Blvd	Assembly	TOU-GS1B
44	Parks & Rec	Chase Palm Park - Carousel Building	236 E Cabrillo Blvd	Assembly	TOU-GS1B
44	Parks & Rec	Chase Palm Park - Club House	236 E Cabrillo Blvd	Assembly	TOU-GS1B

Report Card Page	Department/ Division	Site & Facility Name	Address	Building/Facility Type	Rate Structure
45	Parks & Rec	Municipal Tennis Center	1414 Park Pl	Miscellaneous Commercial	TOU-GS2B
46	Parks & Rec	Mckenzie Park - Lawn Bowling	3111 State St	Miscellaneous Commercial	TOU-GS1A
46	Parks & Rec	Mckenzie Park - Records Storage	3111 State St	Storage - Unconditioned	TOU-GS1A
47	Water	Cater WTP - Admin & Maintenance	1150 San Roque Rd	Office - Large	TOU-GS2B
47	Water	Cater WTP - Dewatering	1150 San Roque Rd	Manufacturing - Light Industrial	TOU-GS2B
47	Water	Cater WTP - Operations Annex	1150 San Roque Rd	Manufacturing - Light Industrial	TOU-GS2B
47	Water	Cater WTP - Ozone	1150 San Roque Rd	Manufacturing - Light Industrial	TOU-GS2B
48	General	City Hall	735 Anacapa St	Office - Large	TOU-GS1A
49	Airport	Airport - Bldg 352: Office	1411 Firestone Rd	Office - Small	TOU-GS1A
50	Airport	Airport - Bldg 308: Infield Lighting Generator	Unknown	Miscellaneous Commercial	TOU-GS2A
50	Airport	Airport - Bldg 319: Lift Station	1605 Cecil Cook Pl	Miscellaneous Commercial	TOU-GS2A
50	Airport	Airport - Infield Lighting	Unknown	Miscellaneous Commercial	TOU-GS2B
51	Airport	Airport - Bldg 117: Office	Unknown	Office - Small	TOU-GS1A
52	Airport	Airport - Bldg 122: Flight School & Surf Air	302 Wm Moffett Pl	Office - Small	TOU-GS1A
53	Airport	Airport - Bldg 116: Retail Arrow Camper	6190-A Hollister Ave	Retail - Small	Unknown
54	Airport	Airport - Bldg 255: Administration	601 Firestone Rd	Office - Large	Unknown
54	Airport	Airport - Bldg 256: Security	Unknown	Office - Small	Unknown
55	Airport	Airport - Bldg 258: Offices	629-F Firestone Rd	Office - Small	TOU-GS1A
56	Airport	Airport - Bldg 274: Hangar	Unknown	Storage - Unconditioned	Unknown
57	Airport	Airport - Bldg 312 & 313: Flight School	1503 & 1523 Cecil Cook Pl	Office - Small	Unknown
58	Airport	Airport - Bldg 261: Hangar 4	515 Robt. Marxmiller Pl	Office - Small	Unknown
59	Airport	Airport - Bldg 315: Offices	90-A Dean Arnold Pl	Office - Small	Unknown
60	Airport	Airport - Bldg 227: Offices	Unknown	Office - Small	Unknown
61	Airport	Airport - Bldg 226: Offices	Unknown	Office - Small	Unknown
62	Airport	Airport - Bldg 370: Tire Shop	6010 Hollister Ave	Assembly	Unknown
63	Airport	Airport - Bldg 305: Industrial	20 Dean Arnold Pl	Assembly	Unknown
64	Airport	Airport - Bldg 124: Atlantic Aviation	404 Wm Moffett Pl	Office - Small	Unknown

Report Card Page	Department/ Division	Site & Facility Name	Address	Building/Facility Type	Rate Structure
65	Airport	Airport - Bldg 508: QTA	25 David Love Pl	Office - Large	Unknown
66	Airport	Airport - Bldg 252: Restaurant	521 Norman Firestone Rd	Restaurant - Sit-Down	Unknown
67	Airport	Airport - Bldg 223: Industrial Retail	94 B&C Frederick Lopez Rd	Retail - Small	Unknown
68	Airport	Airport - Bldg 314: Offices	101-A Dean Arnold Pl	Storage - Unconditioned	Unknown
69	Airport	Airport - Bldg 267: Hangar 3	303 John Donaldson Pl	Office - Small	Unknown
69	Airport	Airport - Bldg 268: Storage	301 John Donaldson Pl	Office - Small	Unknown
69	Airport	Airport - Bldg 303: Industrial	51 Gerald Cass Pl	Assembly	Unknown
69	Airport	Airport - Bldg 304: Offices	53-A Gerald Cass Pl	Office - Small	TOU-GS1A
69	Airport	Airport - Bldg 307: Hangar	Unknown	Office - Small	TOU-GS1A
69	Airport	Airport - Bldg 309: Hangar 2	Unknown	Office - Small	TOU-GS1A
69	Airport	Airport - Bldg 333: Offices & R&D	1522 Cecil Cook Pl	Office - Small	Unknown
69	Airport	Airport - Bldg 344: Offices & R&D	1440 Cecil Cook Pl	Office - Small	Unknown
69	Airport	Airport - Bldg 345: Offices	100-A Clyde Adams Rd	Office - Small	Unknown
69	Airport	Airport - Bldg 347: Offices	1699 Firestone Rd	Office - Small	TOU-GS1A
69	Airport	Airport - Bldg 351: Maint. School	1409-A Firestone Rd	Office - Small	Unknown
70	Airport	Airport - Bldg 224: Offices	6100-A Francis Botello Rd	Office - Small	Unknown
71	Airport	Airport - Bldg 121: Hangar 5	Unknown	Office - Small	TOU-GS1A
71	Airport	Airport - Bldg 210: Maintenance Hangar	101 Cyril Hartley Pl	Assembly	TOU-GS1A
71	Airport	Airport - Bldg 225: Offices	Unknown	Office - Small	Unknown
72	Airport	Airport - Bldg 251: Storage	400-A Robt. Marxmiller Pl	Storage - Unconditioned	Unknown
73	Airport	Airport - Bldg 114: Offices	100 Frederick Lopez Rd	Office - Large	Unknown
74	Airport	Airport - Bldg 306: Office	Unknown	Office - Small	Unknown
75	Airport	Airport - Bldg 311: Office	1407 Firestone Rd	Office - Small	Unknown
76	Airport	Airport - Bldg 317: Hangar 1	Unknown	Office - Small	Unknown
77	Airport	Airport - Bldg 363: Golf Shop	6034 Hollister Ave	Assembly	Unknown
78	Parks & Rec	Las Positas Tennis Center	1002 Las Positas	Miscellaneous Commercial	Unknown

Table 3: Facilities Description

3 Goals and Objectives

The purpose of this study is to develop a portfolio ZNE roadmap and implementation plan for the City. This has been accomplished through a detailed technical, market, and cost feasibility analysis of energy efficiency and renewable energy measures. The following objectives were defined to fulfill all the details of the goal:

- **Reduce Environmental Impact:** Achieve ZNE status at a city (portfolio) level and decrease GHG and air emissions by reducing demand and replacing utility energy with clean renewable power.
- **Improve Economic Impact:** Reduce costs associated with energy consumption, operations and maintenance of backup power generation, and control and manage loads to reduce the overall grid (i.e., Southern California Edison's grid) load.
- **Support Clean Energy Market Transformation:** Demonstrate an effective and clean portfolio ZNE roadmap that is scalable across local governments, counties, and regional agencies.

Moreover, the ZNE effort would also be an excellent expression of the City's commitment to the following climate and energy goals that the California Energy Commission (CEC) set for the State of California[2]:

- **Use Renewable Resources for Half of the State's Electricity by 2030:** 31 percent of the electricity consumed by the City currently originates from renewable power sources[3]. Implementing the proposed EEM and DER measures would allow the city to get close to achieve its ZNE goal stated above.
- **Cutting Petroleum Use in Half and Develop Cleaner Heating Fuels by 2030:** By integrating a large amount of new and existing renewable energy and implementing the EEMs, the City would reduce the amount of energy purchased from the grid and GHG and air emissions.
- **Doubling Energy Savings in Existing Buildings by 2030:** As presented in Section 7, the implementation of the proposed EEMs would substantially reduce both the overall demand and energy usage of the City.
- **Reducing GHG Emissions to 40 percent Below 1990 Levels by 2030:** By implementing the proposed energy efficiency and renewable energy strategies, the City's GHG contribution would be reduced by more than half, excluding the GHG emissions associated with the desalination plant that began operation after this study and report was published.

The Santa Barbara ZNE project would contribute to all the above-mentioned energy goals by demonstrating how various DER in conjunction with EEMs can be utilized together to meet all the power needs of a City.

[2] Renewables resources for half of the state's electricity, California Energy Commission, 2015

[3] A total of 2 percent of the energy consumed by the city originates from the existing solar PV system. Also, 29 percent of the purchased utility electricity comes from renewable sources. Data obtained from the SCE power content Label report, published in July 2018, available at: https://www.sce.com/wps/wcm/connect/6ee40264-673a-45ee-b79a-5a6350ed4a50/2017PCL.pdf?MOD=AJPERES

4 Energy Report Cards

TRC designed these report cards to provide a visual representation of the potential economic and energy savings achieved through the implementation of the EEMs, solar PV, and energy storage systems. The report cards also show a breakdown of the proposed energy consumption and reduction of GHG and air emissions. TRC divided the 36 sites (with a total of 104 buildings, parks, and other properties) analyzed in this study into 62 energy report cards and grouped several buildings within proximity to each other together.

TRC used utility interval data to analyze each building's load and estimate the total solar energy consumed and sold back to the grid (when applicable). Several buildings did not have interval data readily available. TRC estimated the load profile for these buildings using the U.S. Department of Energy Commercial Reference Buildings[4] and adjusted accordingly based on their footprint area. TRC estimated monthly natural gas using the reference building load profiles and adjusted the profiles to reflect the annual gas consumption in the supplied billing data.

TRC sized the solar PV systems based on the available roof and parking areas, where feasible. TRC analyzed and optimized BESS using HOMER Pro software. Refer to Section 6.1 for more information and a complete list of the proposed solar PV and battery energy storage capacities.

In the analysis performed, TRC made the following assumptions:

- Solar PV energy generated on site will be immediately used to meet the site(s) load, where possible.
- If BESS are present and the renewable (solar PV) energy cannot be immediately used, it will be stored.
- If at a specific time in the day, the site(s) load is higher than the solar PV load generated, the energy stored in the BESS (if any) will be first used. Utility energy will only be used when no renewable energy is available.[5]
- If BESS are not present or BESS are at their full energy storage capacity, the energy will be sold back (net-metered) to the grid.[6]

The following page can be used as a reference to understand the structure, graphs, and information included in each of the report cards presented in this section.

[4] Department of Energy (DOE), "Commercial Reference Buildings," [Online] Available: https://www.energy.gov/eere/buildings/commercial-reference-buildings.ommercial Reference Buildings

[5] The Energy Storage analysis developed aim to maximize the use of the renewable energy generated. Different BESS energy dispatch approaches can be implemented (i.e., peak shaving) they have not been considered in the study. If the City decides to move forward and implement the solar PV and BESS projects identified an in-depth analysis should be performed to determine the best dispatch strategy, on a case by case basis.

[6] To obtain the net metering benefits, the City will have to submit an interconnection request to SCE. Refer to https://www.energysage.com/net-metering/sce/ for more details.

ZNE Report Cards Cheat Sheet

This section outlines the basic energy information of the site:

Data obtained from the City's Corporate View and utility bills.

Data obtained from the City's Corporate View and utility bills.

This section outlines the EEM identified for this site in Section 5 of the report. Refer to Appendix C for more details on the savings and payback

This section outlines the solar PV and BESS capacities proposed to be installed in the site(s).

Please note that the analysis has assumed that the BESS purpose is to maximize energy storage, not to perform peak shaving. Therefore, the calculated annual cost savings do not consider demand reduction.

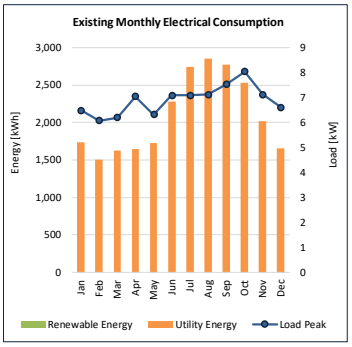
Percentage of the total consumed energy that is generated on-site and is renewable

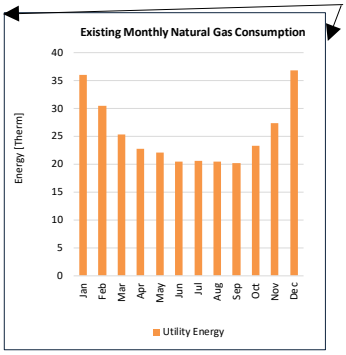
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	3,400 sq.ft.
Building(s) Vintage:	1,966

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-001-3754-33
Utility Rate Tariff:	TOU-GS1A
Energy Purchased:	25,089 kWh
Peak Power Purchased:	83 kW
Blended Utility Rate:	$0.17/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	306 thm
Utility Rate:	$0.90/thm



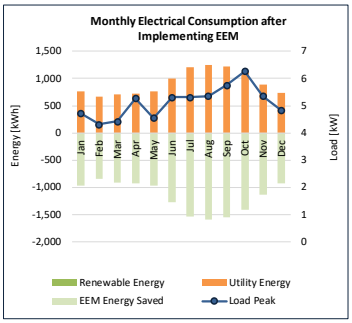


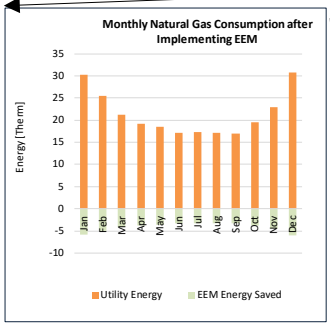
These two graphs represent the current electricity and gas consumption of the site(s).
In orange, the current utility energy being used is shown.
In dark green, the current renewable energy used is shown.
The dark blue line represents the load profile.

ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replacement of exterior lighting to LED
EEM-2:	Replacement of interior lighting to LED
EEM-3:	Retrofit of interior lighting to LED
EEM-4:	Programmable Thermostats
EEM-5:	Circulating Block Heater for Emergency Generators
EEM-6:	Replace HVAC (Package, Split, and Window) Units
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	14,055 kWh (56%)
Demand Reduction:	1.77 kW (2%)
Natural Gas Savings:	49.80 thm (16%)
EEM Implementation Cost:	$12,294
EEM Annual Cost Savings:	$2,503
EEM Simple Payback	4.9 years





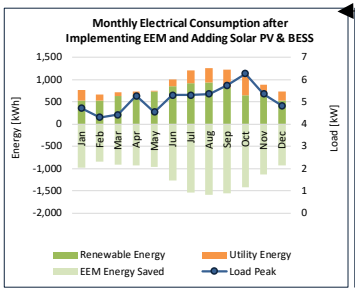
These two graphs show the impact the implementation of the identified EEM has on the current site(s)'s energy consumption.
In orange, the current utility energy being used is shown.
In dark green, the current renewable energy used is shown.
In light green, the reduction in energy thanks to the implementation of the EEM is shown.
The dark blue line represents the adjusted load profile

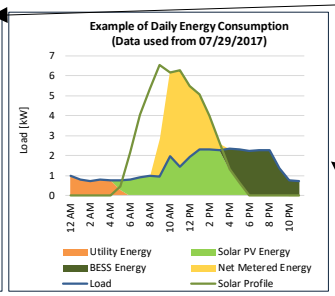
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	9 kWdc CP
Total PV Capacity:	9 kWdc
BESS Storage Capacity:	13 kWh
BESS Inverter Capacity:	13 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	8,411 kWh (34%)
Ren. Energy Generated Used:	8,411 kWh (69%)
Ren. Energy Generated Sold:	3,786 kWh (31%)
PV & BESS Cost:	$39,500
PV & BESS Project Incentives:	$4,375
PV & BESS Net Project Cost:	$35,125
Annual Cost Savings:	$1,376
PV & BESS Simple Payback:	25.5 years





This section outlines the solar PV and BESS capacities proposed to be installed in the site(s).
Please note that the analysis has assumed that the BESS purpose is to maximize energy storage, not to perform peak shaving. Therefore, the calculated annual cost savings do not consider demand reduction.
In orange, the current utility energy being used is shown.
In dark green, the total renewable energy (existing + proposed) used is shown.
In light green, the reduction in energy thanks to the implementation of the EEM is shown.
The dark blue line represents the adjusted load profile

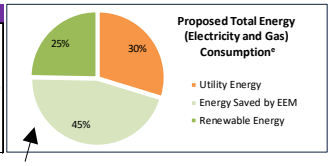
This graph represents a daily energy consumption of the building after implementing the EEM and installing the new solar PV and BESS equipment.
The area under the green line represents the solar energy that will be generated through the solar PV system during that day.
If a BESS is to be installed and the solar load exceeds the building load (blue line) at a specific moment, the energy will be stored and used later in the day (dark green area).
If the solar load (green line) exceeds the building load (blue line) and the BESS is at its maximum capacity (or inexistent) at a specific moment during the day, the extra generated solar energy will be NET metered. In other words, it will be sold back to the grid (yellow area).

b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	22,466 kWh (90%)
Natural Gas Savings:	49.80 thm (16%)
Renewable vs Conventional Energy:	49%
GHG Emissions Reduction:	6.6 MTCO2
SO_2 & NO_x reductions:	202.1 lb
Total Project Cost:	$51,794
Cost Savings (including NET metering):	$3,879

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	562 MWh
Natural Gas Savings:	1,245 thm
GHG Emissions Reduction:	164 MTCO2
SO_2 & NO_x reductions:	5,052 lb
Net Present Value (NPV):	$51,691
Internal Rate of Return (IRR):	9%
Overall Project Payback:	10.6 years



Percentage of the total consumed energy that is generated on-site and is renewable

The pie chart aims to present the annual percentage of renewable energy (dark green) and the percentage of energy reduced through the proposed EEM implementation (light green).
In orange, the annual percentage of utility energy used to meet the remaining building demand is shown.

d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.

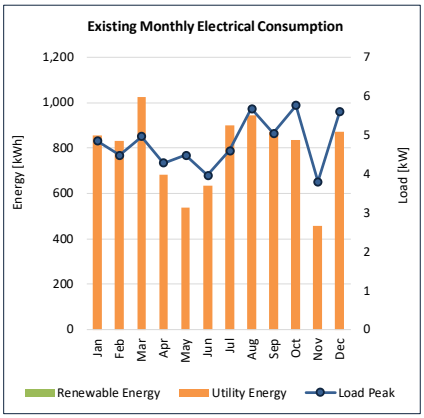
Energy Report Card
Animal Control
415 E Sola St, Santa Barbara, CA 93101

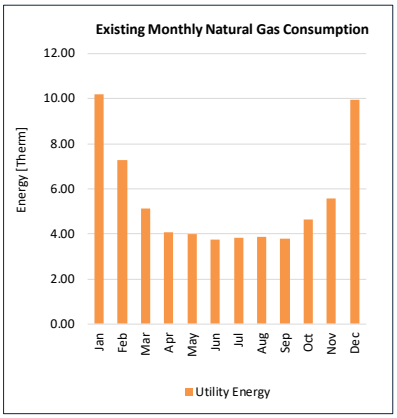
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	2,329 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-001-3753-46
Utility Rate Tariff:	TOU-GS1A
Energy Purchased:	9,467 kWh
Peak Power Purchased:	58 kW
Blended Utility Rate:	$0.19/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	66 thm
Utility Rate:	$0.90/thm

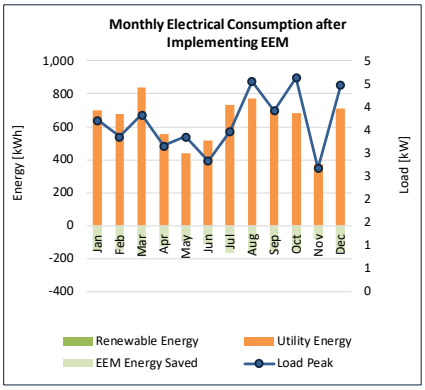


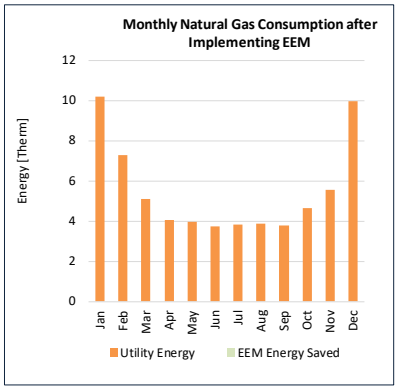


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Programmable Thermostats
EEM-2:	Replace HVAC (Package, Split, and Window) Units
EEM-3:	n/a
EEM-4:	n/a
EEM-5:	n/a
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	1,721 kWh (18%)
Demand Reduction:	1.12 kW (2%)
Natural Gas Savings:	0.00 thm (0%)
EEM Implementation Cost:	$3,905
EEM Annual Cost Savings:	$326
EEM Simple Payback	12.0 years



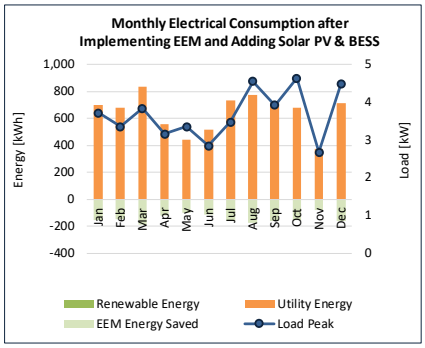


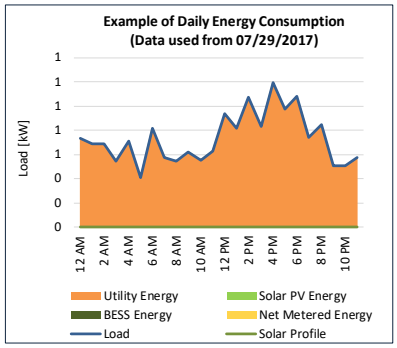
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
Reason for not proposing solar PV:	Load is too small
Total PV Capacity:	0 kWdc
BESS Storage Capacity:	0 kWh
BESS Inverter Capacity:	0 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	0 kWh (0%)
Ren. Energy Generated Used:	0 kWh (0%)
Ren. Energy Generated Sold:	0 kWh (0%)
PV & BESS Cost:	$0
PV & BESS Project Incentives:	$0
PV & BESS Net Project Cost:	$0
Annual Cost Savings:	$0
PV & BESS Simple Payback:	n/a



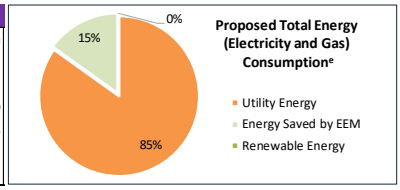


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	1,721 kWh (18%)
Natural Gas Savings:	0.00 thm (0%)
Renewable vs Conventional Energy:	0%
GHG Emissions Reduction:	0.5 MTCO2
SO_2 & NO_x reductions:	15.5 lb
Total Project Cost:	$3,905
Cost Savings (including NET metering):	$326

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	43 MWh
Natural Gas Savings:	0 thm
GHG Emissions Reduction:	12 MTCO2
SO_2 & NO_x reductions:	387 lb
Net Present Value (NPV):	$4,438
Internal Rate of Return (IRR):	10%
Overall Project Payback:	10.4 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

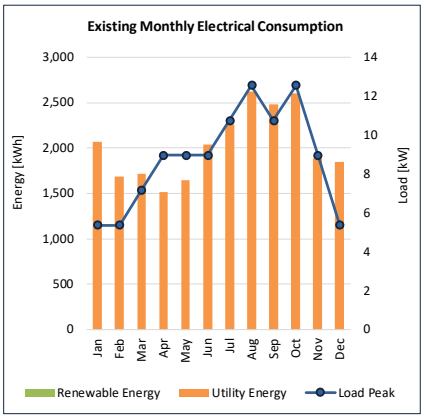
Energy Report Card
Airport (Bldg 349: Paint)
1699 Firestone Rd, Santa Barbara, CA 93117

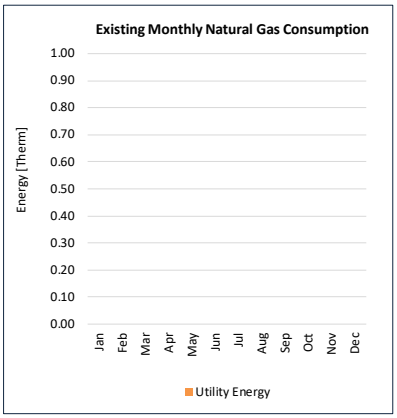
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	8,300 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-001-3753-50
Utility Rate Tariff:	TOU-GS1A
Energy Purchased:	24,349 kWh
Peak Power Purchased:	106 kW
Blended Utility Rate:	$0.14/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	n/a
Utility Rate Tariff:	n/a
Energy Purchased:	0 thm
Utility Rate:	$0.00/thm

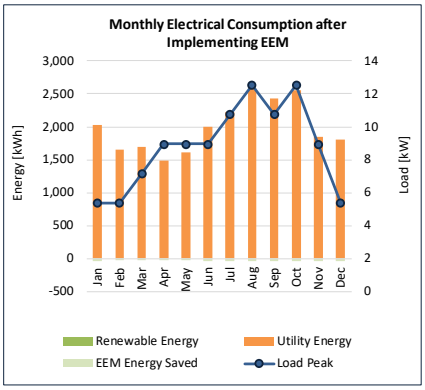


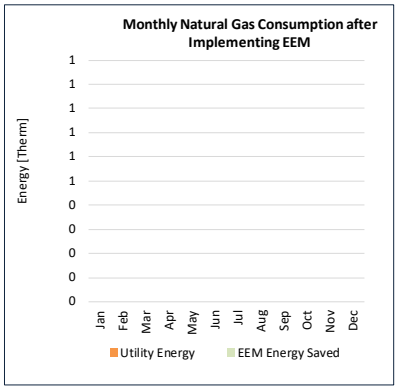


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	DHW Heater Replacement
EEM-2:	n/a
EEM-3:	n/a
EEM-4:	n/a
EEM-5:	n/a
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	399 kWh (2%)
Demand Reduction:	0.00 kW (0%)
Natural Gas Savings:	0.00 thm (0%)
EEM Implementation Cost:	$830
EEM Annual Cost Savings:	$56
EEM Simple Payback	14.9 years



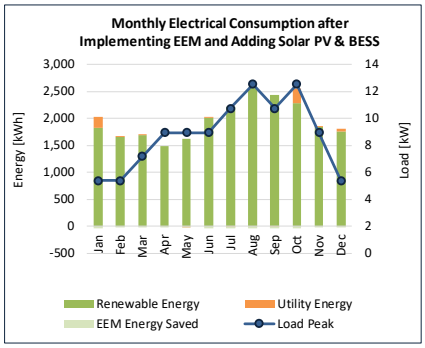


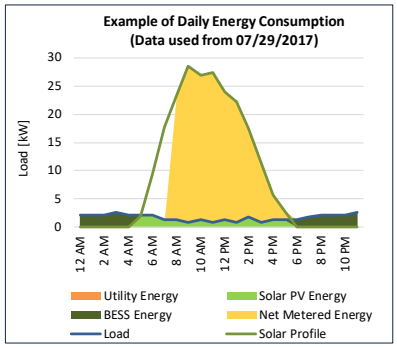
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	39 kWdc RT
Total PV Capacity:	39 kWdc
BESS Storage Capacity:	75 kWh
BESS Inverter Capacity:	25 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	23,410 kWh (96%)
Ren. Energy Generated Used:	23,410 kWh (44%)
Ren. Energy Generated Sold:	29,838 kWh (56%)
PV & BESS Cost:	$133,600
PV & BESS Project Incentives:	$26,250
PV & BESS Net Project Cost:	$107,350
Annual Cost Savings:	$3,464
PV & BESS Simple Payback:	31.0 years



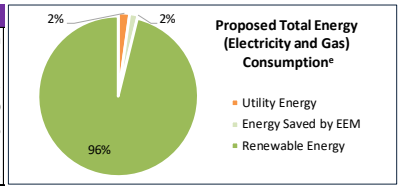


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	23,809 kWh (98%)
Natural Gas Savings:	0.00 thm (0%)
Renewable vs Conventional Energy:	219%
GHG Emissions Reduction:	6.7 MTCO2
SO_2 & NO_x reductions:	214.2 lb
Total Project Cost:	$134,430
Cost Savings (including NET metering):	$3,519

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	595 MWh
Natural Gas Savings:	0 thm
GHG Emissions Reduction:	167 MTCO2
SO_2 & NO_x reductions:	5,354 lb
Net Present Value (NPV):	-$18,246
Internal Rate of Return (IRR):	1%
Overall Project Payback:	22.1 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

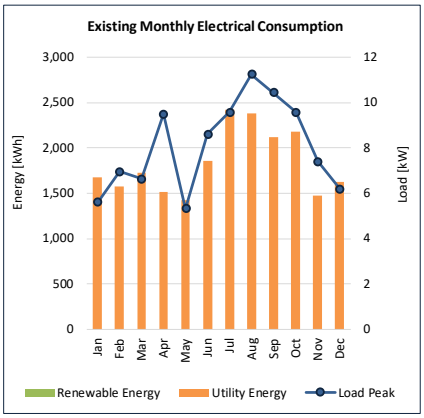
Energy Report Card
Fire Station 7
2411 Stanwood Dr, Santa Barbara, CA 93103

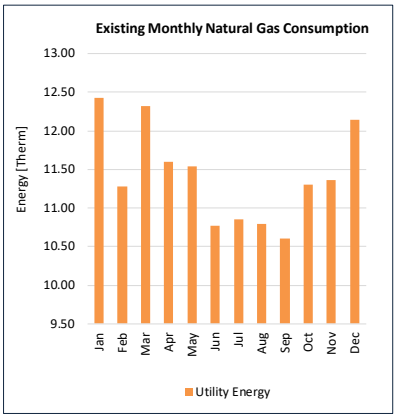
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	4,888 sq.ft.
Building(s) Vintage:	1,950

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-001-3754-26
Utility Rate Tariff:	TOU-GS1A
Energy Purchased:	21,983 kWh
Peak Power Purchased:	86 kW
Blended Utility Rate:	$0.17/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	137 thm
Utility Rate:	$0.90/thm

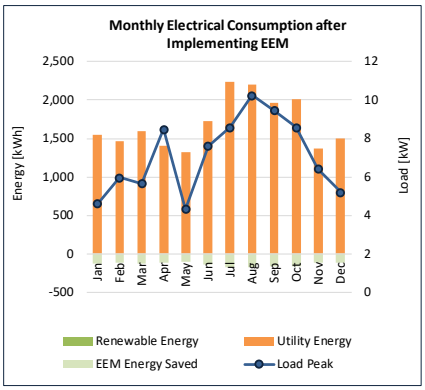


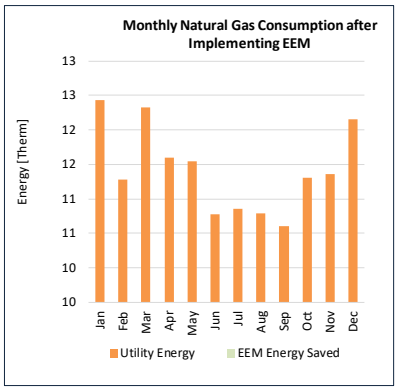


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Programmable Thermostats
EEM-2:	HVAC Systems Advanced Maintenance
EEM-3:	Replace HVAC (Package, Split, and Window) Units
EEM-4:	Duct Sealing
EEM-5:	n/a
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	1,628 kWh (7%)
Demand Reduction:	0.99 kW (1%)
Natural Gas Savings:	0.00 thm (0%)
EEM Implementation Cost:	$4,785
EEM Annual Cost Savings:	$278
EEM Simple Payback	17.2 years



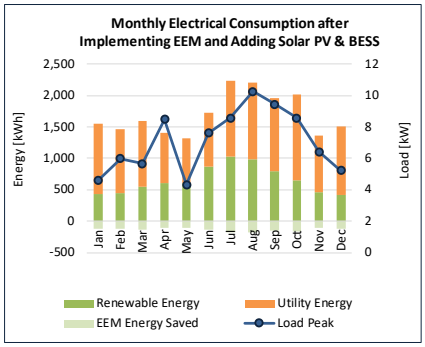


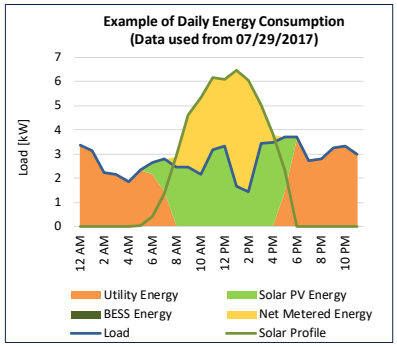
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	9 kWdc RT
Total PV Capacity:	9 kWdc
BESS Storage Capacity:	0 kWh
BESS Inverter Capacity:	0 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	7,834 kWh (36%)
Ren. Energy Generated Used:	7,834 kWh (56%)
Ren. Energy Generated Sold:	6,157 kWh (44%)
PV & BESS Cost:	$18,000
PV & BESS Project Incentives:	$0
PV & BESS Net Project Cost:	$18,000
Annual Cost Savings:	$1,471
PV & BESS Simple Payback:	12.2 years



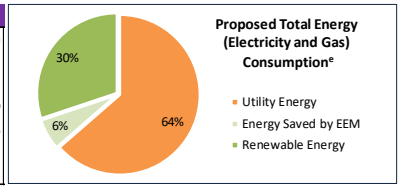


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	9,462 kWh (43%)
Natural Gas Savings:	0.00 thm (0%)
Renewable vs Conventional Energy:	64%
GHG Emissions Reduction:	2.6 MTCO2
SO_2 & NO_x reductions:	85.1 lb
Total Project Cost:	$22,785
Cost Savings (including NET metering):	$1,750

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	237 MWh
Natural Gas Savings:	0 thm
GHG Emissions Reduction:	66 MTCO2
SO_2 & NO_x reductions:	2,128 lb
Net Present Value (NPV):	$21,926
Internal Rate of Return (IRR):	9%
Overall Project Payback:	11.2 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

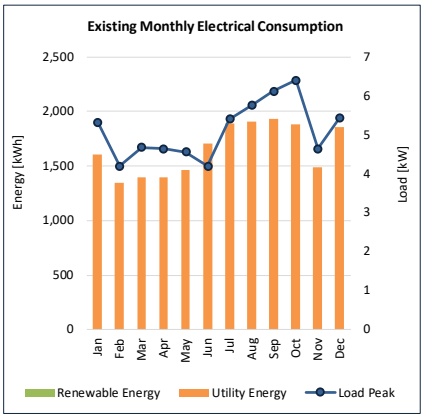
Energy Report Card
Fire Station 6
1802 Cliff Dr, Santa Barbara, CA 93109

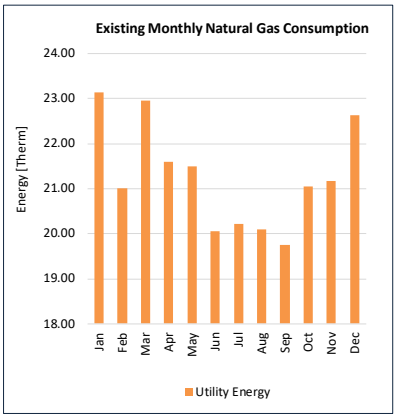
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	2,340 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-001-3754-27
Utility Rate Tariff:	TOU-GS1A
Energy Purchased:	19,878 kWh
Peak Power Purchased:	61 kW
Blended Utility Rate:	$0.17/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	255 thm
Utility Rate:	$0.90/thm

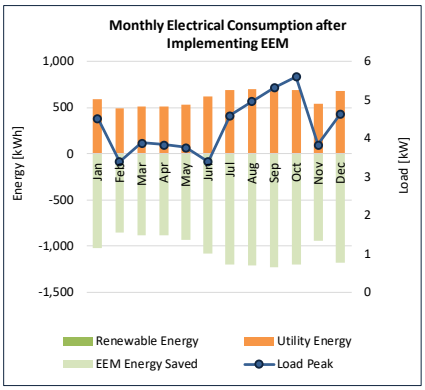


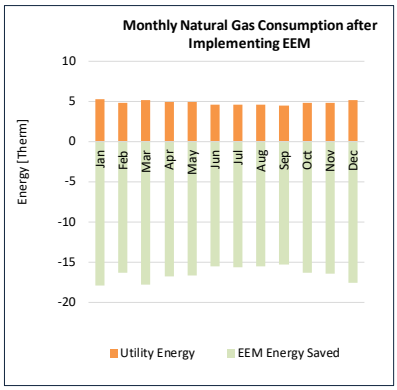


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replacement of exterior lighting to LED
EEM-2:	Replacement of interior lighting to LED
EEM-3:	DHW Heater Replacement
EEM-4:	Circulating Block Heater for Emergency Generators
EEM-5:	n/a
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	12,604 kWh (63%)
Demand Reduction:	0.79 kW (1%)
Natural Gas Savings:	197.67 thm (77%)
EEM Implementation Cost:	$10,169
EEM Annual Cost Savings:	$2,402
EEM Simple Payback	4.2 years



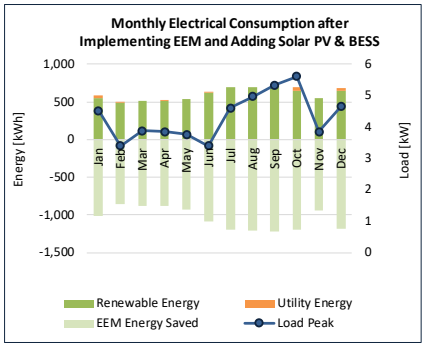


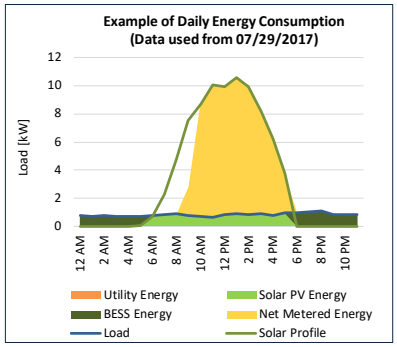
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	15 kWdc RT
Total PV Capacity:	15 kWdc
BESS Storage Capacity:	25 kWh
BESS Inverter Capacity:	25 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	7,170 kWh (36%)
Ren. Energy Generated Used:	7,170 kWh (31%)
Ren. Energy Generated Sold:	15,680 kWh (69%)
PV & BESS Cost:	$54,400
PV & BESS Project Incentives:	$8,750
PV & BESS Net Project Cost:	$45,650
Annual Cost Savings:	$1,366
PV & BESS Simple Payback:	33.4 years



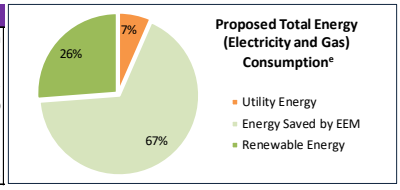


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	19,773 kWh (99%)
Natural Gas Savings:	197.67 thm (77%)
Renewable vs Conventional Energy:	115%
GHG Emissions Reduction:	6.6 MTCO2
SO_2 & NO_x reductions:	177.9 lb
Total Project Cost:	$64,569
Cost Savings (including NET metering):	$3,768

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	494 MWh
Natural Gas Savings:	4,942 thm
GHG Emissions Reduction:	165 MTCO2
SO_2 & NO_x reductions:	4,446 lb
Net Present Value (NPV):	$40,465
Internal Rate of Return (IRR):	7%
Overall Project Payback:	12.4 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

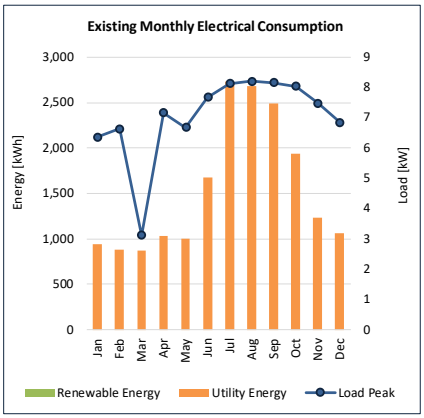
Energy Report Card
Fire Station 3
415 E Sola St, Santa Barbara, CA 93101

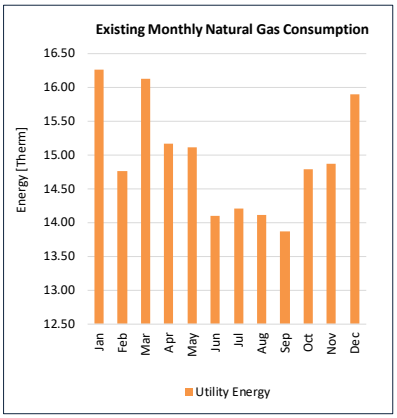
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	4,261 sq.ft.
Building(s) Vintage:	1,929

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-001-3754-29
Utility Rate Tariff:	TOU-GS1A
Energy Purchased:	18,539 kWh
Peak Power Purchased:	84 kW
Blended Utility Rate:	$0.18/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	179 thm
Utility Rate:	$0.90/thm

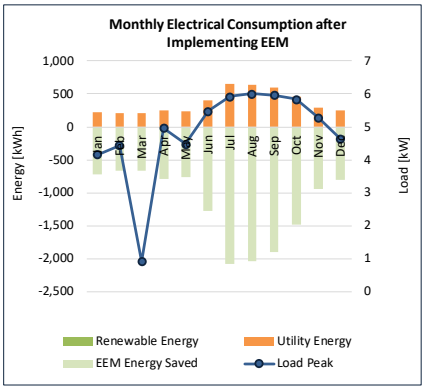


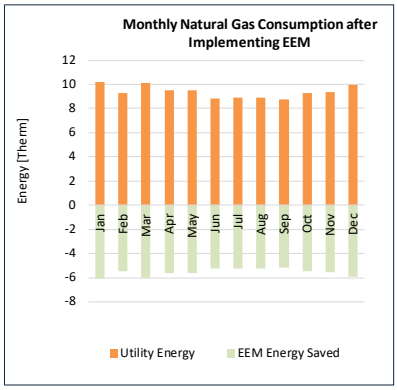


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replacement of exterior lighting to LED
EEM-2:	Replacement of interior lighting to LED
EEM-3:	Programmable Thermostats
EEM-4:	Circulating Block Heater for Emergency Generators
EEM-5:	Replace HVAC (Package, Split, and Window) Units
EEM-6:	Replace Furnace with High Energy Efficiency Furnaces
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	14,126 kWh (76%)
Demand Reduction:	2.20 kW (3%)
Natural Gas Savings:	66.65 thm (37%)
EEM Implementation Cost:	$15,877
EEM Annual Cost Savings:	$2,572
EEM Simple Payback	6.2 years



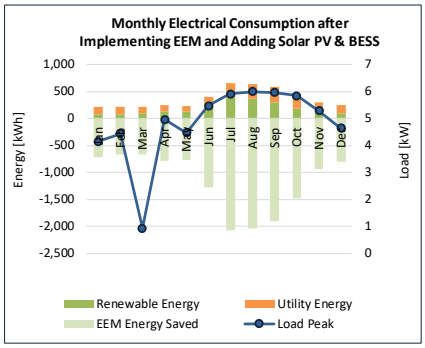


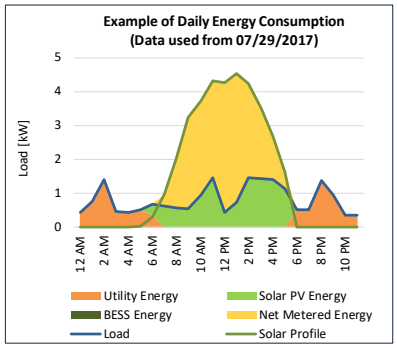
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	6 kWdc CP
Total PV Capacity:	6 kWdc
BESS Storage Capacity:	0 kWh
BESS Inverter Capacity:	0 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	2,231 kWh (12%)
Ren. Energy Generated Used:	2,231 kWh (23%)
Ren. Energy Generated Sold:	7,562 kWh (77%)
PV & BESS Cost:	$18,900
PV & BESS Project Incentives:	$0
PV & BESS Net Project Cost:	$18,900
Annual Cost Savings:	$589
PV & BESS Simple Payback:	32.1 years



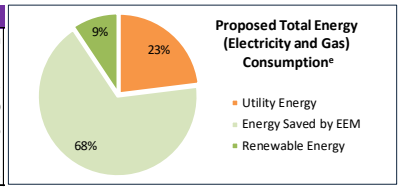


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	16,357 kWh (88%)
Natural Gas Savings:	66.65 thm (37%)
Renewable vs Conventional Energy:	53%
GHG Emissions Reduction:	4.9 MTCO2
SO_2 & NO_x reductions:	147.1 lb
Total Project Cost:	$34,777
Cost Savings (including NET metering):	$3,161

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	409 MWh
Natural Gas Savings:	1,666 thm
GHG Emissions Reduction:	123 MTCO2
SO_2 & NO_x reductions:	3,678 lb
Net Present Value (NPV):	$45,996
Internal Rate of Return (IRR):	11%
Overall Project Payback:	9.6 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

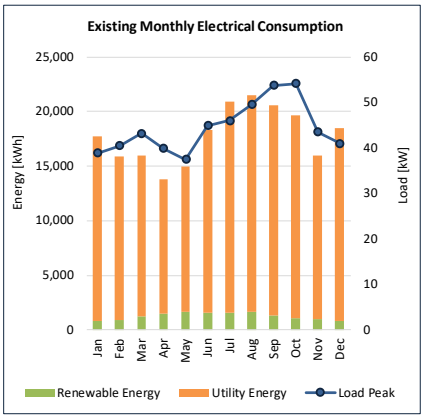
Energy Report Card
Fire Station 1
121 W Carrillo St, Santa Barbara, CA 93101

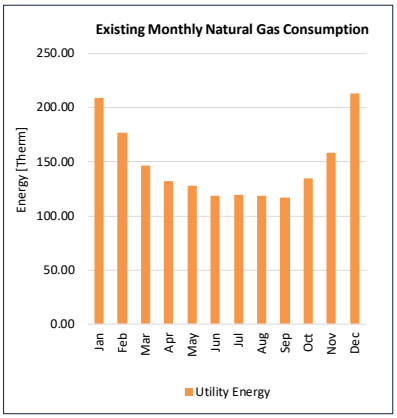
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	19,700 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-001-3754-30
Utility Rate Tariff:	TOU-GS2B
Energy Purchased:	198,616 kWh
Peak Power Purchased:	53 kW
Blended Utility Rate:	$0.14/kWh
Solar PV Capacity:	10 kWdc
Renewable Energy:	15,121 kWh (7%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	18991568009
Utility Rate Tariff:	Unknown
Energy Purchased:	1,773 thm
Utility Rate:	$0.90/thm

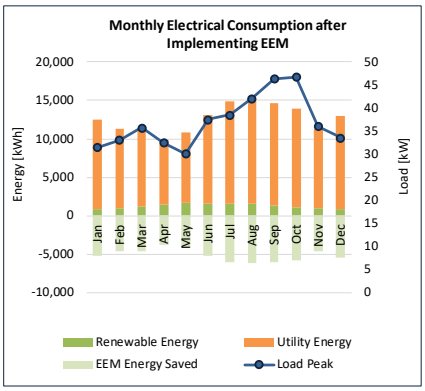


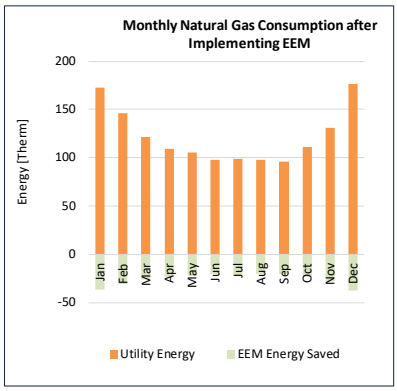


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replacement of exterior lighting to LED
EEM-2:	Replacement of interior lighting to LED
EEM-3:	Retrofit of interior lighting to LED
EEM-4:	Programmable Thermostats
EEM-5:	HVAC Systems Advanced Maintenance
EEM-6:	Evaporator fan motor replacement
EEM-7:	CRAC units evaporator fan motor replacement
EEM-8:	Exposed Rooftop Ductwork Spray-On Insulation
EEM-9:	Advanced Package Unit Controllers
EEM-10:	Replace HVAC (Package, Split, and Window) Units
EEM-11:	Duct Sealing

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	61,640 kWh (31%)
Demand Reduction:	7.42 kW (14%)
Natural Gas Savings:	308.84 thm (17%)
EEM Implementation Cost:	$61,932
EEM Annual Cost Savings:	$9,782
EEM Simple Payback	6.3 years



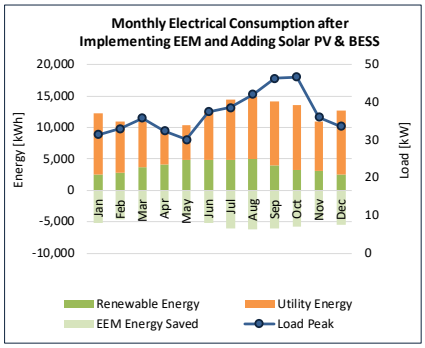


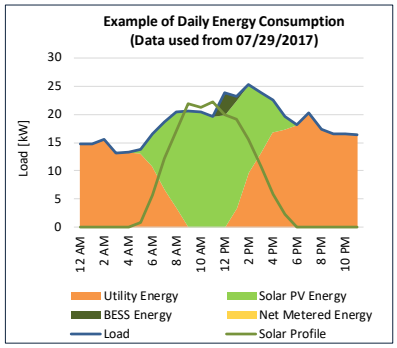
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	21 kWdc CP
Total PV Capacity:	31 kWdc
BESS Storage Capacity:	25 kWh
BESS Inverter Capacity:	25 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	45,767 kWh (23%)
Ren. Energy Generated Used:	45,767 kWh (99%)
Ren. Energy Generated Sold:	653 kWh (1%)
PV & BESS Cost:	$87,100
PV & BESS Project Incentives:	$8,750
PV & BESS Net Project Cost:	$78,350
Annual Cost Savings:	$6,031
PV & BESS Simple Payback:	13.0 years



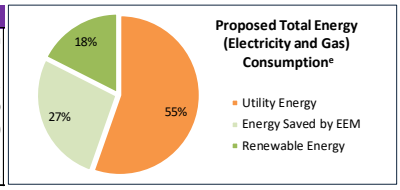


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	107,407 kWh (54%)
Natural Gas Savings:	308.84 thm (17%)
Renewable vs Conventional Energy:	22%
GHG Emissions Reduction:	31.7 MTCO2
SO_2 & NO_x reductions:	966.1 lb
Total Project Cost:	$149,032
Cost Savings (including NET metering):	$15,813

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	2,685 MWh
Natural Gas Savings:	7,721 thm
GHG Emissions Reduction:	793 MTCO2
SO_2 & NO_x reductions:	24,153 lb
Net Present Value (NPV):	$263,800
Internal Rate of Return (IRR):	13%
Overall Project Payback:	8.0 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

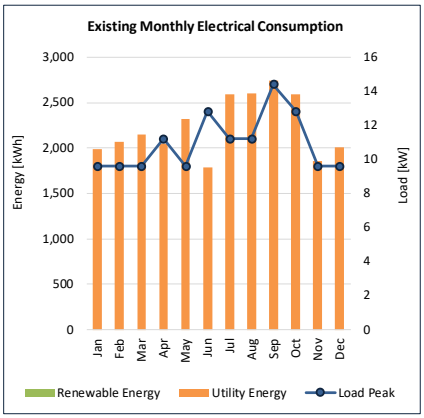
Energy Report Card
Fire Station 4
19 N Ontare Rd, Santa Barbara, CA 93105

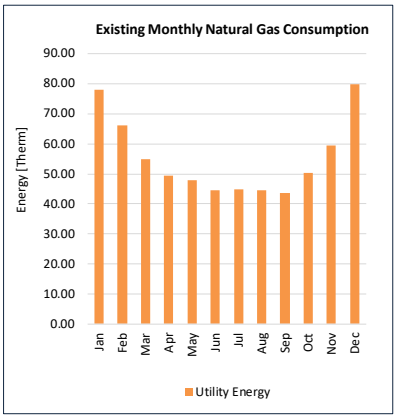
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	5,313 sq.ft.
Building(s) Vintage:	1,985

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-001-3754-32
Utility Rate Tariff:	TOU-GS1A
Energy Purchased:	26,754 kWh
Peak Power Purchased:	131 kW
Blended Utility Rate:	$0.17/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	1771537006
Utility Rate Tariff:	Unknown
Energy Purchased:	663 thm
Utility Rate:	$0.90/thm

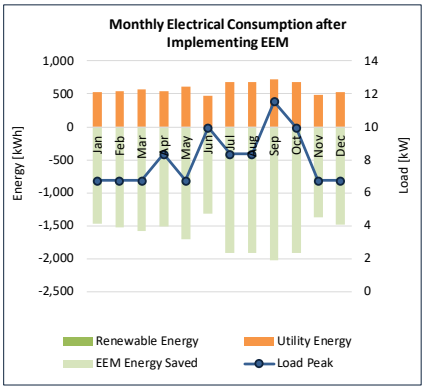


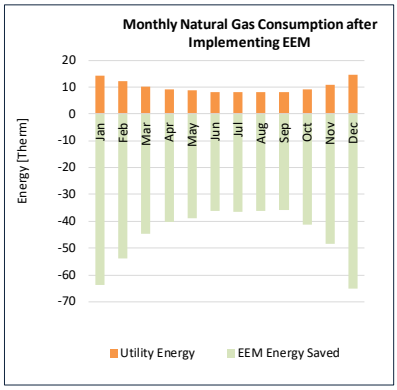


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replacement of exterior lighting to LED
EEM-2:	Replacement of interior lighting to LED
EEM-3:	Programmable Thermostats
EEM-4:	Circulating Block Heater for Emergency Generators
EEM-5:	DHW Heater Replacement
EEM-6:	Replace HVAC (Package, Split, and Window) Units
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	19,710 kWh (74%)
Demand Reduction:	2.85 kW (2%)
Natural Gas Savings:	541.03 thm (82%)
EEM Implementation Cost:	$23,714
EEM Annual Cost Savings:	$3,954
EEM Simple Payback	6.0 years



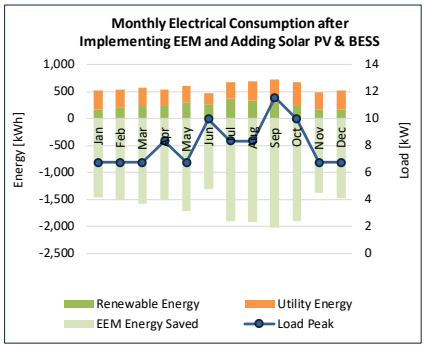


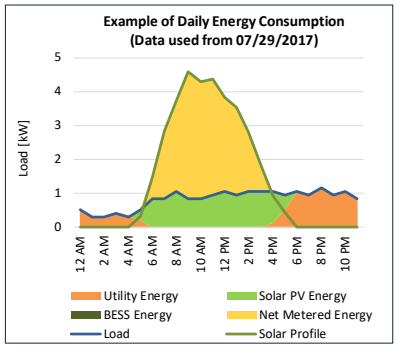
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	6 kWdc CP
Total PV Capacity:	6 kWdc
BESS Storage Capacity:	0 kWh
BESS Inverter Capacity:	0 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	2,981 kWh (11%)
Ren. Energy Generated Used:	2,981 kWh (35%)
Ren. Energy Generated Sold:	5,557 kWh (65%)
PV & BESS Cost:	$18,900
PV & BESS Project Incentives:	$0
PV & BESS Net Project Cost:	$18,900
Annual Cost Savings:	$643
PV & BESS Simple Payback:	29.4 years



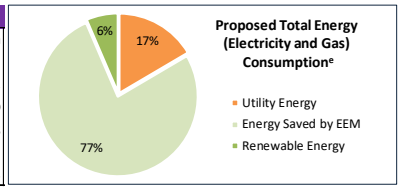


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	22,692 kWh (85%)
Natural Gas Savings:	541.03 thm (82%)
Renewable vs Conventional Energy:	32%
GHG Emissions Reduction:	9.2 MTCO2
SO_2 & NO_x reductions:	204.1 lb
Total Project Cost:	$42,614
Cost Savings (including NET metering):	$4,597

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	567 MWh
Natural Gas Savings:	13,526 thm
GHG Emissions Reduction:	231 MTCO2
SO_2 & NO_x reductions:	5,103 lb
Net Present Value (NPV):	$74,848
Internal Rate of Return (IRR):	13%
Overall Project Payback:	8.3 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

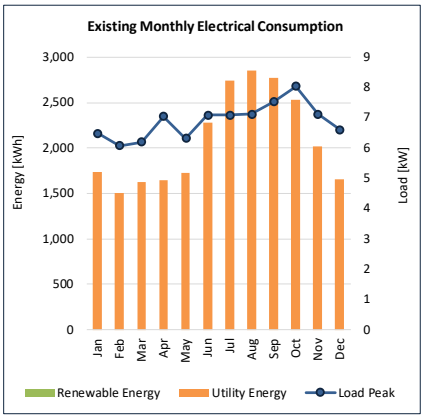
Energy Report Card
Fire Station 5
2505 Modoc Rd, Santa Barbara, CA 93105

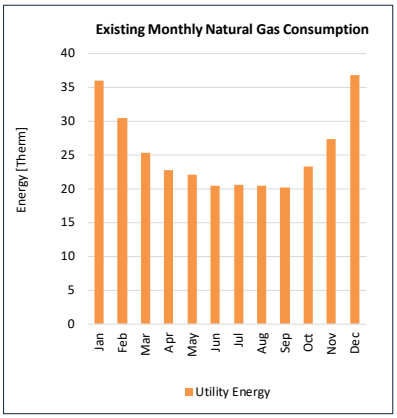
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	3,400 sq.ft.
Building(s) Vintage:	1,966

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-001-3754-33
Utility Rate Tariff:	TOU-GS1A
Energy Purchased:	25,089 kWh
Peak Power Purchased:	83 kW
Blended Utility Rate:	$0.17/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	306 thm
Utility Rate:	$0.90/thm

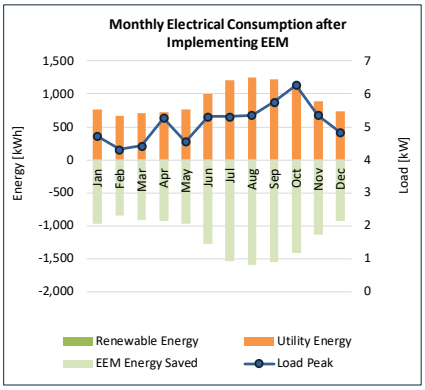


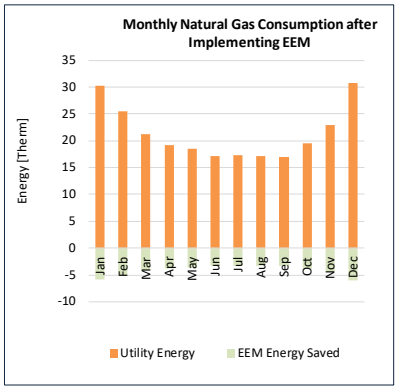


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replacement of exterior lighting to LED
EEM-2:	Replacement of interior lighting to LED
EEM-3:	Retrofit of interior lighting to LED
EEM-4:	Programmable Thermostats
EEM-5:	Circulating Block Heater for Emergency Generators
EEM-6:	Replace HVAC (Package, Split, and Window) Units
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	14,055 kWh (56%)
Demand Reduction:	1.77 kW (2%)
Natural Gas Savings:	49.80 thm (16%)
EEM Implementation Cost:	$12,294
EEM Annual Cost Savings:	$2,503
EEM Simple Payback	4.9 years



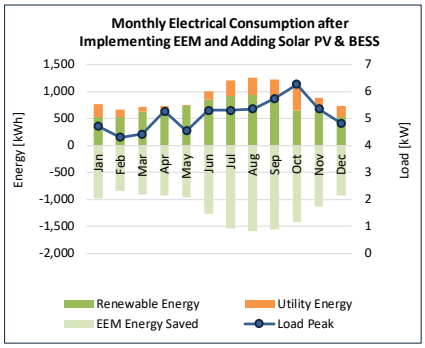


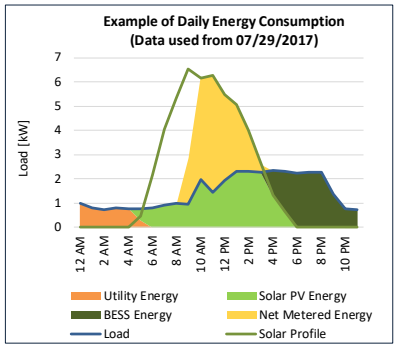
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	9 kWdc CP
Total PV Capacity:	9 kWdc
BESS Storage Capacity:	13 kWh
BESS Inverter Capacity:	13 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	8,411 kWh (34%)
Ren. Energy Generated Used:	8,411 kWh (69%)
Ren. Energy Generated Sold:	3,786 kWh (31%)
PV & BESS Cost:	$39,500
PV & BESS Project Incentives:	$4,375
PV & BESS Net Project Cost:	$35,125
Annual Cost Savings:	$1,376
PV & BESS Simple Payback:	25.5 years



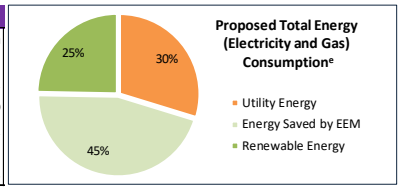


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	22,466 kWh (90%)
Natural Gas Savings:	49.80 thm (16%)
Renewable vs Conventional Energy:	49%
GHG Emissions Reduction:	6.6 MTCO2
SO_2 & NO_x reductions:	202.1 lb
Total Project Cost:	$51,794
Cost Savings (including NET metering):	$3,879

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	562 MWh
Natural Gas Savings:	1,245 thm
GHG Emissions Reduction:	164 MTCO2
SO_2 & NO_x reductions:	5,052 lb
Net Present Value (NPV):	$51,691
Internal Rate of Return (IRR):	9%
Overall Project Payback:	10.6 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

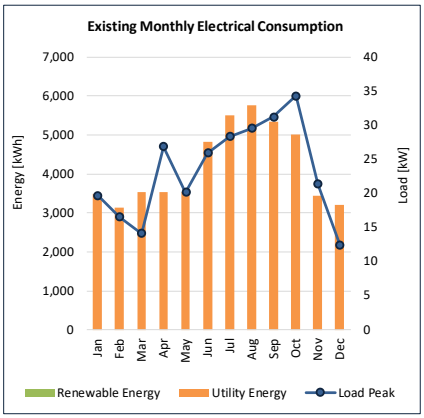
Energy Report Card
Eastside Library
1102 E Montecito St, Santa Barbara, CA 93103

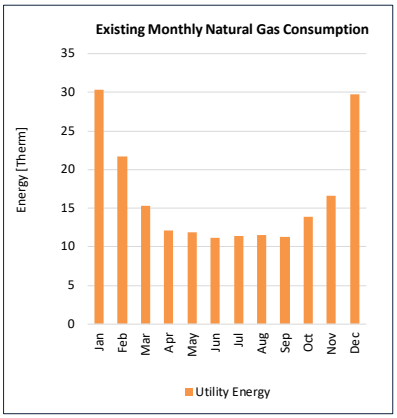
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	8,286 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-001-3754-41
Utility Rate Tariff:	TOU-GS2A
Energy Purchased:	50,314 kWh
Peak Power Purchased:	281 kW
Blended Utility Rate:	$0.24/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	426148300
Utility Rate Tariff:	Unknown
Energy Purchased:	197 thm
Utility Rate:	$0.90/thm

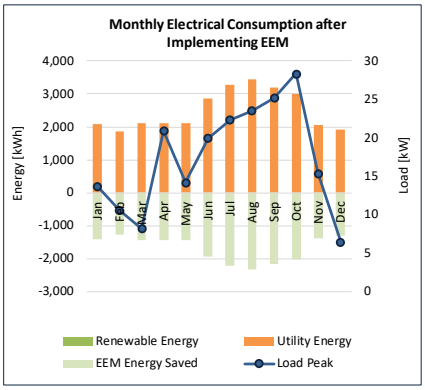


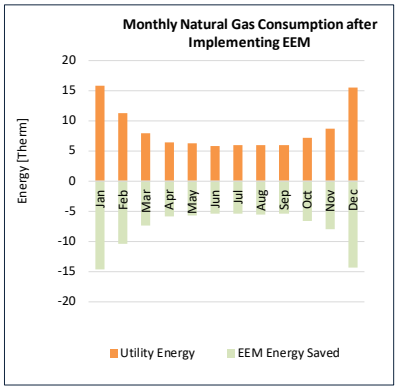


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replacement of exterior lighting to LED
EEM-2:	Replacement of interior lighting to LED
EEM-3:	HVAC Systems Advanced Maintenance
EEM-4:	Advanced Package Unit Controllers
EEM-5:	Replace HVAC (Package, Split, and Window) Units
EEM-6:	Duct Sealing
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	20,310 kWh (40%)
Demand Reduction:	5.97 kW (2%)
Natural Gas Savings:	94.61 thm (48%)
EEM Implementation Cost:	$39,832
EEM Annual Cost Savings:	$5,323
EEM Simple Payback	7.5 years



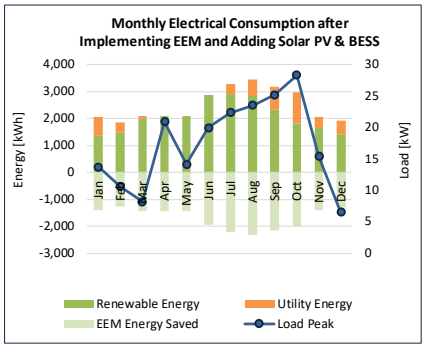


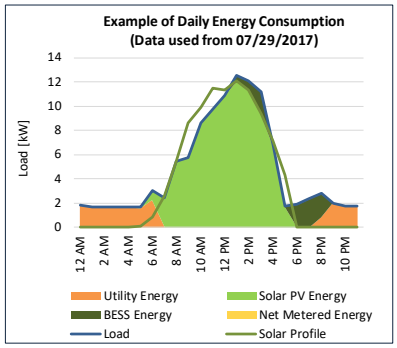
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	17 kWdc RT
Total PV Capacity:	17 kWdc
BESS Storage Capacity:	175 kWh
BESS Inverter Capacity:	25 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	24,950 kWh (50%)
Ren. Energy Generated Used:	24,950 kWh (96%)
Ren. Energy Generated Sold:	1,164 kWh (4%)
PV & BESS Cost:	$148,600
PV & BESS Project Incentives:	$61,250
PV & BESS Net Project Cost:	$87,350
Annual Cost Savings:	$4,888
PV & BESS Simple Payback:	17.9 years



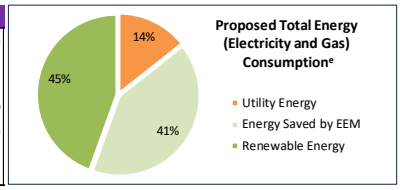


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	45,260 kWh (90%)
Natural Gas Savings:	94.61 thm (48%)
Renewable vs Conventional Energy:	52%
GHG Emissions Reduction:	13.2 MTCO2
SO_2 & NO_x reductions:	407.1 lb
Total Project Cost:	$188,432
Cost Savings (including NET metering):	$10,211

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	1,132 MWh
Natural Gas Savings:	2,365 thm
GHG Emissions Reduction:	329 MTCO2
SO_2 & NO_x reductions:	10,178 lb
Net Present Value (NPV):	$133,738
Internal Rate of Return (IRR):	9%
Overall Project Payback:	10.7 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

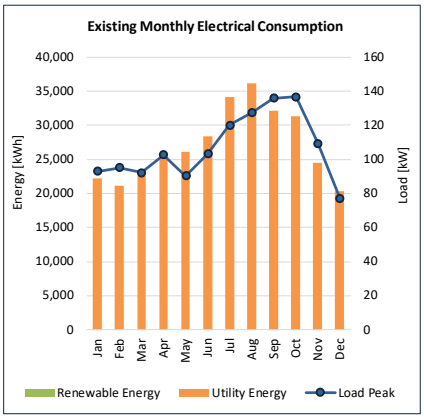
Energy Report Card
Central Library (Faulkner Gallery and Library)
40 E Anapamu St, Santa Barbara, CA 93101

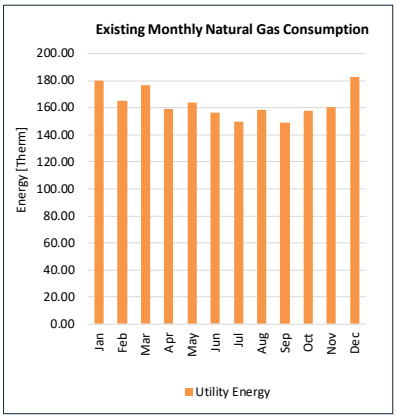
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	53,500 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-001-3754-43
Utility Rate Tariff:	TOU-GS2B
Energy Purchased:	324,129 kWh
Peak Power Purchased:	1,283 kW
Blended Utility Rate:	$0.19/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	1499146000
Utility Rate Tariff:	Unknown
Energy Purchased:	1,960 thm
Utility Rate:	$0.90/thm

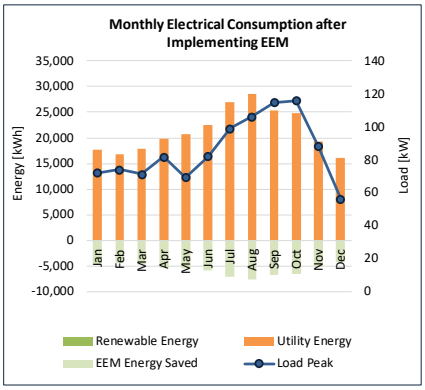


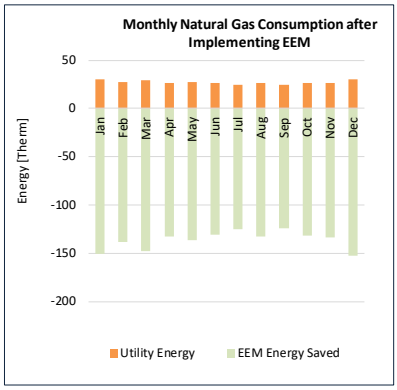


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Retrofit interior lighting with LED
EEM-3:	HVAC Systems Advanced Maintenance
EEM-4:	Evaporator fan motor replacement
EEM-5:	Exposed Rooftop Ductwork Spray-On Insulation
EEM-6:	DHW Heater Replacement
EEM-7:	Advanced Package Unit Controllers
EEM-8:	Replace HVAC (Package, Split and Window) Units
EEM-9:	Duct Sealing
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	67,510 kWh (21%)
Demand Reduction:	20.96 kW (2%)
Natural Gas Savings:	1,635.38 thm (83%)
EEM Implementation Cost:	$89,093
EEM Annual Cost Savings:	$14,733
EEM Simple Payback	6.0 years



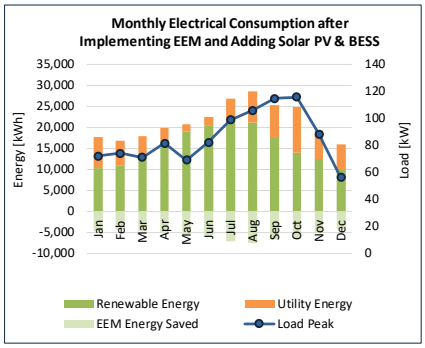


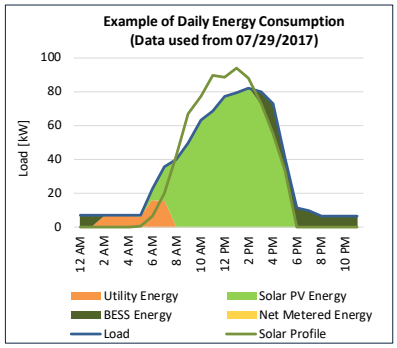
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	131 kWdc RT
Total PV Capacity:	131 kWdc
BESS Storage Capacity:	175 kWh
BESS Inverter Capacity:	25 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	188,131 kWh (58%)
Ren. Energy Generated Used:	188,131 kWh (93%)
Ren. Energy Generated Sold:	3,704 kWh (2%)
PV & BESS Cost:	$376,600
PV & BESS Project Incentives:	$61,250
PV & BESS Net Project Cost:	$315,350
Annual Cost Savings:	$34,164
PV & BESS Simple Payback:	9.2 years



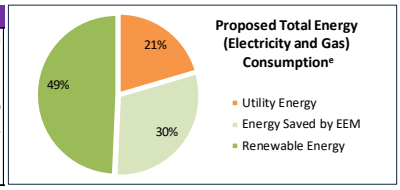


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	255,641 kWh (79%)
Natural Gas Savings:	1,635.38 thm (83%)
Renewable vs Conventional Energy:	63%
GHG Emissions Reduction:	80.2 MTCO2
SO_2 & NO_x reductions:	2,299.5 lb
Total Project Cost:	$465,693
Cost Savings (including NET metering):	$48,897

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	6,391 MWh
Natural Gas Savings:	40,884 thm
GHG Emissions Reduction:	2,006 MTCO2
SO_2 & NO_x reductions:	57,486 lb
Net Present Value (NPV):	$845,054
Internal Rate of Return (IRR):	14%
Overall Project Payback:	7.5 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

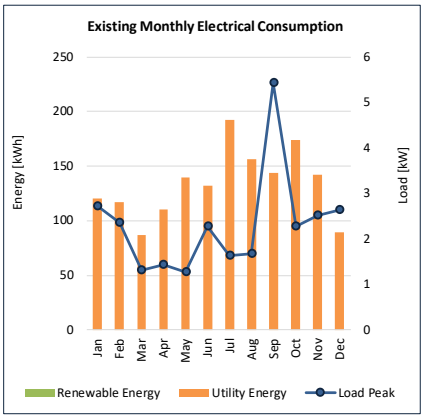
Energy Report Card
Spencer Adams Lawn Bowling - Club House
1216 De La Vina St, Santa Barbara, CA 93101

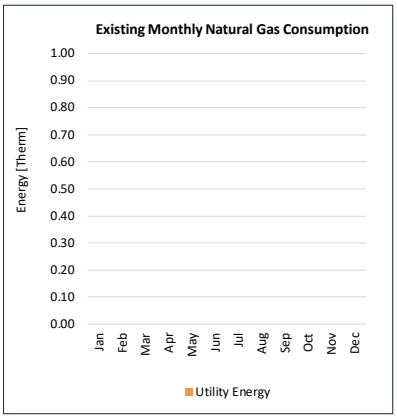
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	2,000 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-001-3754-55
Utility Rate Tariff:	TOU-GS1A
Energy Purchased:	1,604 kWh
Peak Power Purchased:	28 kW
Blended Utility Rate:	$0.38/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	0 thm
Utility Rate:	$0.00/thm

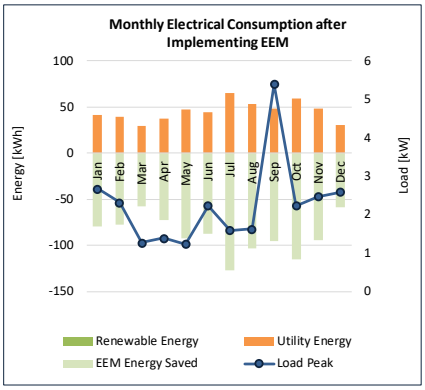


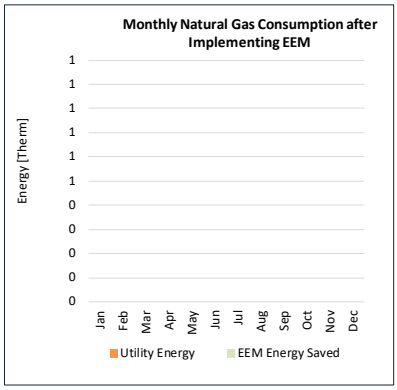


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replacement of interior lighting with LED
EEM-2:	Replacement of interior lighting with LED
EEM-3:	n/a
EEM-4:	n/a
EEM-5:	n/a
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	1,058 kWh (66%)
Demand Reduction:	0.04 kW (0%)
Natural Gas Savings:	0.00 thm (0%)
EEM Implementation Cost:	$2,417
EEM Annual Cost Savings:	$418
EEM Simple Payback	5.8 years



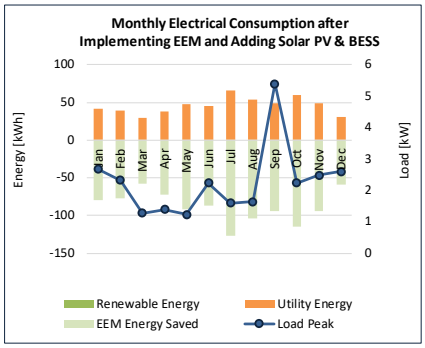


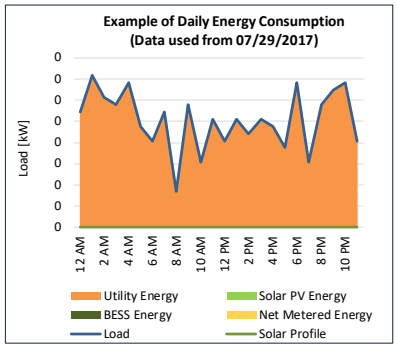
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
Reason for not proposing solar PV:	Has tile roof
Total PV Capacity:	0 kWdc
BESS Storage Capacity:	0 kWh
BESS Inverter Capacity:	0 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	0 kWh (0%)
Ren. Energy Generated Used:	0 kWh (0%)
Ren. Energy Generated Sold:	0 kWh (0%)
PV & BESS Cost:	$0
PV & BESS Project Incentives:	$0
PV & BESS Net Project Cost:	$0
Annual Cost Savings:	$0
PV & BESS Simple Payback:	n/a



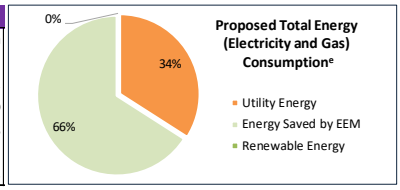


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	1,058 kWh (66%)
Natural Gas Savings:	0.00 thm (0%)
Renewable vs Conventional Energy:	0%
GHG Emissions Reduction:	0.3 MTCO2
SO_2 & NO_x reductions:	9.5 lb
Total Project Cost:	$2,417
Cost Savings (including NET metering):	$418

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	26 MWh
Natural Gas Savings:	0 thm
GHG Emissions Reduction:	7 MTCO2
SO_2 & NO_x reductions:	238 lb
Net Present Value (NPV):	$8,258
Internal Rate of Return (IRR):	20%
Overall Project Payback:	5.4 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

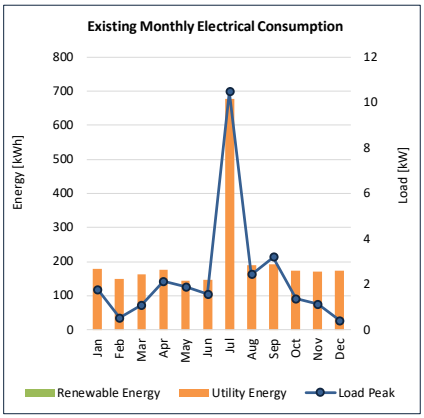
Energy Report Card
Oak Park (Field)
2323 Oak Park Ln, Santa Barbara, CA 93105

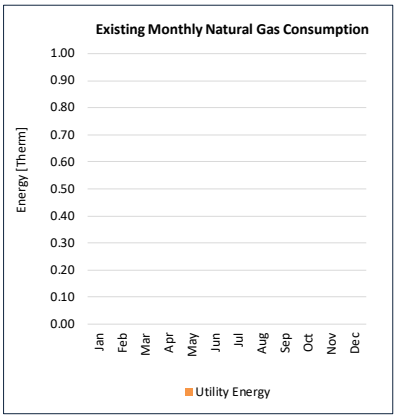
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	11,340 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-001-3754-60
Utility Rate Tariff:	TOU-GS1A
Energy Purchased:	2,532 kWh
Peak Power Purchased:	28 kW
Blended Utility Rate:	$0.24/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	0 thm
Utility Rate:	$0.00/thm

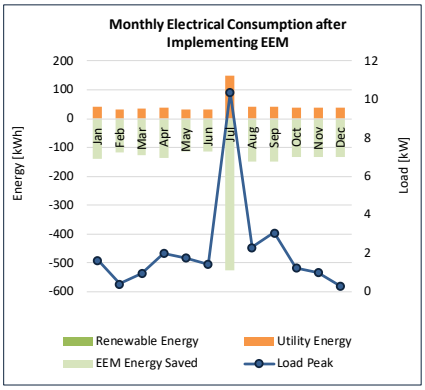


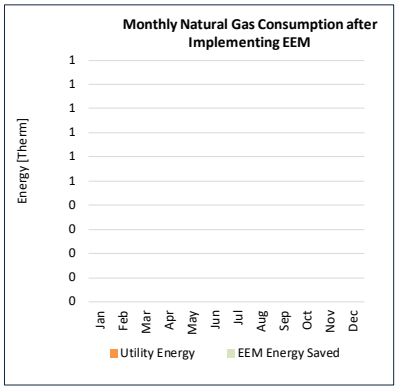


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replacement of interior lighting to LED
EEM-2:	Retrofit of interior lighting with LED
EEM-3:	Replacement of exterior lighting to LED
EEM-4:	n/a
EEM-5:	n/a
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	1,970 kWh (78%)
Demand Reduction:	0.12 kW (0%)
Natural Gas Savings:	0.00 thm (0%)
EEM Implementation Cost:	$7,247
EEM Annual Cost Savings:	$618
EEM Simple Payback	11.7 years



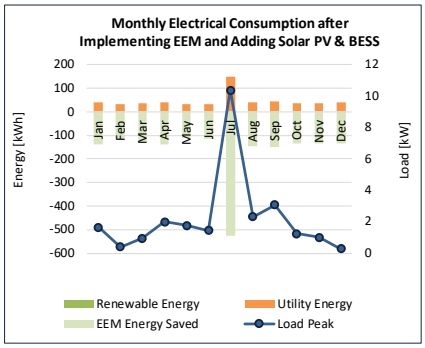


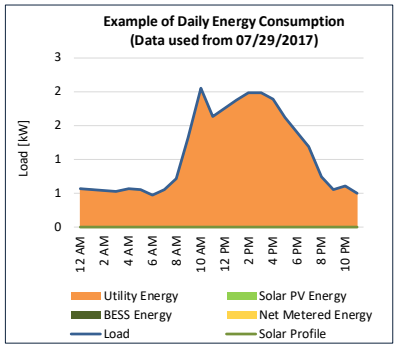
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
Reason for not proposing solar PV:	Space Unavailable
Total PV Capacity:	0 kWdc
BESS Storage Capacity:	0 kWh
BESS Inverter Capacity:	0 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	0 kWh (0%)
Ren. Energy Generated Used:	0 kWh (0%)
Ren. Energy Generated Sold:	0 kWh (0%)
PV & BESS Cost:	$0
PV & BESS Project Incentives:	$0
PV & BESS Net Project Cost:	$0
Annual Cost Savings:	$0
PV & BESS Simple Payback:	n/a



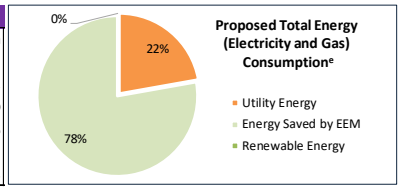


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	1,970 kWh (78%)
Natural Gas Savings:	0.00 thm (0%)
Renewable vs Conventional Energy:	0%
GHG Emissions Reduction:	0.6 MTCO2
SO_2 & NO_x reductions:	17.7 lb
Total Project Cost:	$7,247
Cost Savings (including NET metering):	$618

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	49 MWh
Natural Gas Savings:	0 thm
GHG Emissions Reduction:	14 MTCO2
SO_2 & NO_x reductions:	443 lb
Net Present Value (NPV):	$8,546
Internal Rate of Return (IRR):	10%
Overall Project Payback:	10.2 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

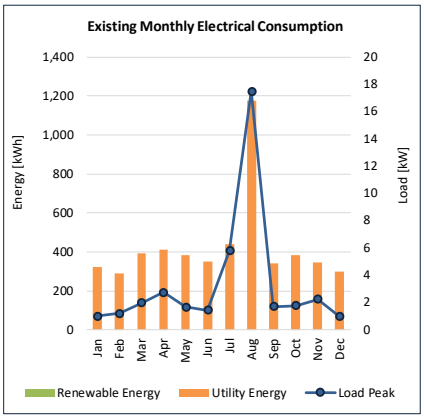
Energy Report Card
Mckenzie Park - Restroom & Storage
3111 State St, Santa Barbara, CA 93105

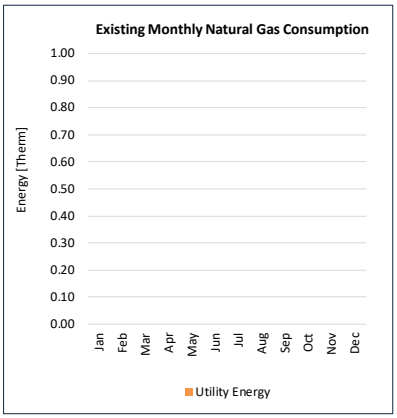
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	1,497 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-001-3754-74
Utility Rate Tariff:	TOU-GS1A
Energy Purchased:	5,154 kWh
Peak Power Purchased:	37 kW
Blended Utility Rate:	$0.21/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	0 thm
Utility Rate:	$0.00/thm

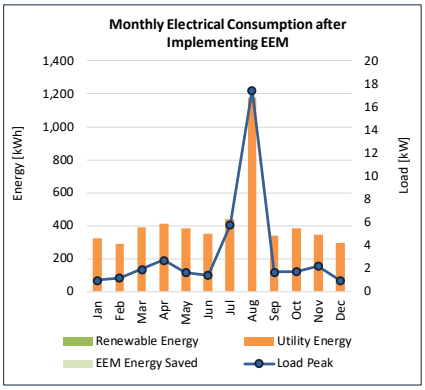


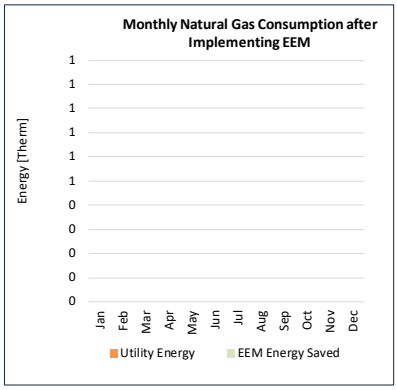


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	n/a
EEM-2:	n/a
EEM-3:	n/a
EEM-4:	n/a
EEM-5:	n/a
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	0 kWh (0%)
Demand Reduction:	0.00 kW (0%)
Natural Gas Savings:	0.00 thm (0%)
EEM Implementation Cost:	$0
EEM Annual Cost Savings:	$0
EEM Simple Payback	0.0 years



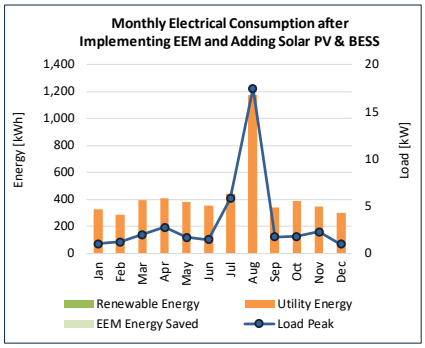


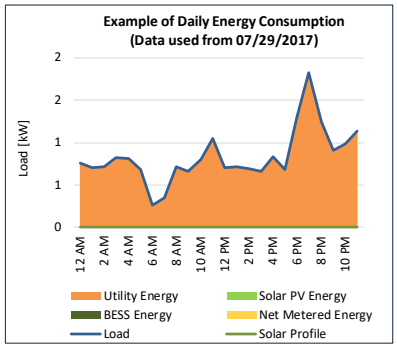
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
Reason for not proposing solar PV:	Space Unavailable
Total PV Capacity:	0 kWdc
BESS Storage Capacity:	0 kWh
BESS Inverter Capacity:	0 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	0 kWh (0%)
Ren. Energy Generated Used:	0 kWh (0%)
Ren. Energy Generated Sold:	0 kWh (0%)
PV & BESS Cost:	$0
PV & BESS Project Incentives:	$0
PV & BESS Net Project Cost:	$0
Annual Cost Savings:	$0
PV & BESS Simple Payback:	n/a



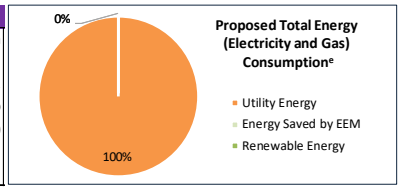


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	0 kWh (0%)
Natural Gas Savings:	0.00 thm (0%)
Renewable vs Conventional Energy:	0%
GHG Emissions Reduction:	0.0 MTCO2
SO_2 & NO_x reductions:	0.0 lb
Total Project Cost:	$0
Cost Savings (including NET metering):	$0

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	0 MWh
Natural Gas Savings:	0 thm
GHG Emissions Reduction:	0 MTCO2
SO_2 & NO_x reductions:	0 lb
Net Present Value (NPV):	$0
Internal Rate of Return (IRR):	#NUM!
Overall Project Payback:	#DIV/0!



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

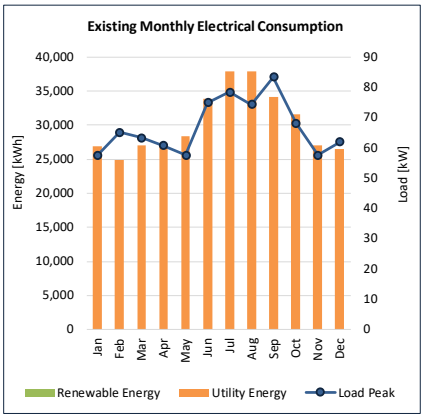
Energy Report Card
Police Department
215 E Figueroa St, Santa Barbara, CA 93101

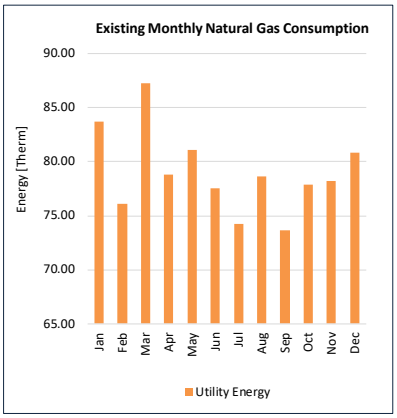
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	14,515 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-001-3754-81
Utility Rate Tariff:	TOU-GS2B
Energy Purchased:	364,399 kWh
Peak Power Purchased:	83 kW
Blended Utility Rate:	$0.13/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	1289144700
Utility Rate Tariff:	Unknown
Energy Purchased:	948 thm
Utility Rate:	$0.90/thm

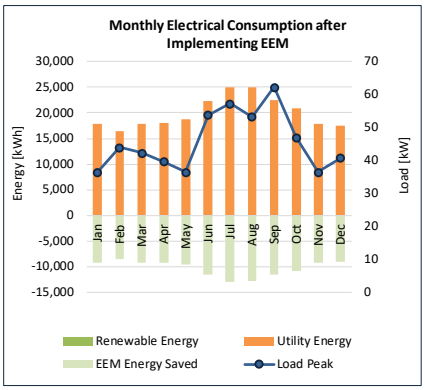


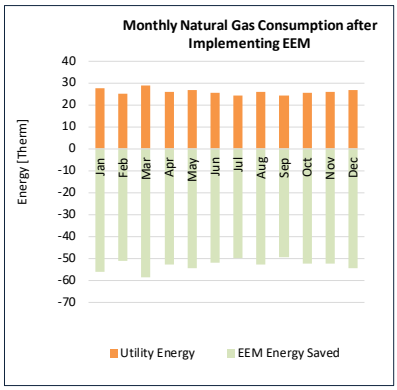


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Retrofit of interior lighting with LED
EEM-2:	Replacement of interior lighting to LED
EEM-3:	Replacement of exterior lighting to LED
EEM-4:	DHW Heater Replacement
EEM-5:	Replace HVAC (Package, Split and Window) Units
EEM-6:	Duct Sealing
EEM-7:	Vending Miser Controller
EEM-8:	Circulating Block Heater for Emergency Generators
EEM-9:	HVAC Systems Advanced Maintenance
EEM-10:	CRAC units evaporator fan motor replacement
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	123,488 kWh (34%)
Demand Reduction:	21.10 kW (25%)
Natural Gas Savings:	636.46 thm (67%)
EEM Implementation Cost:	$93,058
EEM Annual Cost Savings:	$18,097
EEM Simple Payback	5.1 years



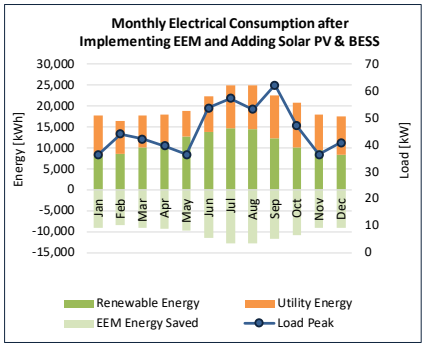


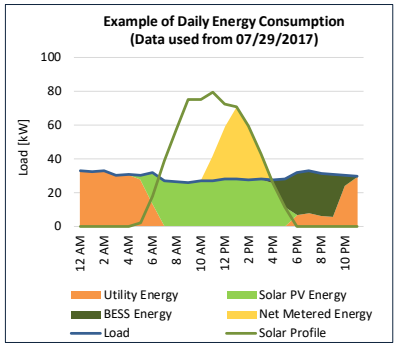
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	20 kWdc RT ; 92 kWdc CP
Total PV Capacity:	111 kWdc
BESS Storage Capacity:	125 kWh
BESS Inverter Capacity:	25 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	134,328 kWh (37%)
Ren. Energy Generated Used:	134,328 kWh (80%)
Ren. Energy Generated Sold:	19,548 kWh (12%)
PV & BESS Cost:	$398,500
PV & BESS Project Incentives:	$43,750
PV & BESS Net Project Cost:	$354,750
Annual Cost Savings:	$16,712
PV & BESS Simple Payback:	21.2 years



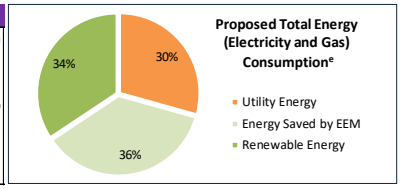


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	257,816 kWh (71%)
Natural Gas Savings:	636.46 thm (67%)
Renewable vs Conventional Energy:	46%
GHG Emissions Reduction:	75.6 MTCO2
SO_2 & NO_x reductions:	2,319.0 lb
Total Project Cost:	$491,558
Cost Savings (including NET metering):	$34,809

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	6,445 MWh
Natural Gas Savings:	15,911 thm
GHG Emissions Reduction:	1,889 MTCO2
SO_2 & NO_x reductions:	57,976 lb
Net Present Value (NPV):	$441,685
Internal Rate of Return (IRR):	9%
Overall Project Payback:	11.0 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

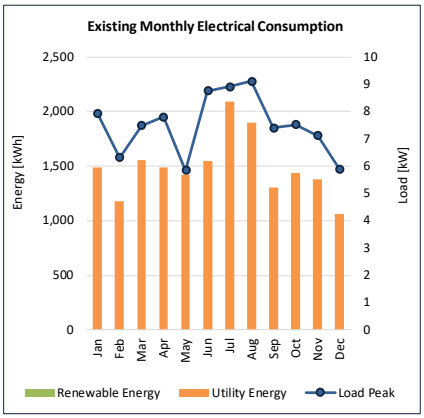
Energy Report Card
Louise Lowry Davis Center - Rec Center
1232 De La Vina St, Santa Barbara, CA 93101

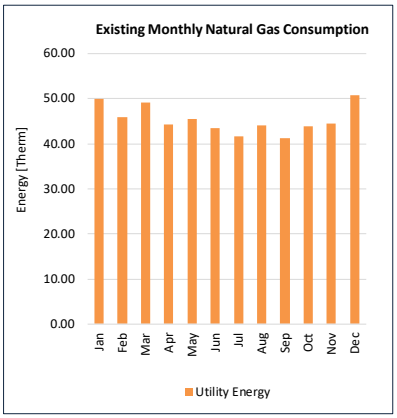
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	3,649 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-001-3754-94
Utility Rate Tariff:	TOU-GS1A
Energy Purchased:	17,869 kWh
Peak Power Purchased:	90 kW
Blended Utility Rate:	$0.18/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	1836156600
Utility Rate Tariff:	Unknown
Energy Purchased:	545 thm
Utility Rate:	$0.90/thm

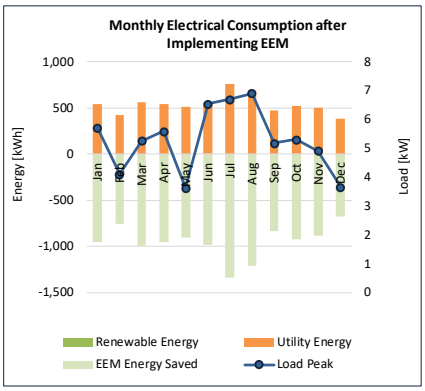


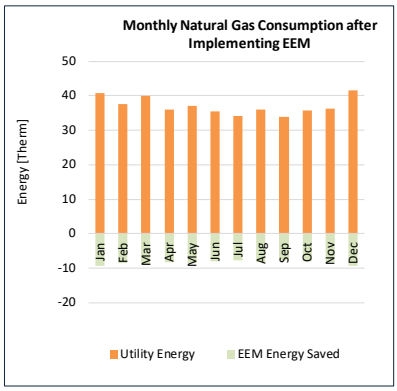


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replacement of interior lighting to LED
EEM-2:	Replacement of exterior lighting to LED
EEM-3:	Programmable Thermostats
EEM-4:	HVAC Systems Advanced Maintenance
EEM-5:	DHW Heater Replacement
EEM-6:	Advanced Package Unit Controllers
EEM-7:	Duct Sealing
EEM-8:	Replace Furnace with High Energy Efficiency Furnaces
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	11,396 kWh (64%)
Demand Reduction:	2.21 kW (2%)
Natural Gas Savings:	100.49 thm (18%)
EEM Implementation Cost:	$22,045
EEM Annual Cost Savings:	$2,497
EEM Simple Payback	8.8 years



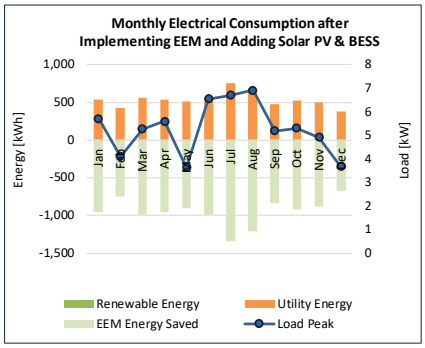


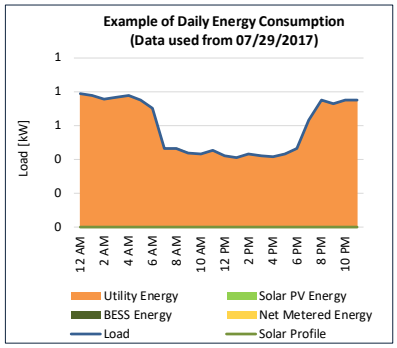
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
Reason for not proposing solar PV:	Space Unavailable
Total PV Capacity:	0 kWdc
BESS Storage Capacity:	0 kWh
BESS Inverter Capacity:	0 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	0 kWh (0%)
Ren. Energy Generated Used:	0 kWh (0%)
Ren. Energy Generated Sold:	0 kWh (0%)
PV & BESS Cost:	$0
PV & BESS Project Incentives:	$0
PV & BESS Net Project Cost:	$0
Annual Cost Savings:	$0
PV & BESS Simple Payback:	n/a



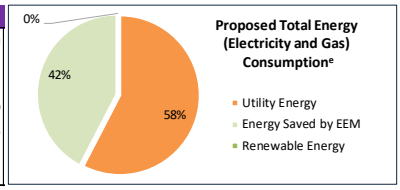


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	11,396 kWh (64%)
Natural Gas Savings:	100.49 thm (18%)
Renewable vs Conventional Energy:	0%
GHG Emissions Reduction:	3.7 MTCO2
SO_2 & NO_x reductions:	102.5 lb
Total Project Cost:	$22,045
Cost Savings (including NET metering):	$2,497

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	285 MWh
Natural Gas Savings:	2,512 thm
GHG Emissions Reduction:	93 MTCO2
SO_2 & NO_x reductions:	2,563 lb
Net Present Value (NPV):	$41,768
Internal Rate of Return (IRR):	13%
Overall Project Payback:	7.9 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

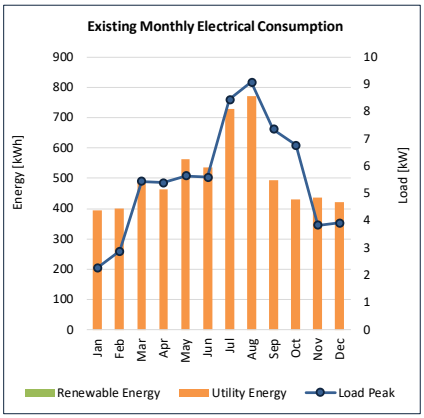
Energy Report Card
Mckenzie Park - Park Adult
3111 State St, Santa Barbara, CA 93105

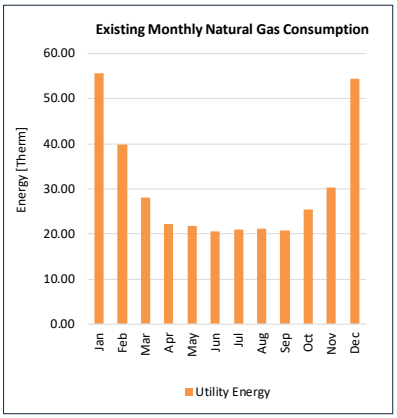
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	4,032 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-001-3754-95
Utility Rate Tariff:	TOU-GS1A
Energy Purchased:	6,127 kWh
Peak Power Purchased:	67 kW
Blended Utility Rate:	$0.19/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	1563154100
Utility Rate Tariff:	Unknown
Energy Purchased:	361 thm
Utility Rate:	$0.90/thm

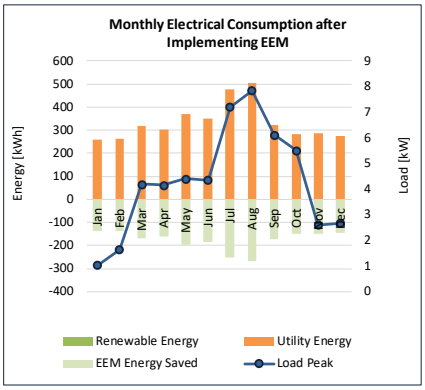


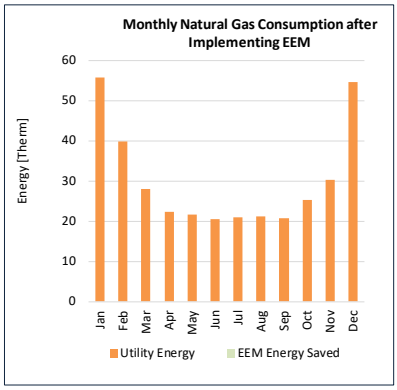


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Programmable Thermostats
EEM-2:	Replace HVAC (Package, Split, and Window) Units
EEM-3:	n/a
EEM-4:	n/a
EEM-5:	n/a
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	2,121 kWh (35%)
Demand Reduction:	1.24 kW (2%)
Natural Gas Savings:	0.00 thm (0%)
EEM Implementation Cost:	$7,757
EEM Annual Cost Savings:	$395
EEM Simple Payback	19.6 years



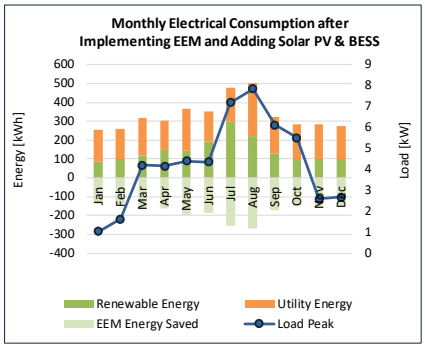


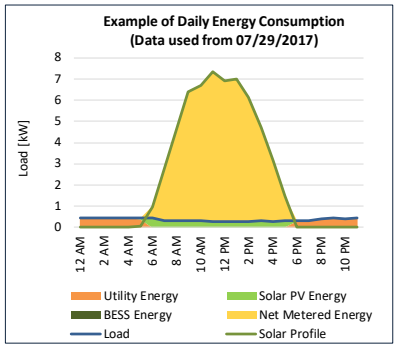
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	10 kWdc RT
Total PV Capacity:	10 kWdc
BESS Storage Capacity:	0 kWh
BESS Inverter Capacity:	0 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	1,730 kWh (28%)
Ren. Energy Generated Used:	1,730 kWh (11%)
Ren. Energy Generated Sold:	14,517 kWh (89%)
PV & BESS Cost:	$20,400
PV & BESS Project Incentives:	$0
PV & BESS Net Project Cost:	$20,400
Annual Cost Savings:	$707
PV & BESS Simple Payback:	28.9 years



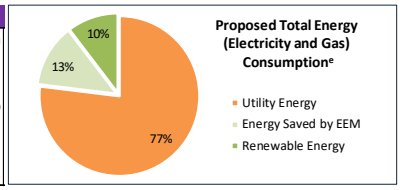


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	3,851 kWh (63%)
Natural Gas Savings:	0.00 thm (0%)
Renewable vs Conventional Energy:	265%
GHG Emissions Reduction:	1.1 MTCO2
SO_2 & NO_x reductions:	34.6 lb
Total Project Cost:	$28,157
Cost Savings (including NET metering):	$1,102

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	96 MWh
Natural Gas Savings:	0 thm
GHG Emissions Reduction:	27 MTCO2
SO_2 & NO_x reductions:	866 lb
Net Present Value (NPV):	$3
Internal Rate of Return (IRR):	3%
Overall Project Payback:	19.2 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

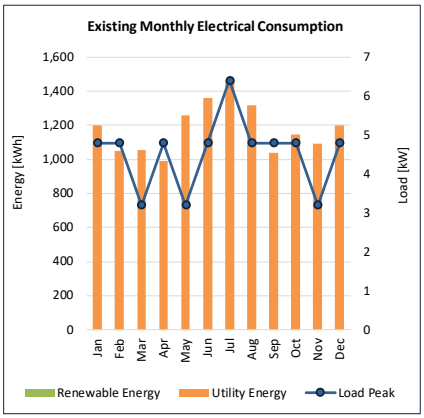
Energy Report Card
Ortega Park (Pool, Restrooms and Welcome House)
604 E Ortega St, Santa Barbara, CA 93103

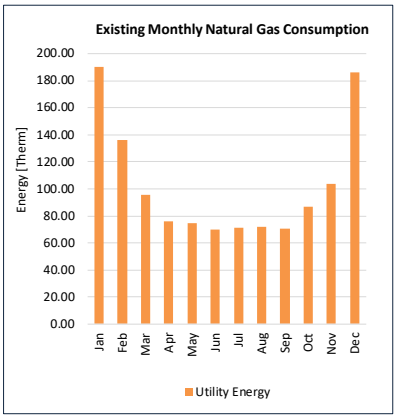
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	2,950 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-001-3754-99
Utility Rate Tariff:	TOU-GS1A
Energy Purchased:	14,173 kWh
Peak Power Purchased:	6 kW
Blended Utility Rate:	$0.17/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	1498153600 & 1519153600
Utility Rate Tariff:	Unknown
Energy Purchased:	1,234 thm
Utility Rate:	$0.90/thm

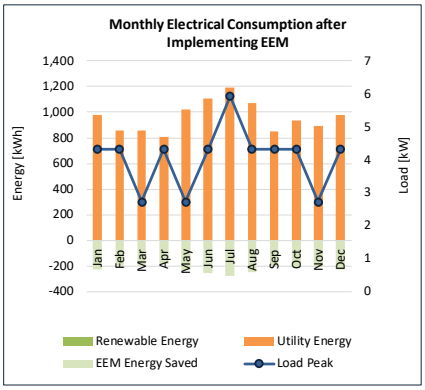


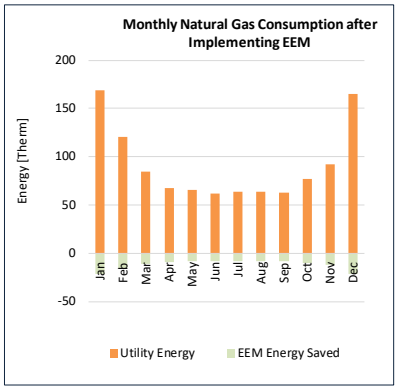


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Retrofit interior lighting with LED
EEM-3:	Replace exterior lighting with LED
EEM-4:	DHW Heater Replacement
EEM-5:	n/a
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	2,643 kWh (19%)
Demand Reduction:	0.47 kW (7%)
Natural Gas Savings:	137.69 thm (11%)
EEM Implementation Cost:	$18,836
EEM Annual Cost Savings:	$899
EEM Simple Payback	21.0 years



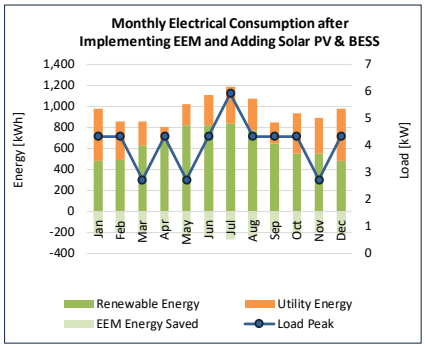


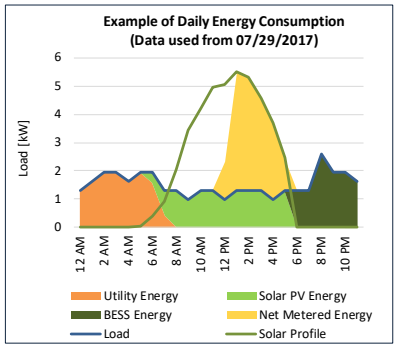
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	8 kWdc RT
Total PV Capacity:	8 kWdc
BESS Storage Capacity:	13 kWh
BESS Inverter Capacity:	13 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	7,782 kWh (55%)
Ren. Energy Generated Used:	7,782 kWh (70%)
Ren. Energy Generated Sold:	3,261 kWh (30%)
PV & BESS Cost:	$28,100
PV & BESS Project Incentives:	$4,375
PV & BESS Net Project Cost:	$23,725
Annual Cost Savings:	$1,274
PV & BESS Simple Payback:	18.6 years



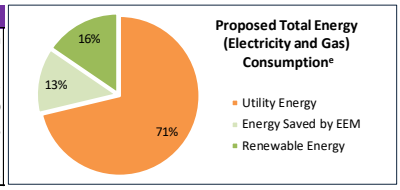


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	10,424 kWh (74%)
Natural Gas Savings:	137.69 thm (11%)
Renewable vs Conventional Energy:	78%
GHG Emissions Reduction:	3.6 MTCO2
SO_2 & NO_x reductions:	93.8 lb
Total Project Cost:	$46,936
Cost Savings (including NET metering):	$2,173

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	261 MWh
Natural Gas Savings:	3,442 thm
GHG Emissions Reduction:	91 MTCO2
SO_2 & NO_x reductions:	2,344 lb
Net Present Value (NPV):	$12,958
Internal Rate of Return (IRR):	5%
Overall Project Payback:	15.6 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

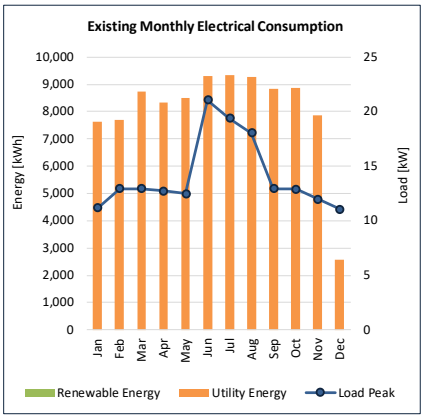
Energy Report Card
Los Banos Pool
401 Shoreline Dr, Santa Barbara, CA 93109

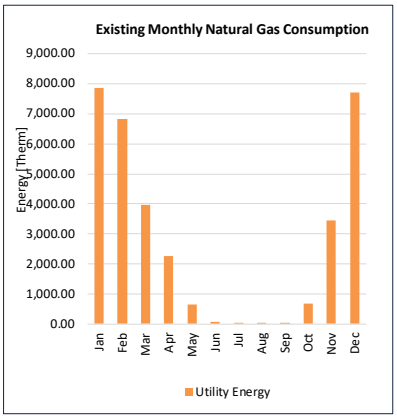
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	4,250 sq.ft.
Building(s) Vintage:	1,992

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-001-3755-00
Utility Rate Tariff:	TOU-PA2B
Energy Purchased:	96,967 kWh
Peak Power Purchased:	21 kW
Blended Utility Rate:	$0.12/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	264153514 & 285153500
Utility Rate Tariff:	Unknown
Energy Purchased:	33,532 thm
Utility Rate:	$0.90/thm

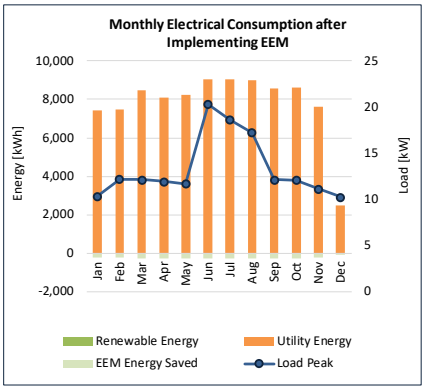


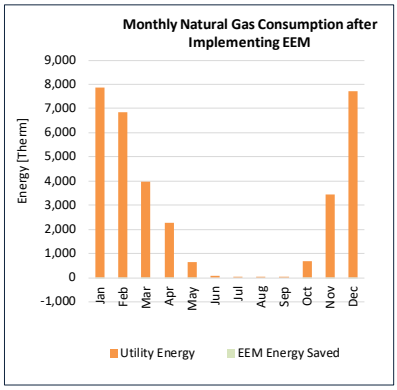


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting to LED
EEM-2:	Retrofit interior lighting to LED
EEM-3:	Replace exterior lighting to LED
EEM-4:	Replace Furnace with High Energy Efficiency Furnace
EEM-5:	n/a
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	2,916 kWh (3%)
Demand Reduction:	0.79 kW (4%)
Natural Gas Savings:	0.66 thm (0%)
EEM Implementation Cost:	$17,509
EEM Annual Cost Savings:	$662
EEM Simple Payback	26.5 years



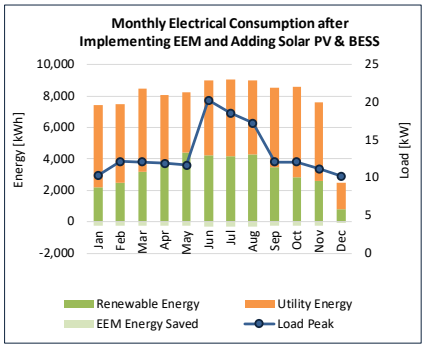


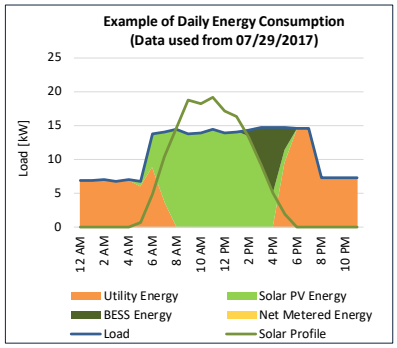
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	26 kWdc RT
Total PV Capacity:	26 kWdc
BESS Storage Capacity:	50 kWh
BESS Inverter Capacity:	25 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	38,459 kWh (40%)
Ren. Energy Generated Used:	38,459 kWh (96%)
Ren. Energy Generated Sold:	1,460 kWh (4%)
PV & BESS Cost:	$92,800
PV & BESS Project Incentives:	$17,500
PV & BESS Net Project Cost:	$75,300
Annual Cost Savings:	$4,140
PV & BESS Simple Payback:	18.2 years



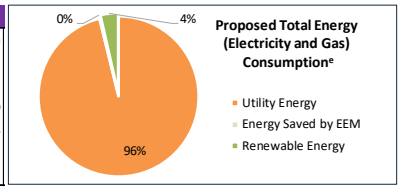


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	41,374 kWh (43%)
Natural Gas Savings:	0.66 thm (0%)
Renewable vs Conventional Energy:	41%
GHG Emissions Reduction:	11.6 MTCO2
SO_2 & NO_x reductions:	372.2 lb
Total Project Cost:	$110,309
Cost Savings (including NET metering):	$4,802

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	1,034 MWh
Natural Gas Savings:	16 thm
GHG Emissions Reduction:	290 MTCO2
SO_2 & NO_x reductions:	9,304 lb
Net Present Value (NPV):	$29,894
Internal Rate of Return (IRR):	5%
Overall Project Payback:	15.5 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

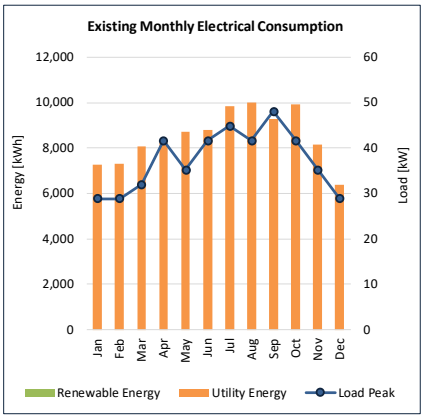
Energy Report Card
Carrillo (Gym and Rec Center)
102 E Carrillo St, Santa Barbara, CA 93101

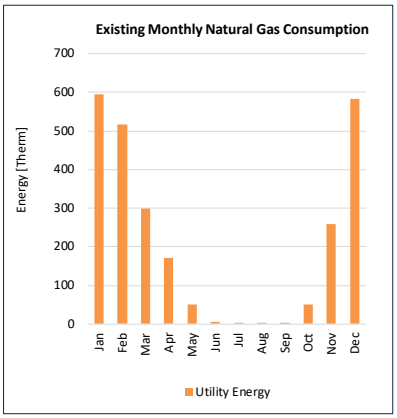
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	24,400 sq.ft.
Building(s) Vintage:	1,920

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-001-3755-08
Utility Rate Tariff:	TOU-GS2B
Energy Purchased:	101,930 kWh
Peak Power Purchased:	48 kW
Blended Utility Rate:	$0.21/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	1625145900
Utility Rate Tariff:	Unknown
Energy Purchased:	2,533 thm
Utility Rate:	$0.90/thm

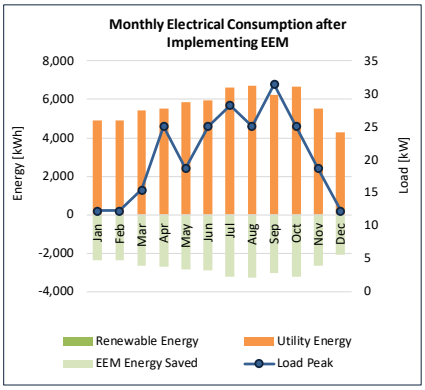


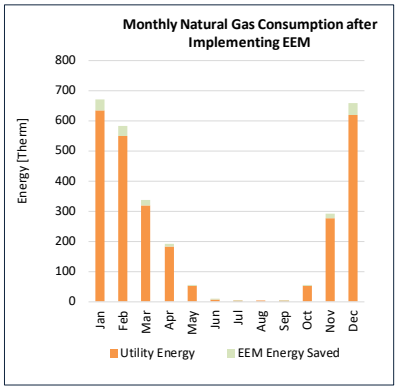


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting to LED
EEM-2:	Retrofit interior lighting to LED
EEM-3:	Replace exterior lighting to LED
EEM-4:	HVAC Systems Advanced Maintenance
EEM-5:	Replace HVAC (Package, Split, and Window) Units
EEM-6:	Duct Sealing
EEM-7:	Replace Furnace with High Energy Efficiency Furnaces
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	33,237 kWh (33%)
Demand Reduction:	16.49 kW (34%)
Natural Gas Savings:	-161.62 thm (-6%)
EEM Implementation Cost:	$75,804
EEM Annual Cost Savings:	$8,072
EEM Simple Payback	9.4 years



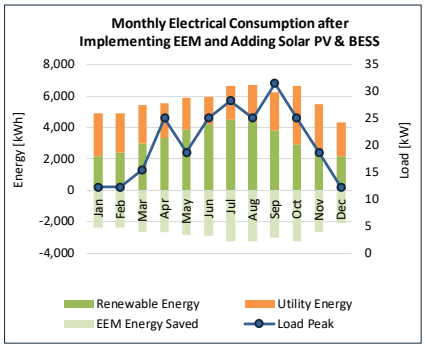


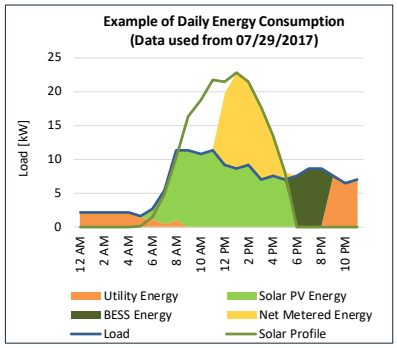
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	32 kWdc RT
Total PV Capacity:	32 kWdc
BESS Storage Capacity:	25 kWh
BESS Inverter Capacity:	25 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	39,470 kWh (39%)
Ren. Energy Generated Used:	39,470 kWh (80%)
Ren. Energy Generated Sold:	9,963 kWh (20%)
PV & BESS Cost:	$88,600
PV & BESS Project Incentives:	$8,750
PV & BESS Net Project Cost:	$79,850
Annual Cost Savings:	$8,148
PV & BESS Simple Payback:	9.8 years



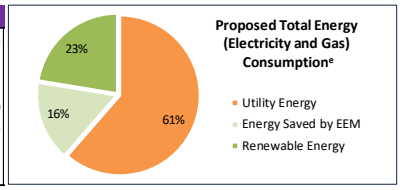


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	72,707 kWh (71%)
Natural Gas Savings:	-161.62 thm (-6%)
Renewable vs Conventional Energy:	48%
GHG Emissions Reduction:	19.5 MTCO2
SO_2 & NO_x reductions:	654.0 lb
Total Project Cost:	$164,404
Cost Savings (including NET metering):	$16,220

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	1,818 MWh
Natural Gas Savings:	-4,041 thm
GHG Emissions Reduction:	488 MTCO2
SO_2 & NO_x reductions:	16,350 lb
Net Present Value (NPV):	$258,819
Internal Rate of Return (IRR):	12%
Overall Project Payback:	8.6 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

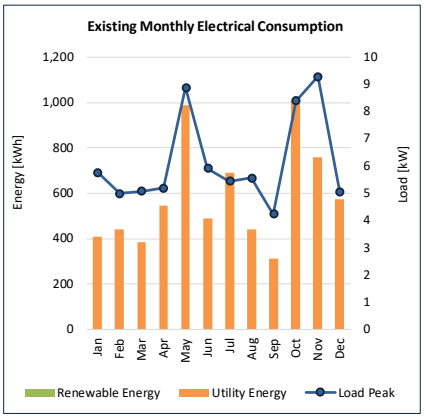
Energy Report Card
Fire Department Admin (Office)
925 Chapala Street, Santa Barbara, CA

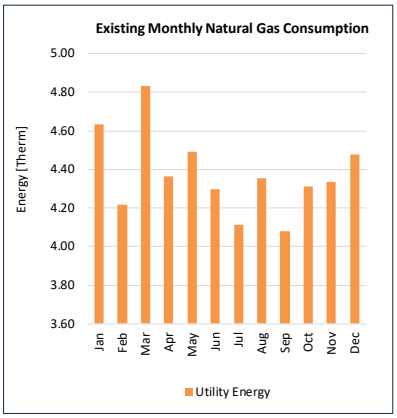
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	9,000 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-001-4787-80
Utility Rate Tariff:	TOU-GS1A
Energy Purchased:	7,038 kWh
Peak Power Purchased:	9 kW
Blended Utility Rate:	$0.21/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	53 thm
Utility Rate:	$0.90/thm

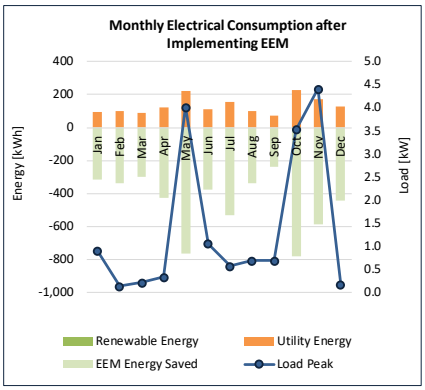


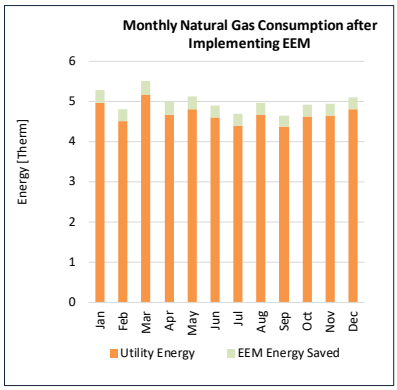


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Retrofit interior lighting to LED
EEM-3:	Replace exterior lighting with LED
EEM-4:	HVAC Systems Advanced Maintenance
EEM-5:	Programmable Thermostats
EEM-6:	Duct Sealing
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	5,454 kWh (77%)
Demand Reduction:	4.87 kW (52%)
Natural Gas Savings:	-3.64 thm (-7%)
EEM Implementation Cost:	$40,562
EEM Annual Cost Savings:	$1,910
EEM Simple Payback	21.2 years



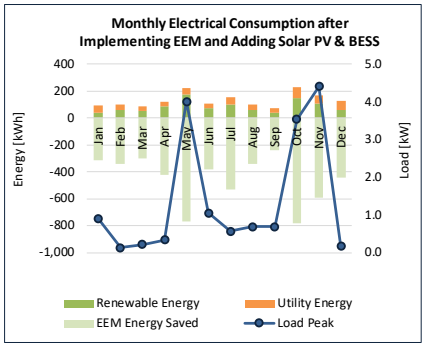


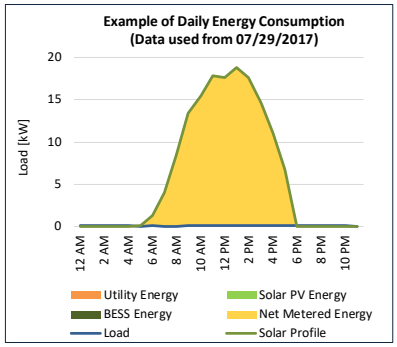
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	26 kWdc RT
Total PV Capacity:	26 kWdc
BESS Storage Capacity:	0 kWh
BESS Inverter Capacity:	0 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	996 kWh (14%)
Ren. Energy Generated Used:	996 kWh (2%)
Ren. Energy Generated Sold:	39,577 kWh (98%)
PV & BESS Cost:	$52,200
PV & BESS Project Incentives:	$0
PV & BESS Net Project Cost:	$52,200
Annual Cost Savings:	$1,281
PV & BESS Simple Payback:	40.7 years



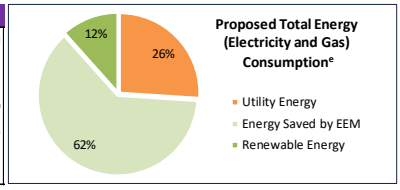


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	6,450 kWh (92%)
Natural Gas Savings:	-3.64 thm (-7%)
Renewable vs Conventional Energy:	576%
GHG Emissions Reduction:	1.8 MTCO2
SO_2 & NO_x reductions:	58.0 lb
Total Project Cost:	$92,762
Cost Savings (including NET metering):	$3,191

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	161 MWh
Natural Gas Savings:	-91 thm
GHG Emissions Reduction:	45 MTCO2
SO_2 & NO_x reductions:	1,450 lb
Net Present Value (NPV):	-$11,208
Internal Rate of Return (IRR):	2%
Overall Project Payback:	21.2 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

Energy Report Card

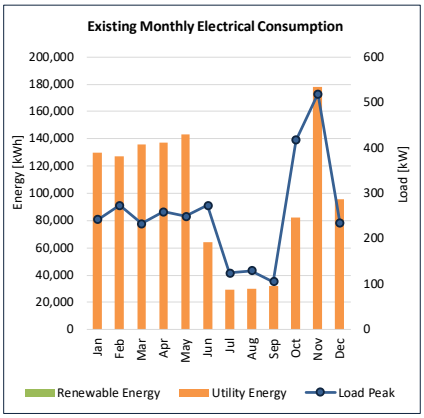
El Estero WWTP (Administration, Crews Quarter, Digester Control, Influent Pump Station, Maintenance, Parking, Prim&Second Process, Sludge Digester Control and Sludge Handling)
520 E Yanonali St, Santa Barbara, CA 93103

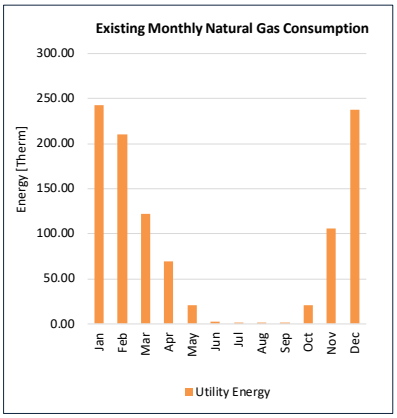
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	126,800 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-001-9783-94
Utility Rate Tariff:	TOU-8-R
Energy Purchased:	1,184,681 kWh
Peak Power Purchased:	518 kW
Blended Utility Rate:	$0.13/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	711456004
Utility Rate Tariff:	Unknown
Energy Purchased:	1,033 thm
Utility Rate:	$0.90/thm

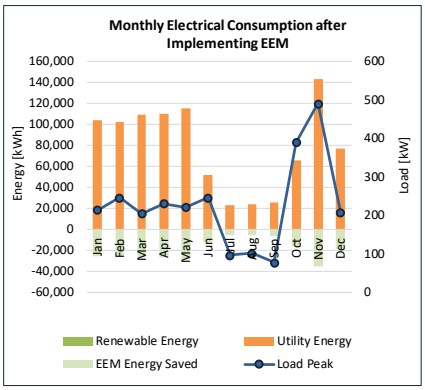


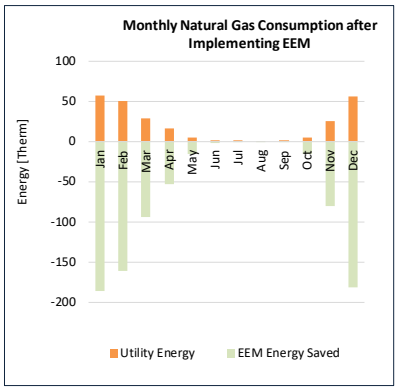


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Retrofit interior lighting with LED
EEM-3:	Replace exterior lighting with LED
EEM-4:	HVAC Systems Advanced Maintenance
EEM-5:	Programmable Thermostats
EEM-6:	Exposed Rooftop Ductwork Spray-On Insulation
EEM-7:	Advanced Package Unit Controllers
EEM-8:	Replace HVAC (Package, Split and Window) Units
EEM-9:	Duct Sealing
EEM-10:	Replace Furnace
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	231,725 kWh (20%)
Demand Reduction:	27.75 kW (5%)
Natural Gas Savings:	789.08 thm (76%)
EEM Implementation Cost:	$331,595
EEM Annual Cost Savings:	$35,905
EEM Simple Payback	9.2 years



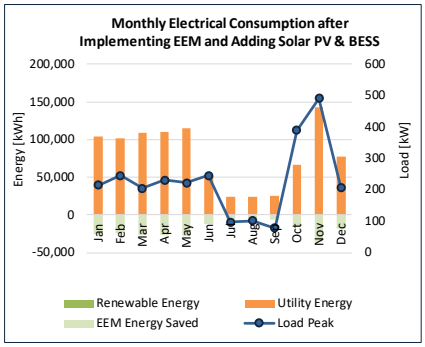


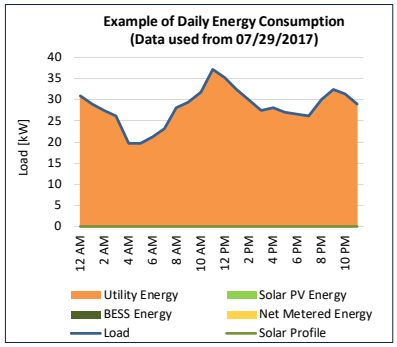
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
Reason for not proposing solar PV:	Cogen Plant generates enough energy
Total PV Capacity:	0 kWdc
BESS Storage Capacity:	0 kWh
BESS Inverter Capacity:	0 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	0 kWh (0%)
Ren. Energy Generated Used:	0 kWh (0%)
Ren. Energy Generated Sold:	0 kWh (0%)
PV & BESS Cost:	$0
PV & BESS Project Incentives:	$0
PV & BESS Net Project Cost:	$0
Annual Cost Savings:	$0
PV & BESS Simple Payback:	n/a



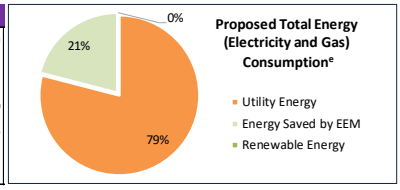


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	231,725 kWh (20%)
Natural Gas Savings:	789.08 thm (76%)
Renewable vs Conventional Energy:	0%
GHG Emissions Reduction:	69.1 MTCO2
SO_2 & NO_x reductions:	2,084.3 lb
Total Project Cost:	$331,595
Cost Savings (including NET metering):	$35,905

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	5,793 MWh
Natural Gas Savings:	19,727 thm
GHG Emissions Reduction:	1,727 MTCO2
SO_2 & NO_x reductions:	52,108 lb
Net Present Value (NPV):	$585,918
Internal Rate of Return (IRR):	13%
Overall Project Payback:	8.3 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

Energy Report Card

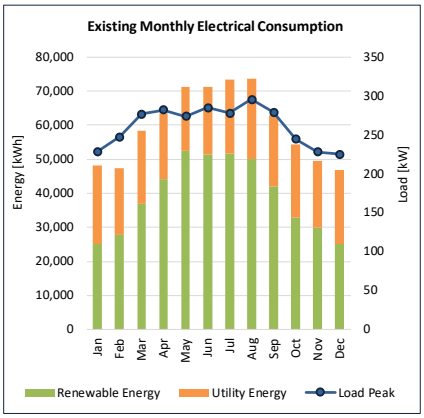
Building Maintenance, Public Works, Parks Department, and Recreation Department
625 Laguna St & 616 Laguna St, Santa Barbara, CA

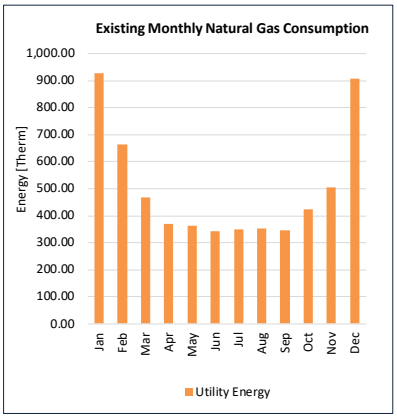
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	141,162 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-003-1667-06, 3-013-9258-60
Utility Rate Tariff:	TOU-GS2R, TOU-GS2A
Energy Purchased:	251,508 kWh
Peak Power Purchased:	91 kW
Blended Utility Rate:	$0.23/kWh
Solar PV Capacity:	302 kWdc
Renewable Energy:	469,461 kWh (65%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	92145300, 17301451005
Utility Rate Tariff:	Unknown
Energy Purchased:	6,011 thm
Utility Rate:	$0.90/thm

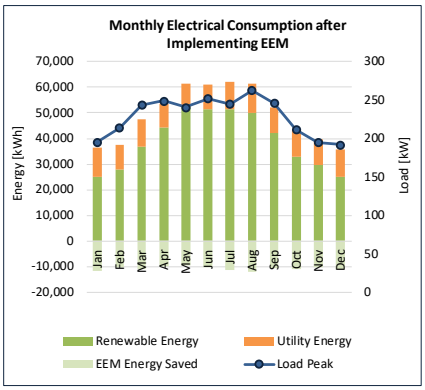


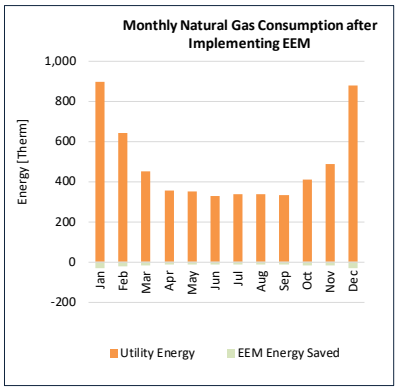


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Retrofit interior lighting with LED
EEM-3:	Replace exterior lighting with LED
EEM-4:	Programmable Thermostats
EEM-5:	HVAC Systems Advanced Maintenance
EEM-6:	Evaporator Fan Motor Replacement
EEM-7:	Vending Miser Controller
EEM-8:	DHW Heater Replacement
EEM-9:	Advanced Package Unit Controllers
EEM-10:	Replace HVAC (Package, Split and Window) Units
EEM-11:	Duct Sealing

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	129,001 kWh (51%)
Demand Reduction:	32.91 kW (36%)
Natural Gas Savings:	209.25 thm (3%)
EEM Implementation Cost:	$447,216
EEM Annual Cost Savings:	$26,511
EEM Simple Payback	16.9 years



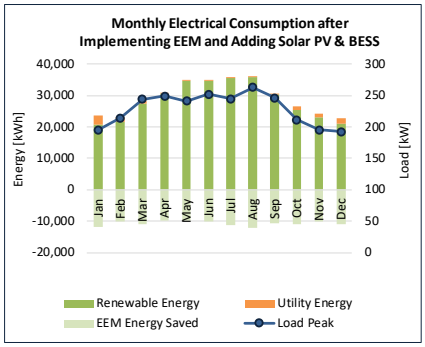


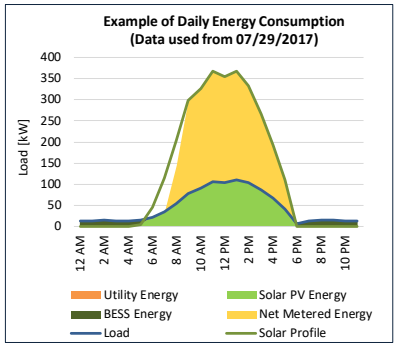
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	138 kWdc RT ; 89 kWdc CP
Total PV Capacity:	529 kWdc
BESS Storage Capacity:	175 kWh
BESS Inverter Capacity:	75 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	341,087 kWh (136%)
Ren. Energy Generated Used:	341,087 kWh (42%)
Ren. Energy Generated Sold:	466,709 kWh (57%)
PV & BESS Cost:	$678,000
PV & BESS Project Incentives:	$61,250
PV & BESS Net Project Cost:	$616,750
Annual Cost Savings:	$87,964
PV & BESS Simple Payback:	7.0 years



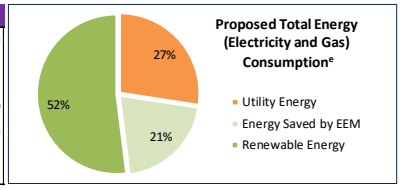


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	470,088 kWh (187%)
Natural Gas Savings:	209.25 thm (3%)
Renewable vs Conventional Energy:	113%
GHG Emissions Reduction:	132.7 MTCO2
SO_2 & NO_x reductions:	4,228.4 lb
Total Project Cost:	$1,125,216
Cost Savings (including NET metering):	$114,475

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	11,752 MWh
Natural Gas Savings:	5,231 thm
GHG Emissions Reduction:	3,318 MTCO2
SO_2 & NO_x reductions:	105,709 lb
Net Present Value (NPV):	$1,861,294
Internal Rate of Return (IRR):	13%
Overall Project Payback:	8.3 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

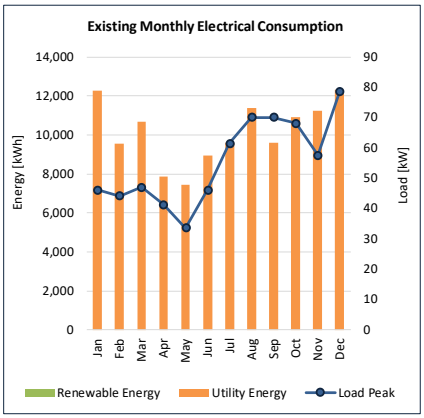
Energy Report Card
Community Development Center
630 Garden St, Santa Barbara, CA 93101

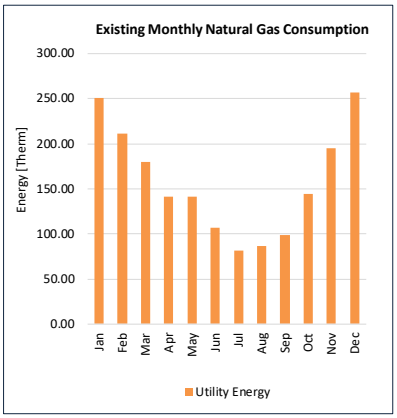
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	20,400 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-003-1667-09
Utility Rate Tariff:	TOU-GS2R
Energy Purchased:	121,810 kWh
Peak Power Purchased:	79 kW
Blended Utility Rate:	$0.10/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	17301451005
Utility Rate Tariff:	Unknown
Energy Purchased:	1,895 thm
Utility Rate:	$0.90/thm

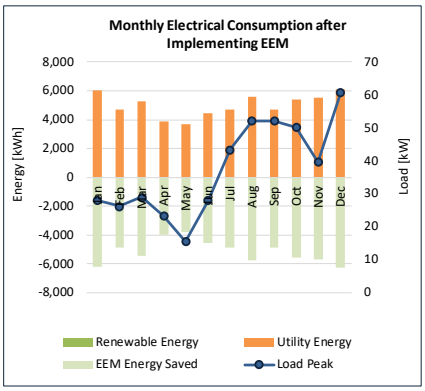


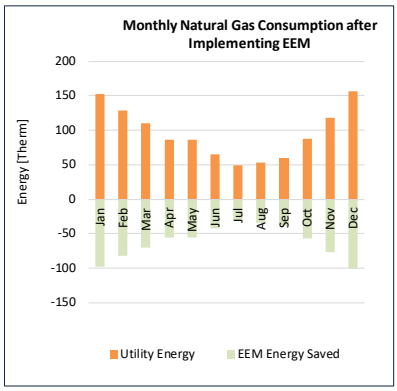


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Retrofit interior lighting with LED
EEM-3:	Duct Sealing
EEM-4:	Advanced Package Unit Controllers
EEM-5:	HVAC Systems Advanced Maintenance
EEM-6:	Evaporator fan motor replacement
EEM-7:	CRAC units evaporator fan motor replacement
EEM-8:	Replace HVAC (Package, Split and Window) Units
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	61,841 kWh (51%)
Demand Reduction:	17.98 kW (23%)
Natural Gas Savings:	741.30 thm (39%)
EEM Implementation Cost:	$146,177
EEM Annual Cost Savings:	$8,083
EEM Simple Payback	18.1 years



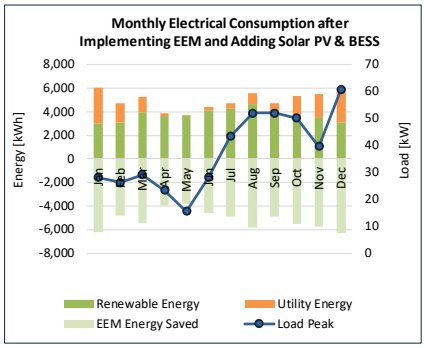


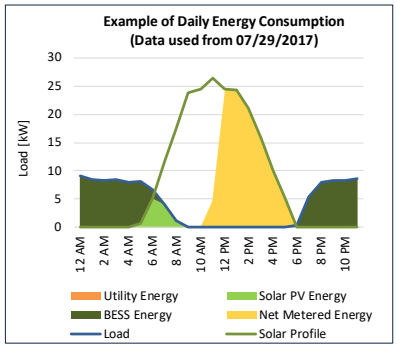
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	37 kWdc RT
Total PV Capacity:	37 kWdc
BESS Storage Capacity:	125 kWh
BESS Inverter Capacity:	25 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	44,635 kWh (37%)
Ren. Energy Generated Used:	44,635 kWh (79%)
Ren. Energy Generated Sold:	11,773 kWh (21%)
PV & BESS Cost:	$159,400
PV & BESS Project Incentives:	$43,750
PV & BESS Net Project Cost:	$115,650
Annual Cost Savings:	$3,867
PV & BESS Simple Payback:	29.9 years



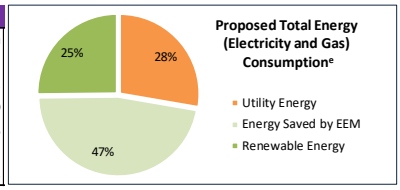


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	106,477 kWh (87%)
Natural Gas Savings:	741.30 thm (39%)
Renewable vs Conventional Energy:	47%
GHG Emissions Reduction:	33.7 MTCO2
SO_2 & NO_x reductions:	957.7 lb
Total Project Cost:	$305,577
Cost Savings (including NET metering):	$11,949

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	2,662 MWh
Natural Gas Savings:	18,532 thm
GHG Emissions Reduction:	844 MTCO2
SO_2 & NO_x reductions:	23,944 lb
Net Present Value (NPV):	$43,518
Internal Rate of Return (IRR):	4%
Overall Project Payback:	17.1 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

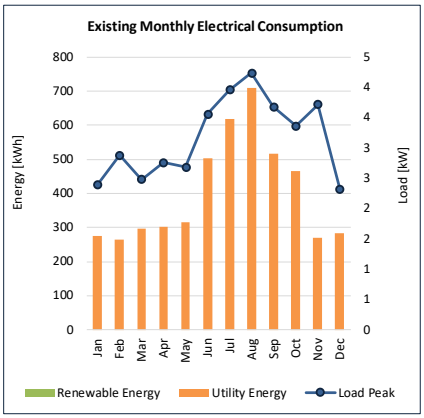
Energy Report Card
City Surveyor's Office (Office)
220 E Ortega, Santa Barbara, CA 93101

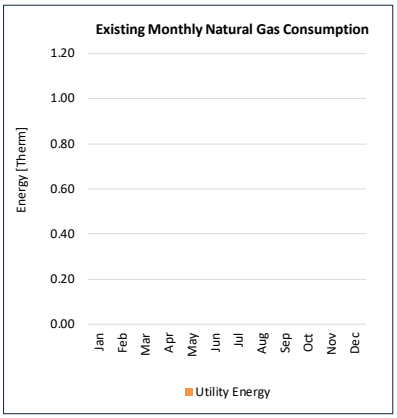
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	500 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-003-1672-17
Utility Rate Tariff:	TOU-GS1A
Energy Purchased:	4,816 kWh
Peak Power Purchased:	4 kW
Blended Utility Rate:	$0.22/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	n/a
Utility Rate Tariff:	n/a
Energy Purchased:	0 thm
Utility Rate:	$0.00/thm

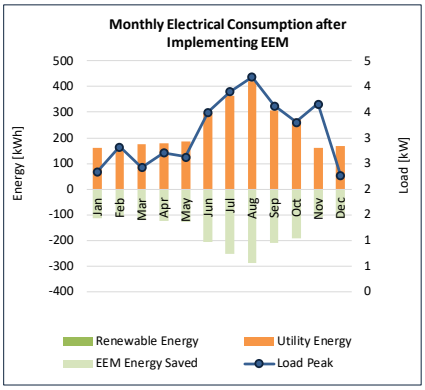


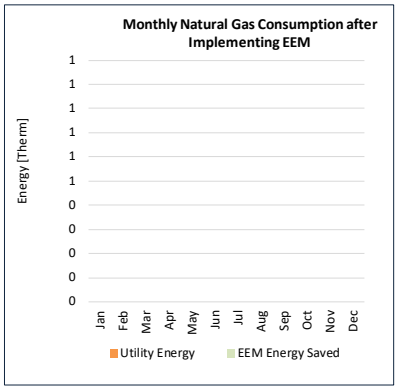


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Replace exterior lighting with LED
EEM-3:	n/a
EEM-4:	n/a
EEM-5:	n/a
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	1,964 kWh (41%)
Demand Reduction:	0.05 kW (1%)
Natural Gas Savings:	0.00 thm (0%)
EEM Implementation Cost:	$3,015
EEM Annual Cost Savings:	$494
EEM Simple Payback	6.1 years



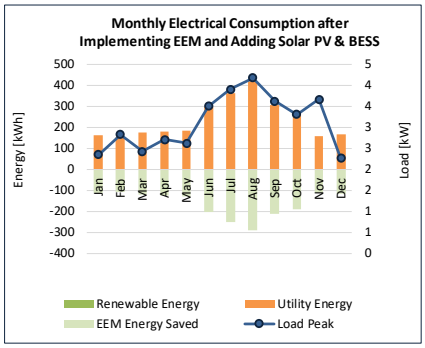


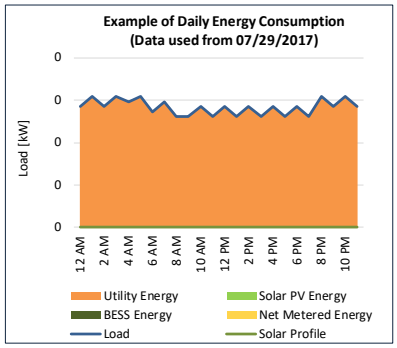
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
Reason for not proposing solar PV:	Space Unavailable
Total PV Capacity:	0 kWdc
BESS Storage Capacity:	0 kWh
BESS Inverter Capacity:	0 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	0 kWh (0%)
Ren. Energy Generated Used:	0 kWh (0%)
Ren. Energy Generated Sold:	0 kWh (0%)
PV & BESS Cost:	$0
PV & BESS Project Incentives:	$0
PV & BESS Net Project Cost:	$0
Annual Cost Savings:	$0
PV & BESS Simple Payback:	n/a



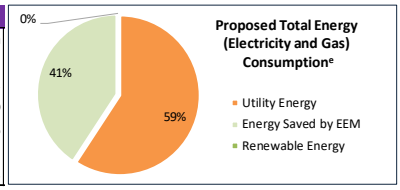


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	1,964 kWh (41%)
Natural Gas Savings:	0.00 thm (0%)
Renewable vs Conventional Energy:	0%
GHG Emissions Reduction:	0.5 MTCO2
SO_2 & NO_x reductions:	17.7 lb
Total Project Cost:	$3,015
Cost Savings (including NET metering):	$494

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	49 MWh
Natural Gas Savings:	0 thm
GHG Emissions Reduction:	14 MTCO2
SO_2 & NO_x reductions:	442 lb
Net Present Value (NPV):	$9,616
Internal Rate of Return (IRR):	19%
Overall Project Payback:	5.7 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

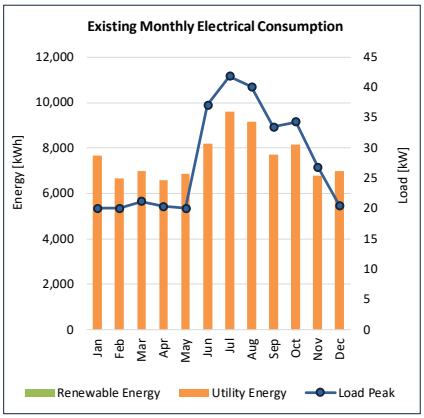
Energy Report Card
Westside Comm Center
423 W Victoria St, Santa Barbara, CA 93101

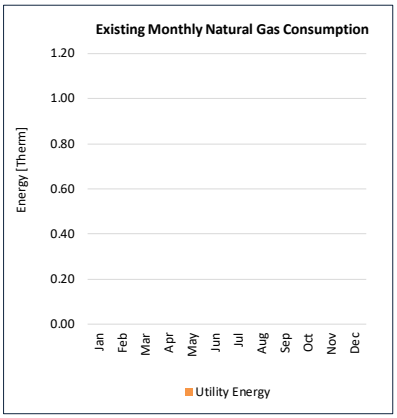
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	16,000 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-003-3196-51
Utility Rate Tariff:	TOU-GS2A
Energy Purchased:	91,398 kWh
Peak Power Purchased:	13 kW
Blended Utility Rate:	$0.19/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	n/a
Utility Rate Tariff:	n/a
Energy Purchased:	0 thm
Utility Rate:	$0.00/thm

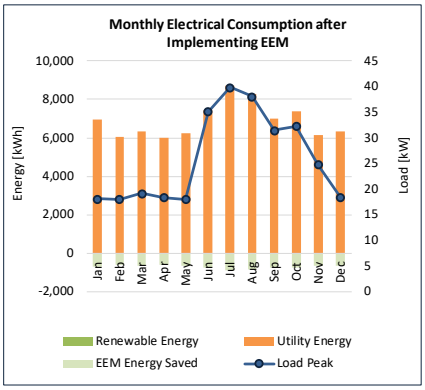


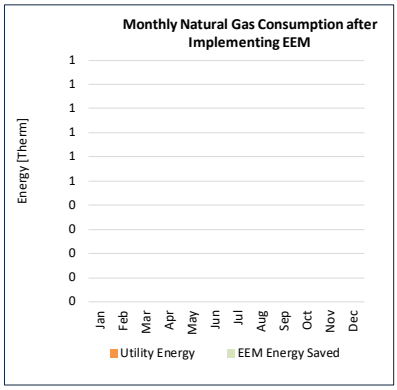


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Retrofit interior lighting with LED
EEM-2:	Replace interior lighting with LED
EEM-3:	Replace exterior lighting with LED
EEM-4:	n/a
EEM-5:	n/a
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	8,534 kWh (9%)
Demand Reduction:	1.97 kW (15%)
Natural Gas Savings:	0.00 thm (0%)
EEM Implementation Cost:	$29,401
EEM Annual Cost Savings:	$2,182
EEM Simple Payback	13.5 years



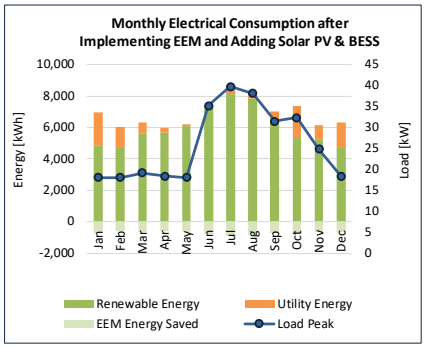


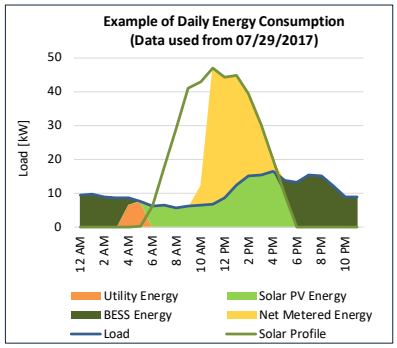
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	65 kWdc RT
Total PV Capacity:	65 kWdc
BESS Storage Capacity:	100 kWh
BESS Inverter Capacity:	50 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	72,142 kWh (79%)
Ren. Energy Generated Used:	72,142 kWh (69%)
Ren. Energy Generated Sold:	32,029 kWh (31%)
PV & BESS Cost:	$210,800
PV & BESS Project Incentives:	$35,000
PV & BESS Net Project Cost:	$175,800
Annual Cost Savings:	$13,575
PV & BESS Simple Payback:	13.0 years



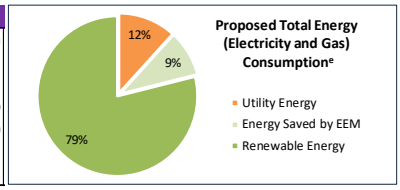


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	80,676 kWh (88%)
Natural Gas Savings:	0.00 thm (0%)
Renewable vs Conventional Energy:	114%
GHG Emissions Reduction:	22.6 MTCO2
SO_2 & NO_x reductions:	725.7 lb
Total Project Cost:	$240,201
Cost Savings (including NET metering):	$15,757

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	2,017 MWh
Natural Gas Savings:	0 thm
GHG Emissions Reduction:	565 MTCO2
SO_2 & NO_x reductions:	18,142 lb
Net Present Value (NPV):	$197,440
Internal Rate of Return (IRR):	9%
Overall Project Payback:	11.2 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

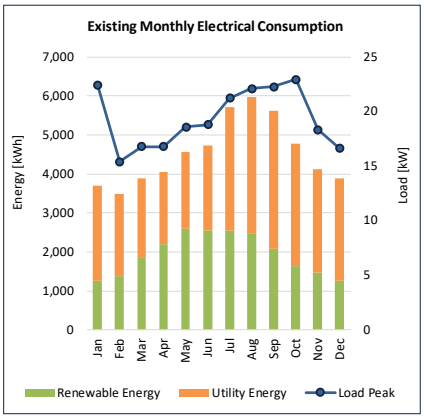
Energy Report Card
Fire Station 2
819 Cacique Street, Santa Barbara, CA 93103

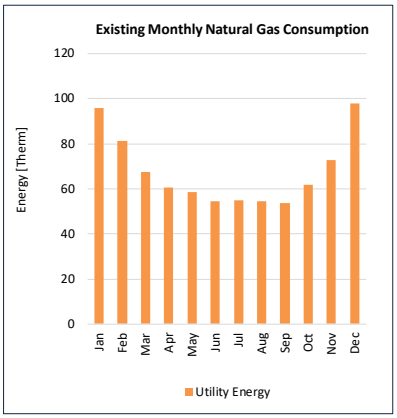
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	5,700 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-003-3459-25
Utility Rate Tariff:	TOU-GS1A
Energy Purchased:	31,166 kWh
Peak Power Purchased:	16 kW
Blended Utility Rate:	$0.07/kWh
Solar PV Capacity:	15 kWdc
Renewable Energy:	23,318 kWh (43%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	19791466006
Utility Rate Tariff:	Unknown
Energy Purchased:	815 thm
Utility Rate:	$0.90/thm

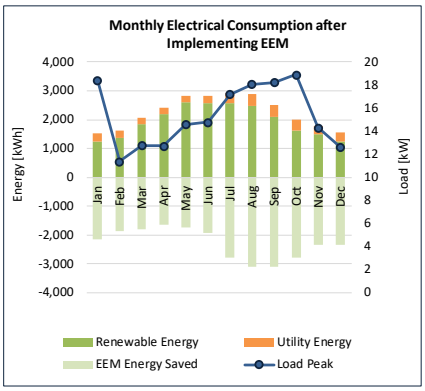


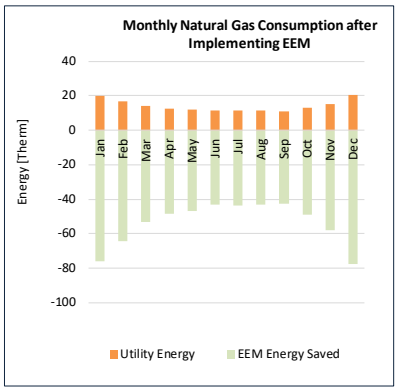


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Retrofit interior lighting with LED
EEM-2:	Replacement of interior fluorescent, HID, and incande
EEM-3:	Replacement of exterior fluorescent, HID, and incand
EEM-4:	DHW Heater Replacement
EEM-5:	Replace HVAC (Package, Split and Window) Units
EEM-6:	Programmable Thermostats
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	27,524 kWh (88%)
Demand Reduction:	4.04 kW (25%)
Natural Gas Savings:	645.85 thm (79%)
EEM Implementation Cost:	$43,944
EEM Annual Cost Savings:	$2,988
EEM Simple Payback	14.7 years



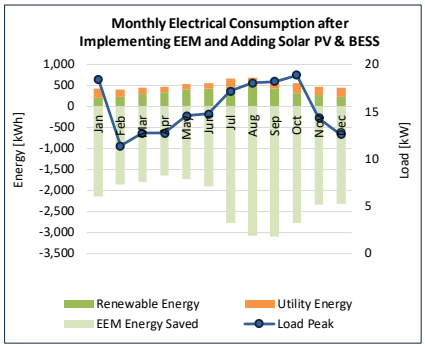


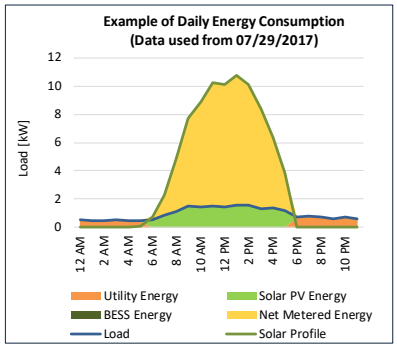
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
Reason for not proposing solar PV:	Space Unavailable
Total PV Capacity:	15 kWdc
BESS Storage Capacity:	0 kWh
BESS Inverter Capacity:	0 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	4,157 kWh (13%)
Ren. Energy Generated Used:	4,157 kWh (18%)
Ren. Energy Generated Sold:	19,160 kWh (82%)
PV & BESS Cost:	$0
PV & BESS Project Incentives:	$0
PV & BESS Net Project Cost:	$0
Annual Cost Savings:	$794
PV & BESS Simple Payback:	0.0 years



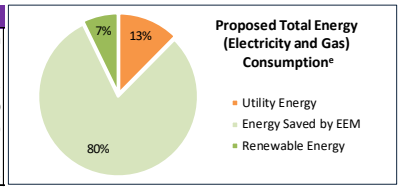


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	31,682 kWh (102%)
Natural Gas Savings:	645.85 thm (79%)
Renewable vs Conventional Energy:	43%
GHG Emissions Reduction:	12.3 MTCO2
SO_2 & NO_x reductions:	285.0 lb
Total Project Cost:	$43,944
Cost Savings (including NET metering):	$3,782

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	792 MWh
Natural Gas Savings:	16,146 thm
GHG Emissions Reduction:	307 MTCO2
SO_2 & NO_x reductions:	7,124 lb
Net Present Value (NPV):	$52,689
Internal Rate of Return (IRR):	10%
Overall Project Payback:	10.1 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

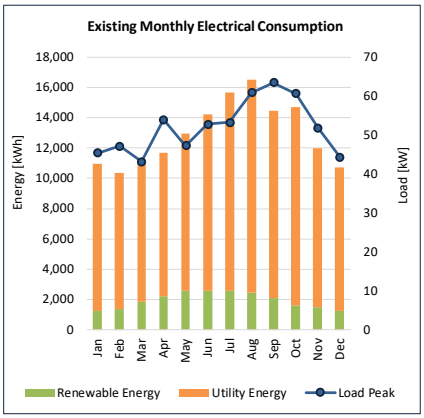
Energy Report Card
Franklin Center
1136 E Montecito St, Santa Barbara, CA 93103

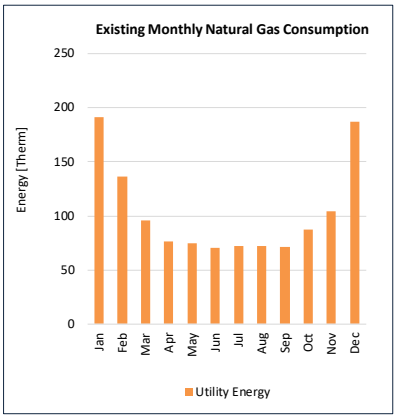
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	10,900 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-003-5187-24
Utility Rate Tariff:	TOU-GS2B
Energy Purchased:	132,225 kWh
Peak Power Purchased:	53 kW
Blended Utility Rate:	$0.19/kWh
Solar PV Capacity:	15 kWdc
Renewable Energy:	23,318 kWh (15%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	573148300
Utility Rate Tariff:	Unknown
Energy Purchased:	1,240 thm
Utility Rate:	$0.90/thm

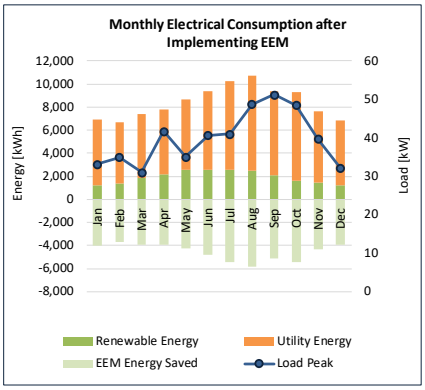


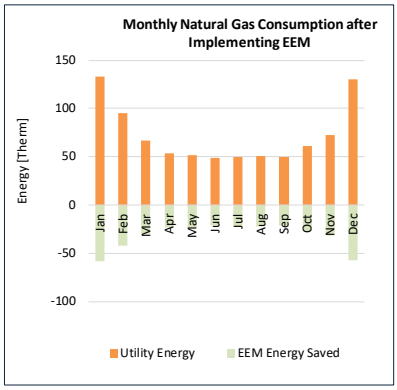


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Retrofit interior lighting with LED
EEM-2:	Replace interior lighting with LED
EEM-3:	Replace exterior lighting with LED
EEM-4:	Duct Sealing
EEM-5:	Advanced Package Unit Controllers
EEM-6:	Programmable Thermostats
EEM-7:	HVAC Systems Advanced Maintenance
EEM-8:	Evaporator fan motor replacement
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	54,748 kWh (41%)
Demand Reduction:	12.16 kW (23%)
Natural Gas Savings:	375.87 thm (30%)
EEM Implementation Cost:	$152,800
EEM Annual Cost Savings:	$12,915
EEM Simple Payback	11.8 years



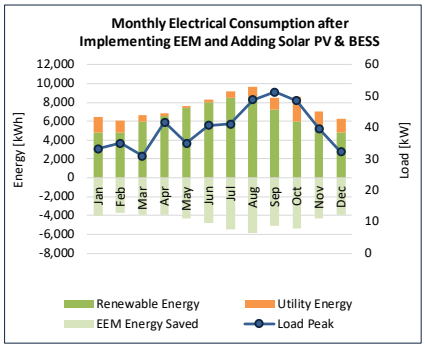


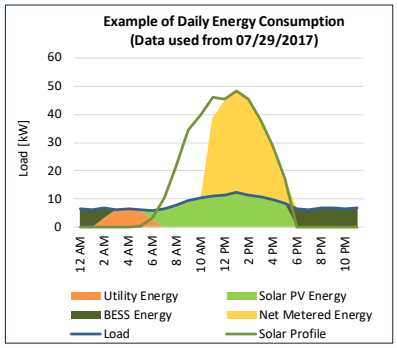
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	52 kWdc CP
Total PV Capacity:	67 kWdc
BESS Storage Capacity:	75 kWh
BESS Inverter Capacity:	25 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	78,151 kWh (59%)
Ren. Energy Generated Used:	78,151 kWh (75%)
Ren. Energy Generated Sold:	25,873 kWh (25%)
PV & BESS Cost:	$211,600
PV & BESS Project Incentives:	$26,250
PV & BESS Net Project Cost:	$185,350
Annual Cost Savings:	$15,020
PV & BESS Simple Payback:	12.3 years



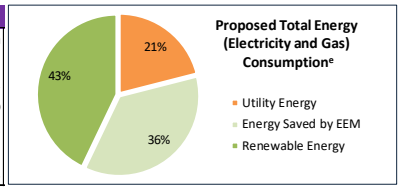


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	132,898 kWh (101%)
Natural Gas Savings:	375.87 thm (30%)
Renewable vs Conventional Energy:	67%
GHG Emissions Reduction:	39.2 MTCO2
SO_2 & NO_x reductions:	1,195.4 lb
Total Project Cost:	$364,400
Cost Savings (including NET metering):	$27,935

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	3,322 MWh
Natural Gas Savings:	9,397 thm
GHG Emissions Reduction:	980 MTCO2
SO_2 & NO_x reductions:	29,885 lb
Net Present Value (NPV):	$375,703
Internal Rate of Return (IRR):	9%
Overall Project Payback:	10.5 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

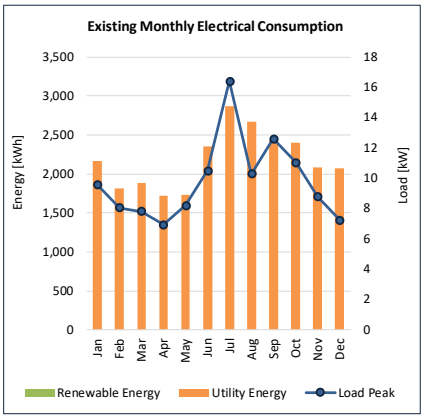
Energy Report Card
Casa Las Palmas (Rec Center) and Chase Palm Park (Carousel Building and Club House)
236 E Cabrillo Blvd

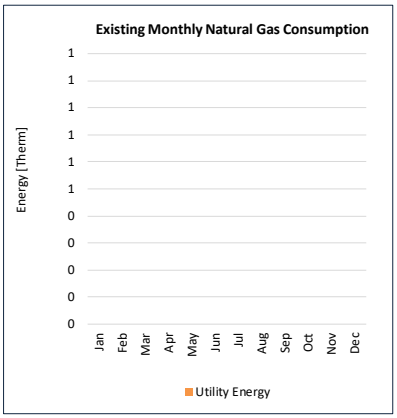
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	1,680 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-013-4158-45
Utility Rate Tariff:	TOU-GS1B
Energy Purchased:	26,207 kWh
Peak Power Purchased:	16 kW
Blended Utility Rate:	$0.15/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	n/a
Utility Rate Tariff:	n/a
Energy Purchased:	0 thm
Utility Rate:	$0.00/thm

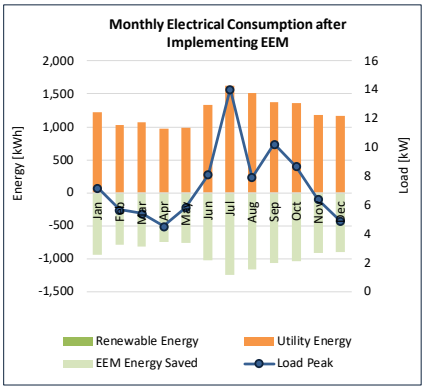


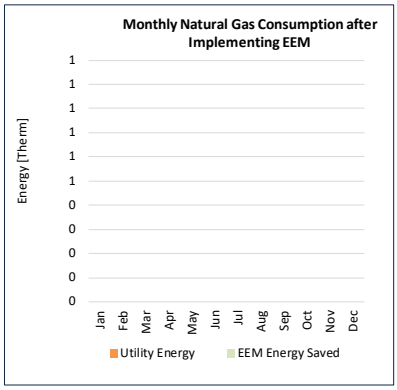


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Retrofit interior lighting with LED
EEM-3:	Replace exterior lighting with LED
EEM-4:	HVAC Systems Advanced Maintenance
EEM-5:	Duct Sealing
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	11,399 kWh (43%)
Demand Reduction:	2.36 kW (14%)
Natural Gas Savings:	0.00 thm (0%)
EEM Implementation Cost:	$44,026
EEM Annual Cost Savings:	$2,587
EEM Simple Payback	17.0 years



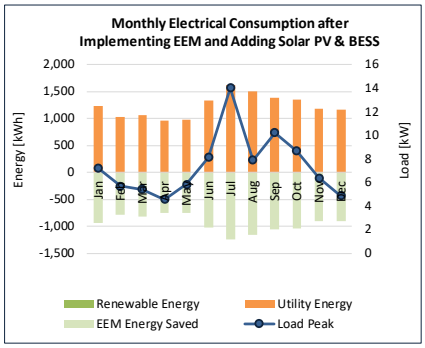


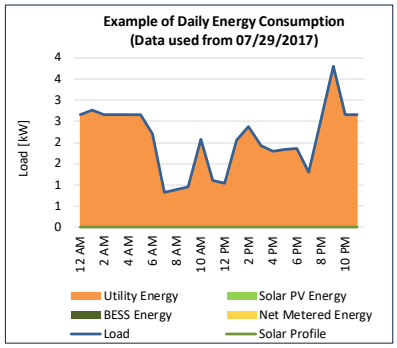
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
Reason for not proposing solar PV:	Space Unavailable
Total PV Capacity:	0 kWdc
BESS Storage Capacity:	0 kWh
BESS Inverter Capacity:	0 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	0 kWh (0%)
Ren. Energy Generated Used:	0 kWh (0%)
Ren. Energy Generated Sold:	0 kWh (0%)
PV & BESS Cost:	$0
PV & BESS Project Incentives:	$0
PV & BESS Net Project Cost:	$0
Annual Cost Savings:	$0
PV & BESS Simple Payback:	n/a



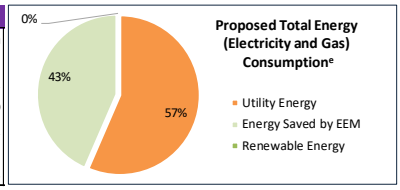


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	11,399 kWh (43%)
Natural Gas Savings:	0.00 thm (0%)
Renewable vs Conventional Energy:	0%
GHG Emissions Reduction:	3.2 MTCO2
SO_2 & NO_x reductions:	102.5 lb
Total Project Cost:	$44,026
Cost Savings (including NET metering):	$2,587

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	285 MWh
Natural Gas Savings:	0 thm
GHG Emissions Reduction:	80 MTCO2
SO_2 & NO_x reductions:	2,563 lb
Net Present Value (NPV):	$22,091
Internal Rate of Return (IRR):	6%
Overall Project Payback:	14.0 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

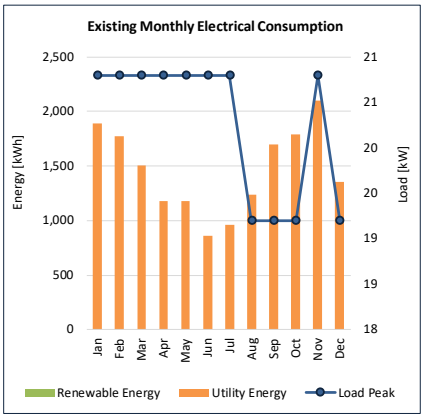
Energy Report Card
Municipal Tennis Center
1414 Park Pl, Santa Barbara, CA 93103

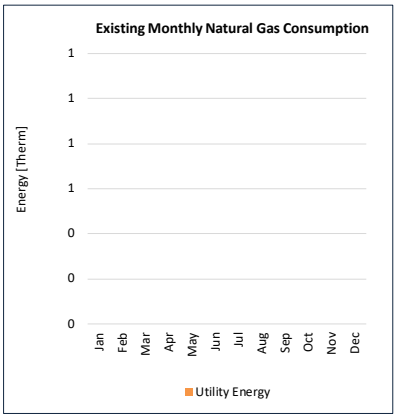
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	2,300 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-017-2945-30
Utility Rate Tariff:	TOU-GS2B
Energy Purchased:	17,517 kWh
Peak Power Purchased:	21 kW
Blended Utility Rate:	$0.60/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	n/a
Utility Rate Tariff:	n/a
Energy Purchased:	0 thm
Utility Rate:	$0.00/thm

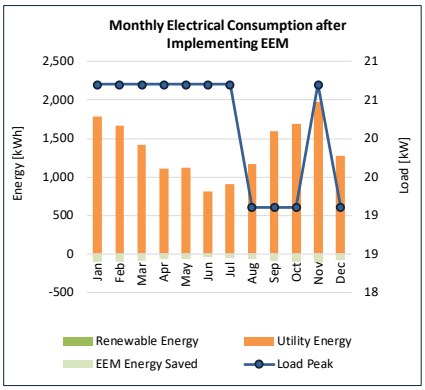


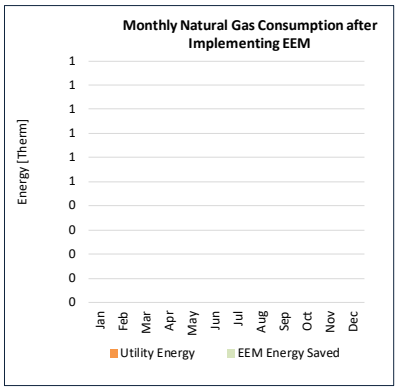


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Retrofit interior lighting with LED
EEM-2:	Replace interior lighting with LED
EEM-3:	Replace exterior lighting with LED
EEM-4:	Vending Miser Controller
EEM-5:	n/a
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	1,000 kWh (6%)
Demand Reduction:	0.10 kW (0%)
Natural Gas Savings:	0.00 thm (0%)
EEM Implementation Cost:	$2,159
EEM Annual Cost Savings:	$641
EEM Simple Payback	3.4 years



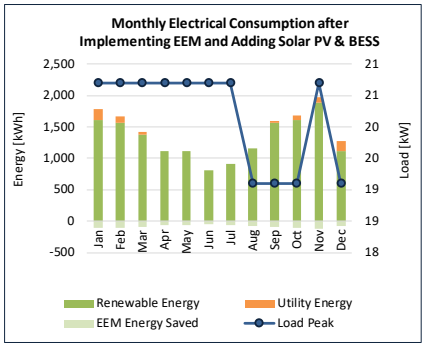


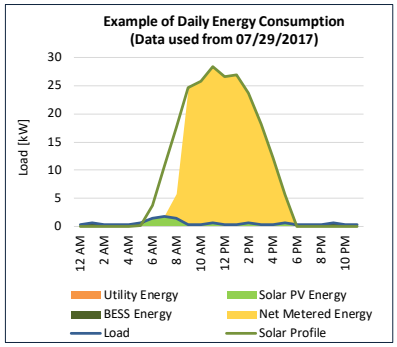
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	17 kWdc RT ; 23 kWdc CP
Total PV Capacity:	39 kWdc
BESS Storage Capacity:	75 kWh
BESS Inverter Capacity:	25 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	15,854 kWh (91%)
Ren. Energy Generated Used:	15,854 kWh (25%)
Ren. Energy Generated Sold:	46,725 kWh (75%)
PV & BESS Cost:	$156,400
PV & BESS Project Incentives:	$26,250
PV & BESS Net Project Cost:	$130,150
Annual Cost Savings:	$10,260
PV & BESS Simple Payback:	12.7 years



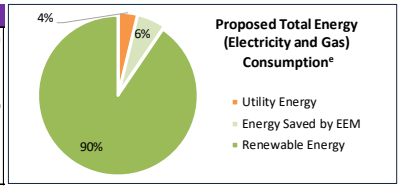


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	16,854 kWh (96%)
Natural Gas Savings:	0.00 thm (0%)
Renewable vs Conventional Energy:	357%
GHG Emissions Reduction:	4.7 MTCO2
SO_2 & NO_x reductions:	151.6 lb
Total Project Cost:	$158,559
Cost Savings (including NET metering):	$10,901

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	421 MWh
Natural Gas Savings:	0 thm
GHG Emissions Reduction:	118 MTCO2
SO_2 & NO_x reductions:	3,790 lb
Net Present Value (NPV):	$146,263
Internal Rate of Return (IRR):	9%
Overall Project Payback:	10.5 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

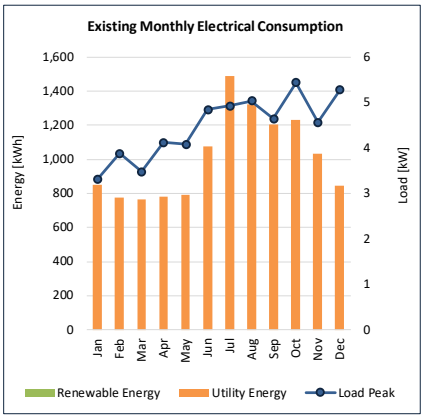
Energy Report Card
Mckenzie Park (Lawn Bowling and Records Storage)
3111 State St, Santa Barbara, CA 93105

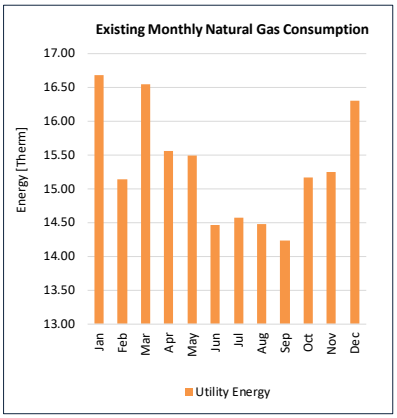
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	2,936 sq.ft.
Building(s) Vintage:	1,998

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-018-1610-95
Utility Rate Tariff:	TOU-GS1A
Energy Purchased:	12,175 kWh
Peak Power Purchased:	5 kW
Blended Utility Rate:	$0.18/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	184 thm
Utility Rate:	$0.90/thm

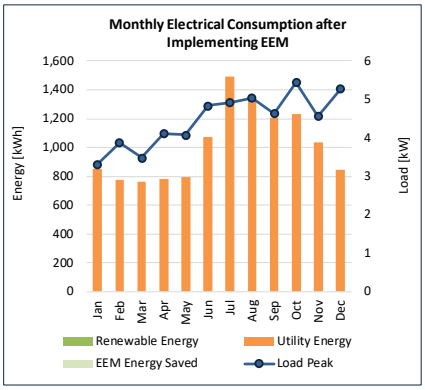


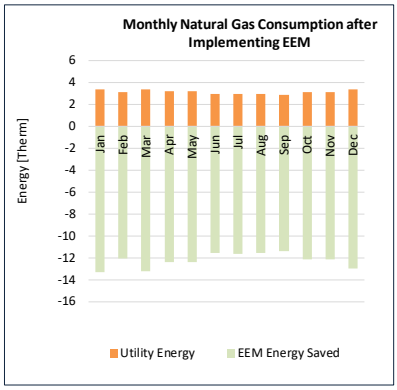


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	DHW Heater Replacement
EEM-2:	n/a
EEM-3:	n/a
EEM-4:	n/a
EEM-5:	n/a
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	0 kWh (0%)
Demand Reduction:	0.00 kW (0%)
Natural Gas Savings:	146.68 thm (80%)
EEM Implementation Cost:	$1,438
EEM Annual Cost Savings:	$132
EEM Simple Payback	10.9 years



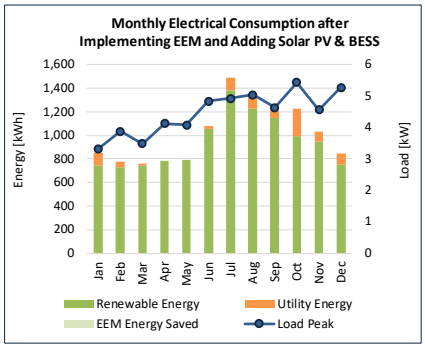


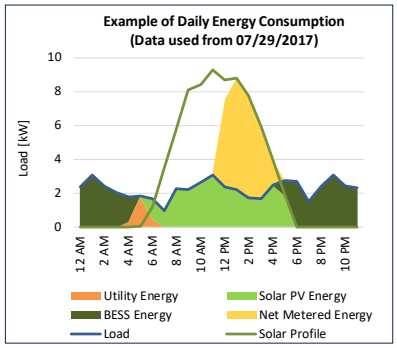
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	13 kWdc CP
Total PV Capacity:	13 kWdc
BESS Storage Capacity:	25 kWh
BESS Inverter Capacity:	13 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	11,306 kWh (93%)
Ren. Energy Generated Used:	11,306 kWh (55%)
Ren. Energy Generated Sold:	9,242 kWh (45%)
PV & BESS Cost:	$58,700
PV & BESS Project Incentives:	$8,750
PV & BESS Net Project Cost:	$49,950
Annual Cost Savings:	$2,006
PV & BESS Simple Payback:	24.9 years



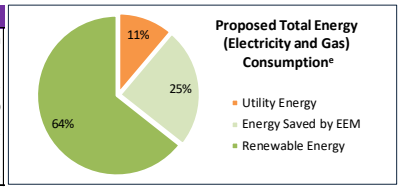


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	11,306 kWh (93%)
Natural Gas Savings:	146.68 thm (80%)
Renewable vs Conventional Energy:	169%
GHG Emissions Reduction:	3.9 MTCO2
SO_2 & NO_x reductions:	101.7 lb
Total Project Cost:	$60,138
Cost Savings (including NET metering):	$2,138

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	283 MWh
Natural Gas Savings:	3,667 thm
GHG Emissions Reduction:	99 MTCO2
SO_2 & NO_x reductions:	2,542 lb
Net Present Value (NPV):	$3,241
Internal Rate of Return (IRR):	3%
Overall Project Payback:	18.4 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

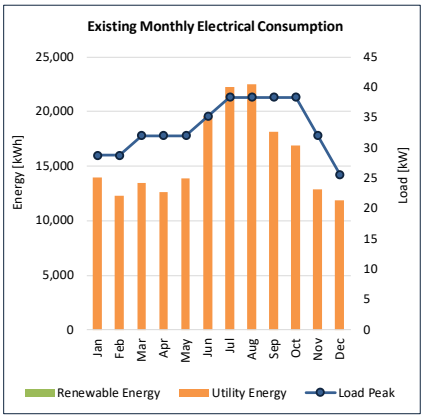
Energy Report Card
Cater WTP (Admin & Maintenance, Dewatering, Operations Annex, and Ozone)
1150 San Roque Rd, Santa Barbara, CA 93105

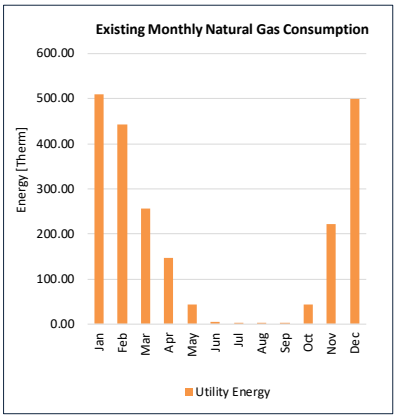
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	14,700 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-022-5323-86
Utility Rate Tariff:	TOU-GS2B
Energy Purchased:	190,305 kWh
Peak Power Purchased:	38 kW
Blended Utility Rate:	$0.14/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	18571534009
Utility Rate Tariff:	Unknown
Energy Purchased:	2,171 thm
Utility Rate:	$0.90/thm

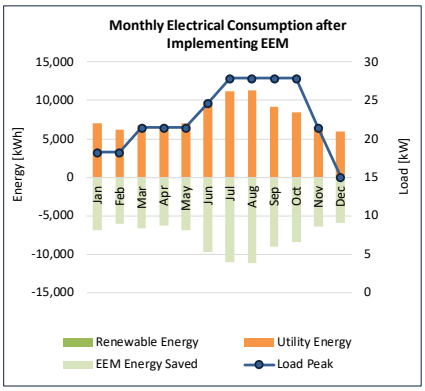


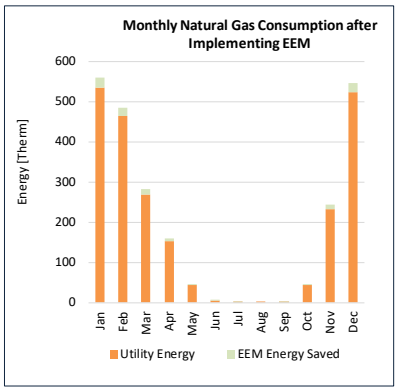


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Retrofit interior lighting with LED
EEM-3:	Replace exterior lighting with LED
EEM-4:	Circulating Block Heater for Emergency Generators
EEM-5:	DHW Heater Replacement
EEM-6:	Advanced Package Unit Controllers
EEM-7:	Duct Sealing
EEM-8:	HVAC Systems Advanced Maintenance
EEM-9:	Evaporator fan motor replacement
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	94,361 kWh (50%)
Demand Reduction:	10.53 kW (27%)
Natural Gas Savings:	-102.96 thm (-5%)
EEM Implementation Cost:	$81,885
EEM Annual Cost Savings:	$15,217
EEM Simple Payback	5.4 years



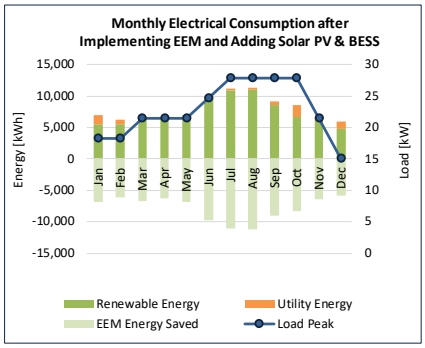


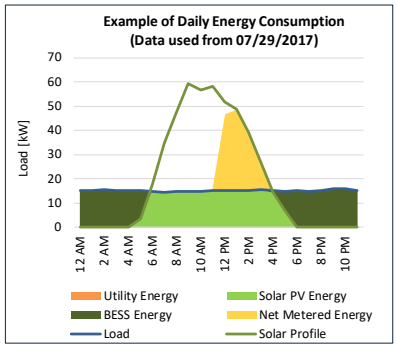
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	83 kWdc RT
Total PV Capacity:	83 kWdc
BESS Storage Capacity:	200 kWh
BESS Inverter Capacity:	50 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	88,775 kWh (47%)
Ren. Energy Generated Used:	88,775 kWh (76%)
Ren. Energy Generated Sold:	27,524 kWh (24%)
PV & BESS Cost:	$306,800
PV & BESS Project Incentives:	$70,000
PV & BESS Net Project Cost:	$236,800
Annual Cost Savings:	$11,915
PV & BESS Simple Payback:	19.9 years



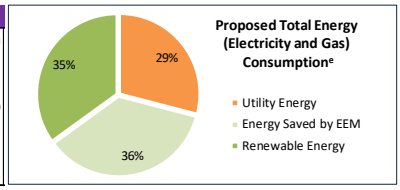


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	183,136 kWh (96%)
Natural Gas Savings:	-102.96 thm (-5%)
Renewable vs Conventional Energy:	61%
GHG Emissions Reduction:	50.7 MTCO2
SO_2 & NO_x reductions:	1,647.3 lb
Total Project Cost:	$388,685
Cost Savings (including NET metering):	$27,132

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	4,578 MWh
Natural Gas Savings:	-2,574 thm
GHG Emissions Reduction:	1,268 MTCO2
SO_2 & NO_x reductions:	41,182 lb
Net Present Value (NPV):	$374,635
Internal Rate of Return (IRR):	10%
Overall Project Payback:	10.2 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

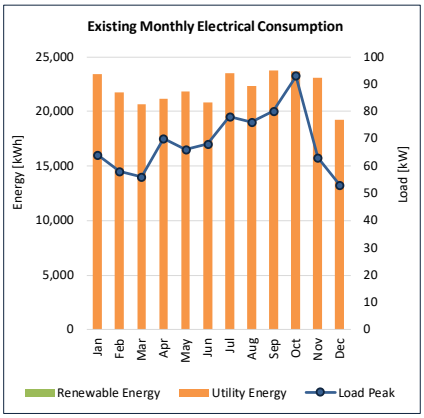
Energy Report Card
City Hall
735 Anacapa St, Santa Barbara, CA 93101

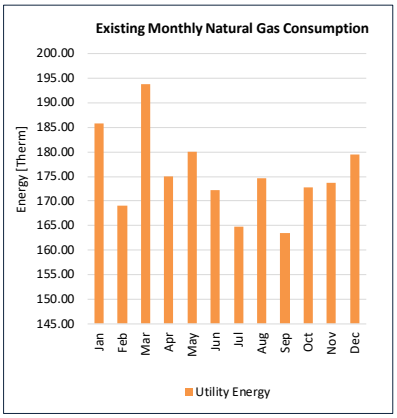
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	28,200 sq.ft.
Building(s) Vintage:	1,925

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-022-6644-42
Utility Rate Tariff:	TOU-GS2B
Energy Purchased:	265,396 kWh
Peak Power Purchased:	93 kW
Blended Utility Rate:	$0.16/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	995145800
Utility Rate Tariff:	Unknown
Energy Purchased:	2,105 thm
Utility Rate:	$0.90/thm

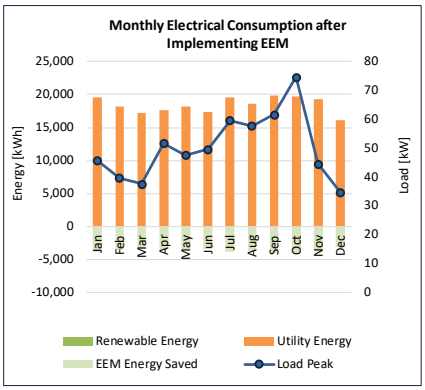


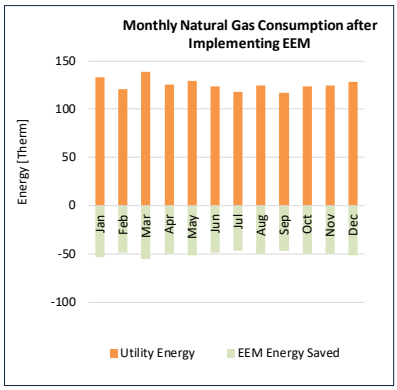


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Retrofit interior lighting with LED
EEM-3:	Replace exterior lighting with LED
EEM-4:	Vending Miser Controller
EEM-5:	Advanced Package Unit Controllers
EEM-6:	Replace HVAC (Package, Split and Window) Units
EEM-7:	Duct Sealing
EEM-8:	HVAC Systems Advanced Maintenance
EEM-9:	CRAC units evaporator fan motor replacement
EEM-10:	Exposed Rooftop Ductwork Spray-On Insulation
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	43,975 kWh (17%)
Demand Reduction:	18.36 kW (20%)
Natural Gas Savings:	598.60 thm (28%)
EEM Implementation Cost:	$97,072
EEM Annual Cost Savings:	$8,043
EEM Simple Payback	12.1 years



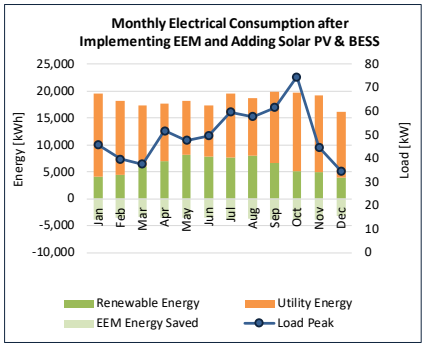


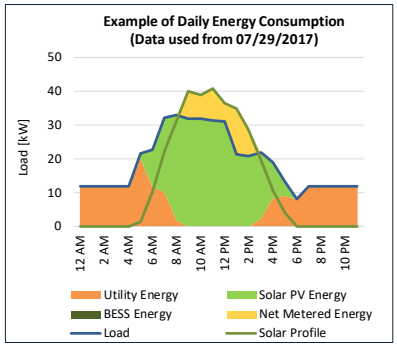
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	56 kWdc CP
Total PV Capacity:	56 kWdc
BESS Storage Capacity:	0 kWh
BESS Inverter Capacity:	0 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	73,775 kWh (28%)
Ren. Energy Generated Used:	73,775 kWh (87%)
Ren. Energy Generated Sold:	11,052 kWh (13%)
PV & BESS Cost:	$168,300
PV & BESS Project Incentives:	$0
PV & BESS Net Project Cost:	$168,300
Annual Cost Savings:	$11,641
PV & BESS Simple Payback:	14.5 years



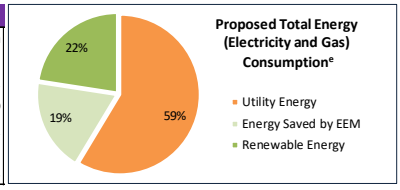


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	117,750 kWh (44%)
Natural Gas Savings:	598.60 thm (28%)
Renewable vs Conventional Energy:	32%
GHG Emissions Reduction:	36.1 MTCO2
SO_2 & NO_x reductions:	1,059.1 lb
Total Project Cost:	$265,372
Cost Savings (including NET metering):	$19,684

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	2,944 MWh
Natural Gas Savings:	14,965 thm
GHG Emissions Reduction:	904 MTCO2
SO_2 & NO_x reductions:	26,479 lb
Net Present Value (NPV):	$237,631
Internal Rate of Return (IRR):	8%
Overall Project Payback:	11.5 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

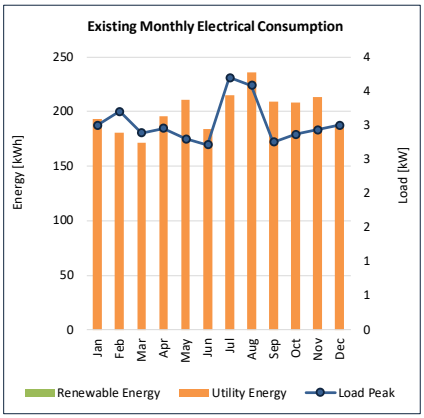
Energy Report Card
Airport (Bldg 352: Office)
1411 Firestone Rd, Santa Barbara, CA 93117

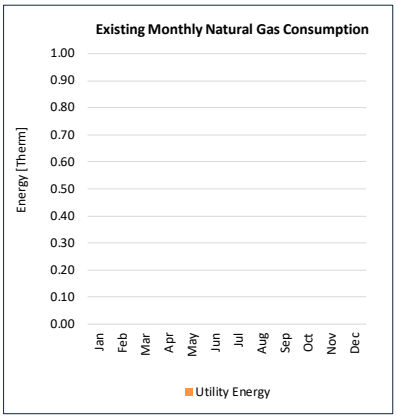
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	720 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-023-9298-45
Utility Rate Tariff:	TOU-GS1A
Energy Purchased:	2,405 kWh
Peak Power Purchased:	4 kW
Blended Utility Rate:	$0.27/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	n/a
Utility Rate Tariff:	n/a
Energy Purchased:	0 thm
Utility Rate:	$0.00/thm

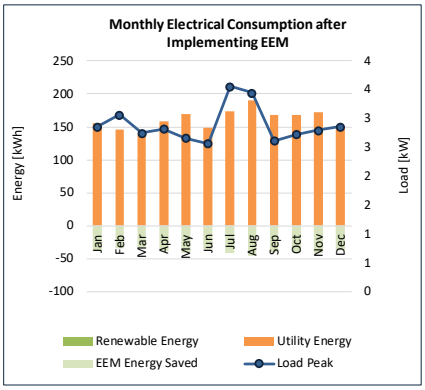


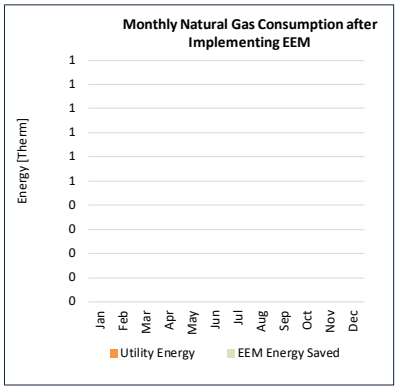


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Retrofit interior lighting with LED
EEM-3:	n/a
EEM-4:	n/a
EEM-5:	n/a
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	466 kWh (19%)
Demand Reduction:	0.14 kW (4%)
Natural Gas Savings:	0.00 thm (0%)
EEM Implementation Cost:	$2,197
EEM Annual Cost Savings:	$168
EEM Simple Payback	13.1 years



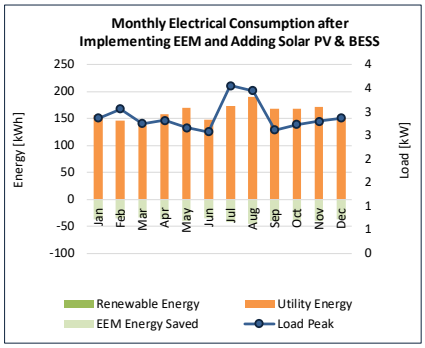


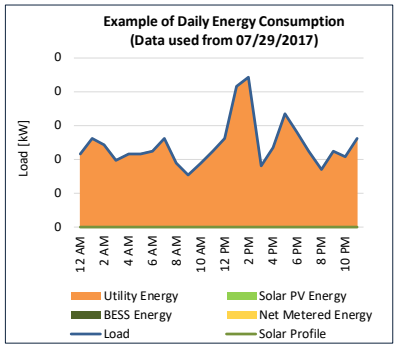
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
Reason for not proposing solar PV:	Space Unavailable
Total PV Capacity:	0 kWdc
BESS Storage Capacity:	0 kWh
BESS Inverter Capacity:	0 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	0 kWh (0%)
Ren. Energy Generated Used:	0 kWh (0%)
Ren. Energy Generated Sold:	0 kWh (0%)
PV & BESS Cost:	$0
PV & BESS Project Incentives:	$0
PV & BESS Net Project Cost:	$0
Annual Cost Savings:	$0
PV & BESS Simple Payback:	n/a



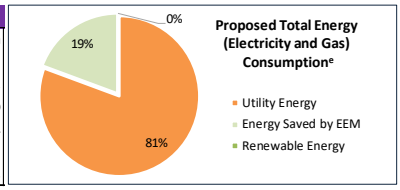


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	466 kWh (19%)
Natural Gas Savings:	0.00 thm (0%)
Renewable vs Conventional Energy:	0%
GHG Emissions Reduction:	0.1 MTCO2
SO_2 & NO_x reductions:	4.2 lb
Total Project Cost:	$2,197
Cost Savings (including NET metering):	$168

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	12 MWh
Natural Gas Savings:	0 thm
GHG Emissions Reduction:	3 MTCO2
SO_2 & NO_x reductions:	105 lb
Net Present Value (NPV):	$2,104
Internal Rate of Return (IRR):	9%
Overall Project Payback:	11.2 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

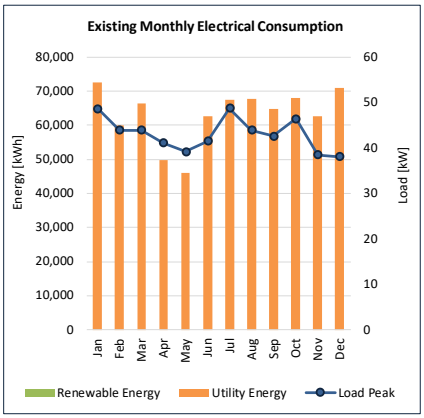
Energy Report Card
Airport (Infield Lighting, Bldg 308: Infield Lighting Generator and Bldg 319: Lift Station)
1605 Cecil Cook Pl, Santa Barbara, CA 93117

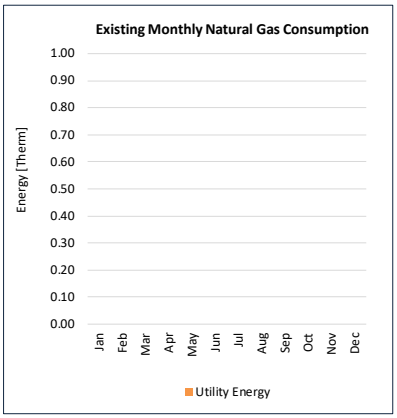
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	6,600 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-024-2993-46, 3-033-6225-63
Utility Rate Tariff:	TOU-GS1A, TOU-GS2A
Energy Purchased:	189,710 kWh
Peak Power Purchased:	56 kW
Blended Utility Rate:	$0.18/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	n/a
Utility Rate Tariff:	n/a
Energy Purchased:	0 thm
Utility Rate:	$0.00/thm

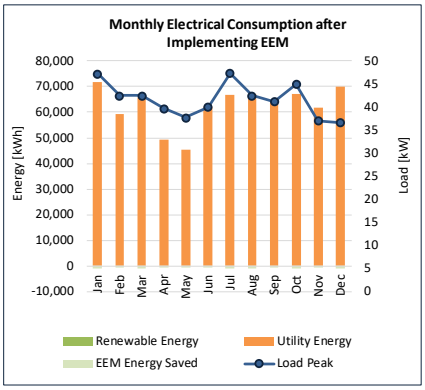


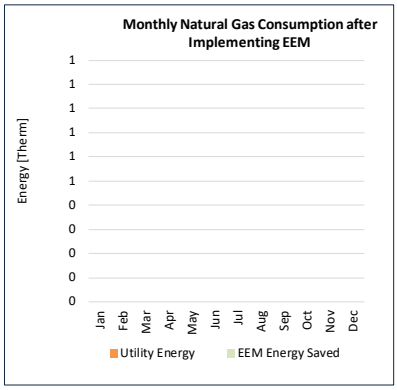


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Circulating Block Heater for Emergency Generators
EEM-2:	Replace exterior lighting with LED
EEM-3:	n/a
EEM-4:	n/a
EEM-5:	n/a
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	8,768 kWh (5%)
Demand Reduction:	1.42 kW (3%)
Natural Gas Savings:	0.00 thm (0%)
EEM Implementation Cost:	$6,746
EEM Annual Cost Savings:	$2,177
EEM Simple Payback	3.1 years



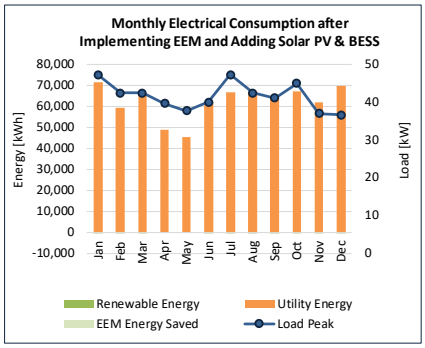


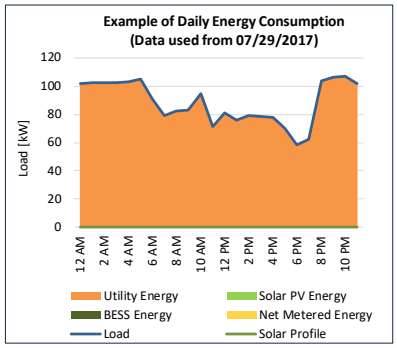
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
Reason for not proposing solar PV:	Space Unavailable
Total PV Capacity:	0 kWdc
BESS Storage Capacity:	0 kWh
BESS Inverter Capacity:	0 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	0 kWh (0%)
Ren. Energy Generated Used:	0 kWh (0%)
Ren. Energy Generated Sold:	0 kWh (0%)
PV & BESS Cost:	$0
PV & BESS Project Incentives:	$0
PV & BESS Net Project Cost:	$0
Annual Cost Savings:	$0
PV & BESS Simple Payback:	n/a



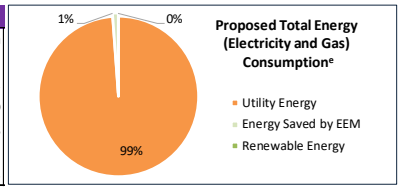


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	8,768 kWh (5%)
Natural Gas Savings:	0.00 thm (0%)
Renewable vs Conventional Energy:	0%
GHG Emissions Reduction:	2.5 MTCO2
SO_2 & NO_x reductions:	78.9 lb
Total Project Cost:	$6,746
Cost Savings (including NET metering):	$2,177

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	219 MWh
Natural Gas Savings:	0 thm
GHG Emissions Reduction:	61 MTCO2
SO_2 & NO_x reductions:	1,972 lb
Net Present Value (NPV):	$48,878
Internal Rate of Return (IRR):	35%
Overall Project Payback:	3.0 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

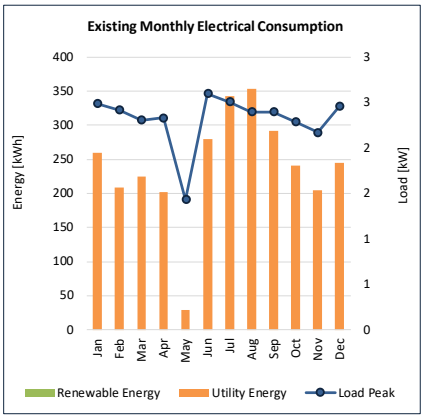
Energy Report Card
Airport (Bldg 117: Office)
705 Firestone Rd, Santa Barbara, CA 93117

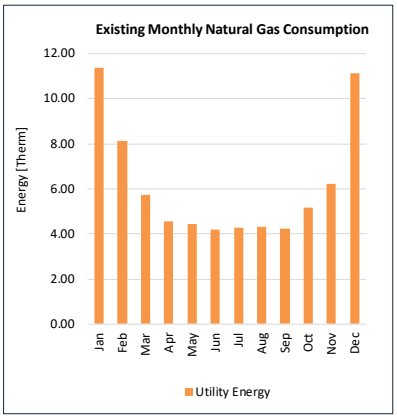
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	2,600 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-034-7100-89
Utility Rate Tariff:	TOU-GS1A
Energy Purchased:	2,881 kWh
Peak Power Purchased:	3 kW
Blended Utility Rate:	$0.22/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	74 thm
Utility Rate:	$0.90/thm

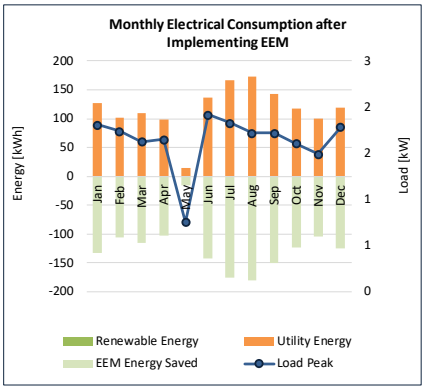


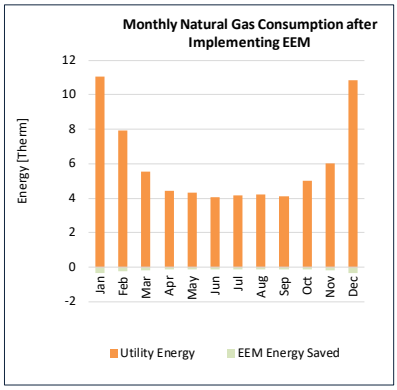


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Programmable Thermostats
EEM-3:	Replace HVAC (Package, Split and Window) Units
EEM-4:	n/a
EEM-5:	n/a
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	1,473 kWh (51%)
Demand Reduction:	0.68 kW (26%)
Natural Gas Savings:	2.11 thm (3%)
EEM Implementation Cost:	$4,365
EEM Annual Cost Savings:	$335
EEM Simple Payback	13.0 years



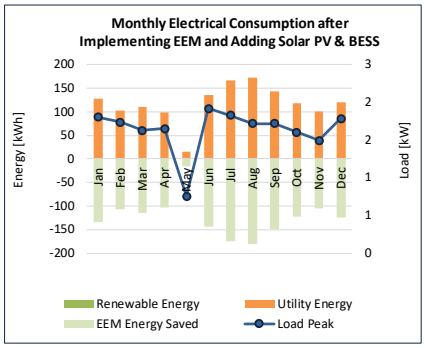


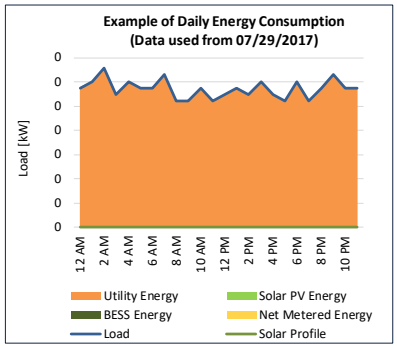
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
Reason for not proposing solar PV:	Space Unavailable
Total PV Capacity:	0 kWdc
BESS Storage Capacity:	0 kWh
BESS Inverter Capacity:	0 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	0 kWh (0%)
Ren. Energy Generated Used:	0 kWh (0%)
Ren. Energy Generated Sold:	0 kWh (0%)
PV & BESS Cost:	$0
PV & BESS Project Incentives:	$0
PV & BESS Net Project Cost:	$0
Annual Cost Savings:	$0
PV & BESS Simple Payback:	n/a



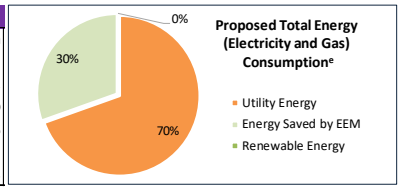


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	1,473 kWh (51%)
Natural Gas Savings:	2.11 thm (3%)
Renewable vs Conventional Energy:	0%
GHG Emissions Reduction:	0.4 MTCO2
SO_2 & NO_x reductions:	13.3 lb
Total Project Cost:	$4,365
Cost Savings (including NET metering):	$335

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	37 MWh
Natural Gas Savings:	53 thm
GHG Emissions Reduction:	11 MTCO2
SO_2 & NO_x reductions:	331 lb
Net Present Value (NPV):	$4,206
Internal Rate of Return (IRR):	9%
Overall Project Payback:	11.1 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

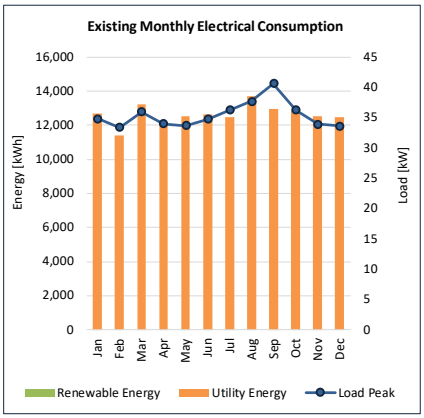
Energy Report Card
Airport (Bldg 122: Flight School & Surf Air)
302 Moffett Pl, Santa Barbara, CA 93117

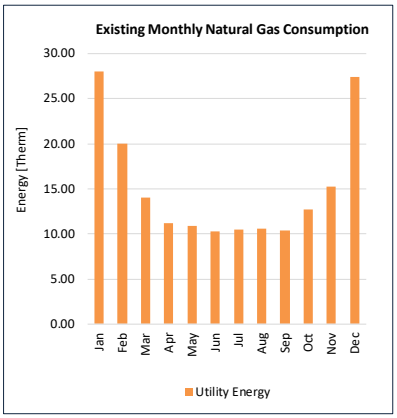
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	6,400 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-036-8888-15
Utility Rate Tariff:	TOU-GS1A
Energy Purchased:	151,514 kWh
Peak Power Purchased:	41 kW
Blended Utility Rate:	$0.19/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	182 thm
Utility Rate:	$0.90/thm

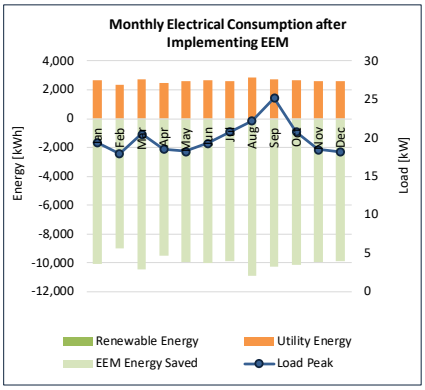


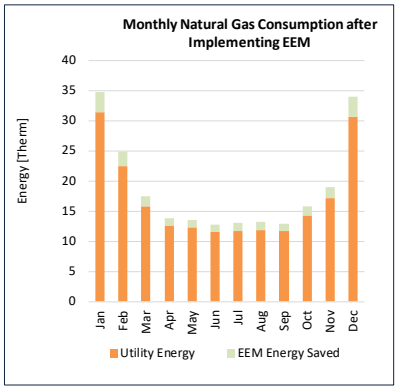


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Retrofit interior lighting with LED
EEM-3:	Replace exterior lighting with LED
EEM-4:	HVAC Systems Advanced Maintenance
EEM-5:	Programmable Thermostats
EEM-6:	Duct Sealing
EEM-7:	Advanced Package Unit Controllers
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	119,966 kWh (79%)
Demand Reduction:	15.44 kW (38%)
Natural Gas Savings:	-21.92 thm (-12%)
EEM Implementation Cost:	$106,049
EEM Annual Cost Savings:	$25,885
EEM Simple Payback	4.1 years



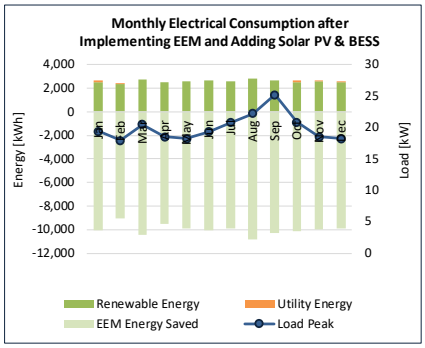


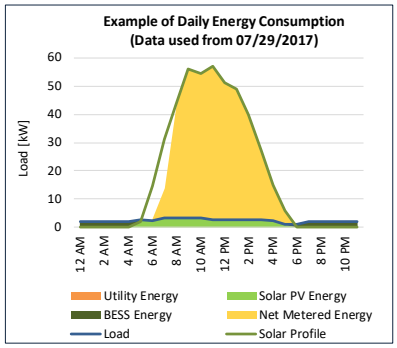
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	79 kWdc RT
Total PV Capacity:	79 kWdc
BESS Storage Capacity:	50 kWh
BESS Inverter Capacity:	25 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	31,113 kWh (21%)
Ren. Energy Generated Used:	31,113 kWh (26%)
Ren. Energy Generated Sold:	87,485 kWh (74%)
PV & BESS Cost:	$197,200
PV & BESS Project Incentives:	$17,500
PV & BESS Net Project Cost:	$179,700
Annual Cost Savings:	$7,746
PV & BESS Simple Payback:	23.2 years



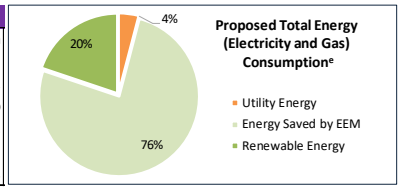


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	151,079 kWh (100%)
Natural Gas Savings:	-21.92 thm (-12%)
Renewable vs Conventional Energy:	78%
GHG Emissions Reduction:	42.2 MTCO2
SO_2 & NO_x reductions:	1,358.9 lb
Total Project Cost:	$303,249
Cost Savings (including NET metering):	$33,631

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	3,777 MWh
Natural Gas Savings:	-548 thm
GHG Emissions Reduction:	1,055 MTCO2
SO_2 & NO_x reductions:	33,973 lb
Net Present Value (NPV):	$573,653
Internal Rate of Return (IRR):	14%
Overall Project Payback:	7.7 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

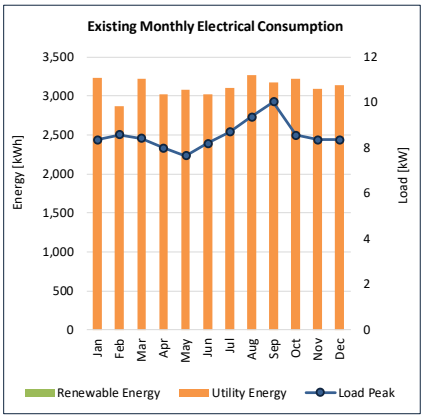
Energy Report Card
Airport (Bldg 116: Retail Arrow Camper)
6190 Hollister Ave, Goleta, CA 93117

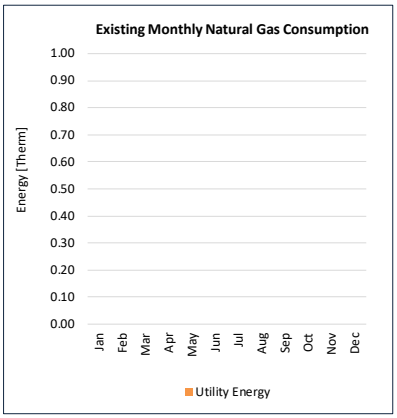
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	6,240 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-004-3456-33
Utility Rate Tariff:	Unknown
Energy Purchased:	37,442 kWh
Peak Power Purchased:	10 kW
Blended Utility Rate:	$0.19/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	n/a
Utility Rate Tariff:	n/a
Energy Purchased:	0 thm
Utility Rate:	$0.00/thm

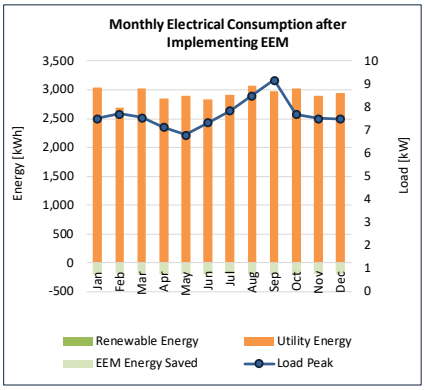


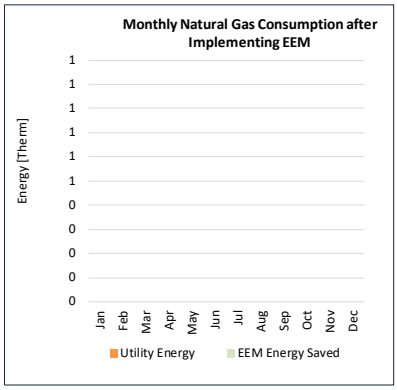


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	n/a
EEM-3:	n/a
EEM-4:	n/a
EEM-5:	n/a
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	2,288 kWh (6%)
Demand Reduction:	0.87 kW (9%)
Natural Gas Savings:	0.00 thm (0%)
EEM Implementation Cost:	$5,160
EEM Annual Cost Savings:	$538
EEM Simple Payback	9.6 years



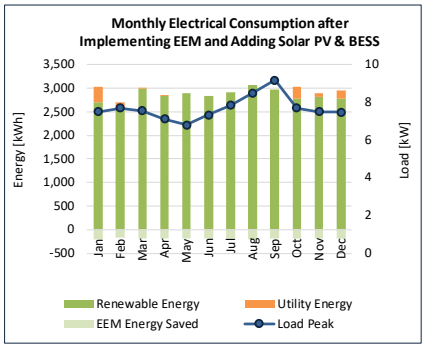


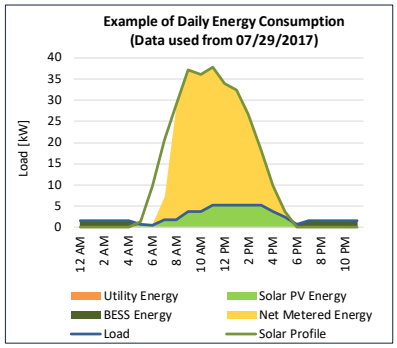
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	52 kWdc RT
Total PV Capacity:	52 kWdc
BESS Storage Capacity:	75 kWh
BESS Inverter Capacity:	25 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	34,207 kWh (91%)
Ren. Energy Generated Used:	34,207 kWh (43%)
Ren. Energy Generated Sold:	44,688 kWh (57%)
PV & BESS Cost:	$159,400
PV & BESS Project Incentives:	$26,250
PV & BESS Net Project Cost:	$133,150
Annual Cost Savings:	$7,063
PV & BESS Simple Payback:	18.9 years



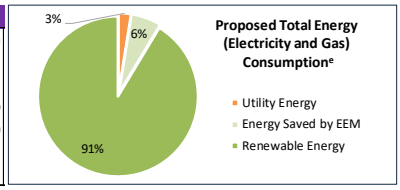


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	36,495 kWh (97%)
Natural Gas Savings:	0.00 thm (0%)
Renewable vs Conventional Energy:	211%
GHG Emissions Reduction:	10.2 MTCO2
SO_2 & NO_x reductions:	328.3 lb
Total Project Cost:	$164,560
Cost Savings (including NET metering):	$7,601

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	912 MWh
Natural Gas Savings:	0 thm
GHG Emissions Reduction:	255 MTCO2
SO_2 & NO_x reductions:	8,207 lb
Net Present Value (NPV):	$55,920
Internal Rate of Return (IRR):	5%
Overall Project Payback:	14.7 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

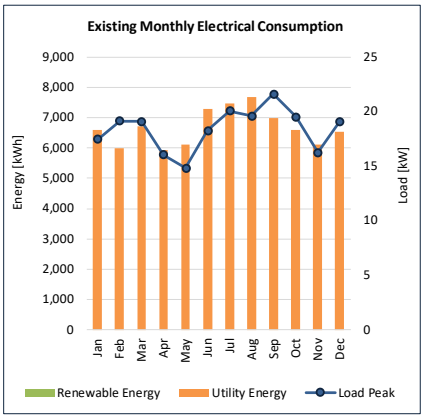
Energy Report Card
Airport (Bldg 255: Administration, 256: Security)
601 Firestone Rd, Santa Barbara, CA 93117

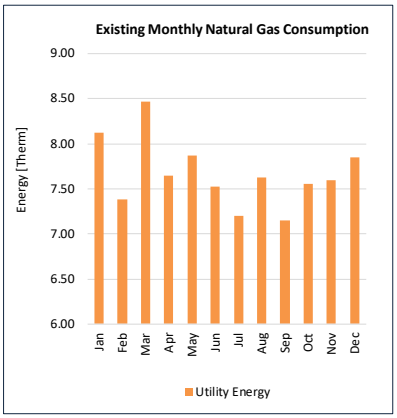
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	Administrastion), 924 (Security) sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-010-7035-87, 3-003-0924-79
Utility Rate Tariff:	TOU-GS1B, TOU-GS1A
Energy Purchased:	80,055 kWh
Peak Power Purchased:	22 kW
Blended Utility Rate:	$0.14/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	545148100
Utility Rate Tariff:	Unknown
Energy Purchased:	92 thm
Utility Rate:	$0.90/thm

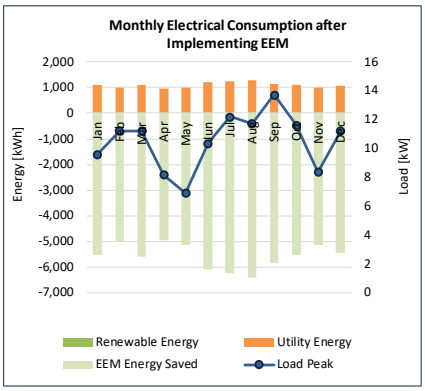


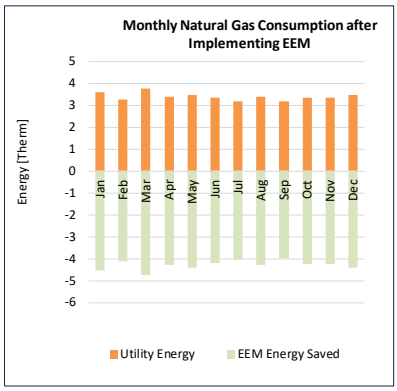


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Replace exterior lighting with LED
EEM-3:	Programmable Thermostats
EEM-4:	HVAC Systems Advanced Maintenance
EEM-5:	Circulating Block Heater for Emergency Generators
EEM-6:	Vending Miser Controller
EEM-7:	Advanced Package Unit Controllers
EEM-8:	Replace HVAC (Package, Split and Window) Units
EEM-9:	Duct Sealing
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	66,848 kWh (84%)
Demand Reduction:	7.88 kW (36%)
Natural Gas Savings:	51.37 thm (56%)
EEM Implementation Cost:	$65,943
EEM Annual Cost Savings:	$11,971
EEM Simple Payback	5.5 years



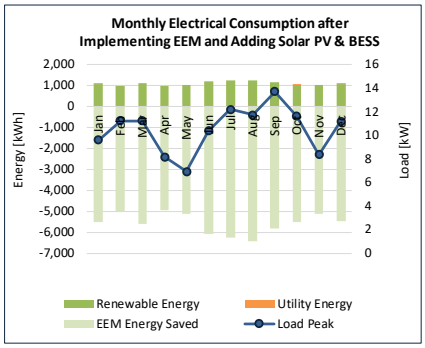


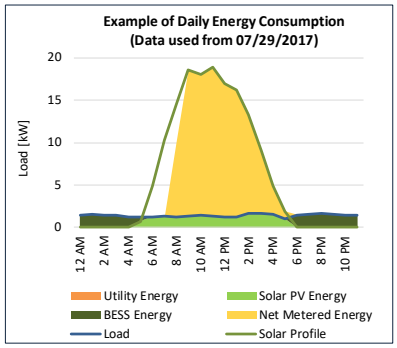
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	26 kWdc RT
Total PV Capacity:	26 kWdc
BESS Storage Capacity:	50 kWh
BESS Inverter Capacity:	13 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	13,128 kWh (16%)
Ren. Energy Generated Used:	13,128 kWh (33%)
Ren. Energy Generated Sold:	26,309 kWh (67%)
PV & BESS Cost:	$87,200
PV & BESS Project Incentives:	$17,500
PV & BESS Net Project Cost:	$69,700
Annual Cost Savings:	$2,239
PV & BESS Simple Payback:	31.1 years



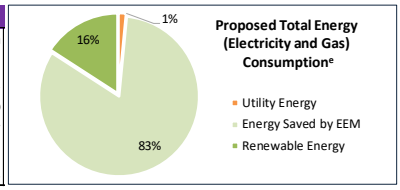


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	79,976 kWh (100%)
Natural Gas Savings:	51.37 thm (56%)
Renewable vs Conventional Energy:	49%
GHG Emissions Reduction:	22.7 MTCO2
SO_2 & NO_x reductions:	719.4 lb
Total Project Cost:	$153,143
Cost Savings (including NET metering):	$14,210

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	1,999 MWh
Natural Gas Savings:	1,284 thm
GHG Emissions Reduction:	567 MTCO2
SO_2 & NO_x reductions:	17,984 lb
Net Present Value (NPV):	$227,467
Internal Rate of Return (IRR):	12%
Overall Project Payback:	8.5 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

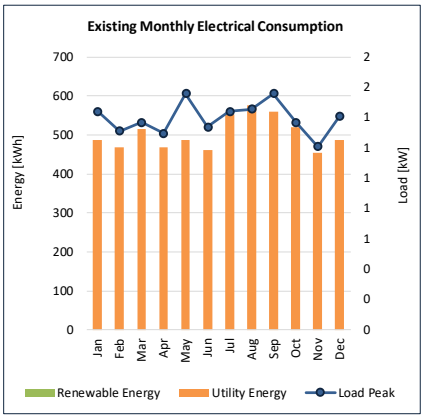
Energy Report Card
Airport (Bldg 258: Offices)
629 Firestone Rd, Goleta, CA 93117

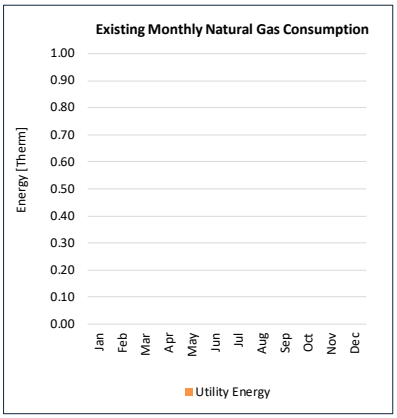
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	3,816 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-015-5030-63; 3-008-5454-91
Utility Rate Tariff:	TOU-GS1A
Energy Purchased:	6,036 kWh
Peak Power Purchased:	2 kW
Blended Utility Rate:	$0.18/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	n/a
Utility Rate Tariff:	n/a
Energy Purchased:	0 thm
Utility Rate:	$0.00/thm

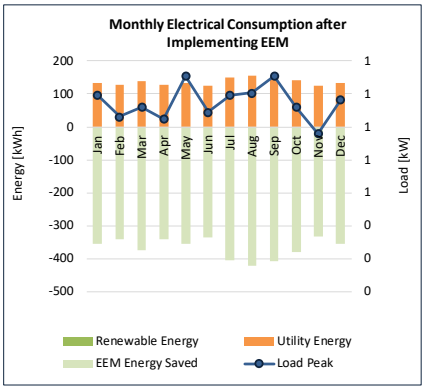


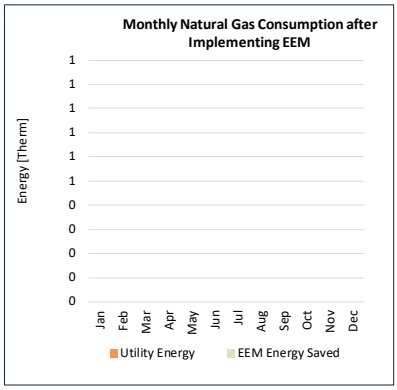


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Replace exterior lighting with LED
EEM-3:	n/a
EEM-4:	n/a
EEM-5:	n/a
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	4,399 kWh (73%)
Demand Reduction:	0.25 kW (14%)
Natural Gas Savings:	0.00 thm (0%)
EEM Implementation Cost:	$5,491
EEM Annual Cost Savings:	$909
EEM Simple Payback	6.0 years



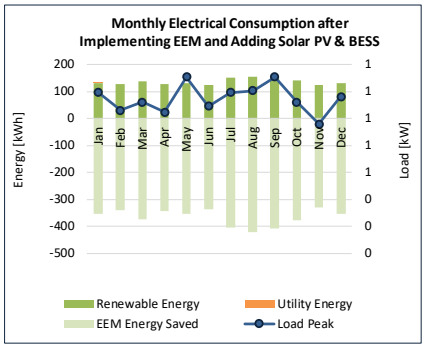


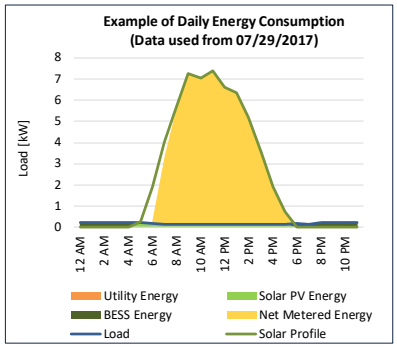
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	10 kWdc RT
Total PV Capacity:	10 kWdc
BESS Storage Capacity:	13 kWh
BESS Inverter Capacity:	13 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	1,636 kWh (27%)
Ren. Energy Generated Used:	1,636 kWh (11%)
Ren. Energy Generated Sold:	13,776 kWh (89%)
PV & BESS Cost:	$32,900
PV & BESS Project Incentives:	$4,375
PV & BESS Net Project Cost:	$28,525
Annual Cost Savings:	$532
PV & BESS Simple Payback:	53.6 years



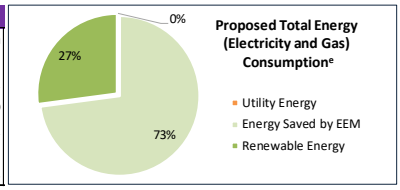


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	6,035 kWh (100%)
Natural Gas Savings:	0.00 thm (0%)
Renewable vs Conventional Energy:	256%
GHG Emissions Reduction:	1.7 MTCO2
SO_2 & NO_x reductions:	54.3 lb
Total Project Cost:	$38,391
Cost Savings (including NET metering):	$1,441

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	151 MWh
Natural Gas Savings:	0 thm
GHG Emissions Reduction:	42 MTCO2
SO_2 & NO_x reductions:	1,357 lb
Net Present Value (NPV):	$2,811
Internal Rate of Return (IRR):	3%
Overall Project Payback:	18.1 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

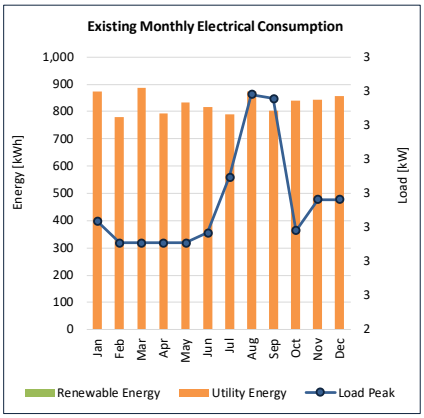
Energy Report Card
Airport (Bldg 274: Hangar)
Unknown Address

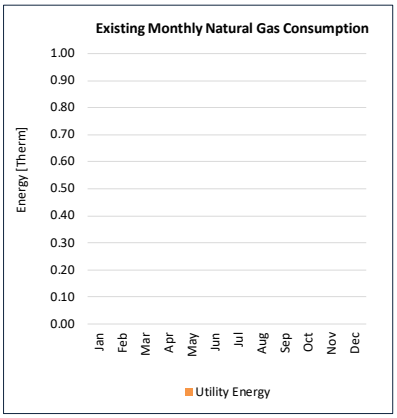
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	3,984 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	Unknown
Utility Rate Tariff:	TOU-GS1A
Energy Purchased:	9,993 kWh
Peak Power Purchased:	3 kW
Blended Utility Rate:	$0.19/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	n/a
Utility Rate Tariff:	n/a
Energy Purchased:	0 thm
Utility Rate:	$0.00/thm

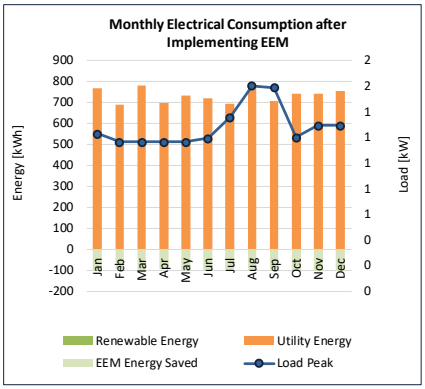


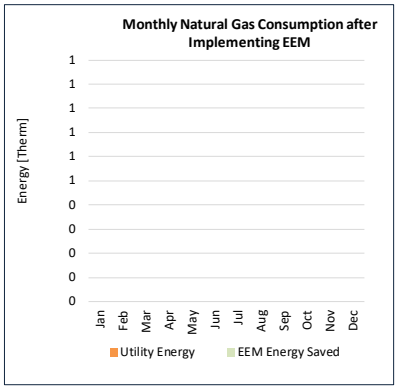


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	n/a
EEM-3:	n/a
EEM-4:	n/a
EEM-5:	n/a
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	1,190 kWh (12%)
Demand Reduction:	1.49 kW (48%)
Natural Gas Savings:	0.00 thm (0%)
EEM Implementation Cost:	$6,437
EEM Annual Cost Savings:	$355
EEM Simple Payback	18.1 years



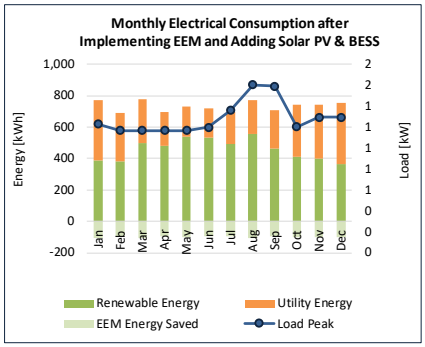


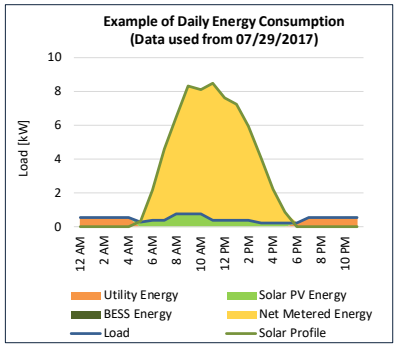
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	12 kWdc RT
Total PV Capacity:	12 kWdc
BESS Storage Capacity:	0 kWh
BESS Inverter Capacity:	0 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	5,509 kWh (55%)
Ren. Energy Generated Used:	5,509 kWh (31%)
Ren. Energy Generated Sold:	12,183 kWh (69%)
PV & BESS Cost:	$23,400
PV & BESS Project Incentives:	$0
PV & BESS Net Project Cost:	$23,400
Annual Cost Savings:	$1,354
PV & BESS Simple Payback:	17.3 years



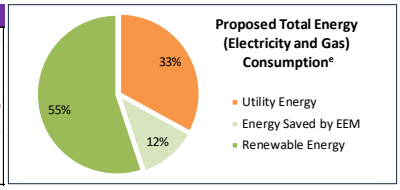


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	6,698 kWh (67%)
Natural Gas Savings:	0.00 thm (0%)
Renewable vs Conventional Energy:	177%
GHG Emissions Reduction:	1.9 MTCO2
SO_2 & NO_x reductions:	60.2 lb
Total Project Cost:	$29,837
Cost Savings (including NET metering):	$1,708

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	167 MWh
Natural Gas Savings:	0 thm
GHG Emissions Reduction:	47 MTCO2
SO_2 & NO_x reductions:	1,506 lb
Net Present Value (NPV):	$13,818
Internal Rate of Return (IRR):	6%
Overall Project Payback:	14.3 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

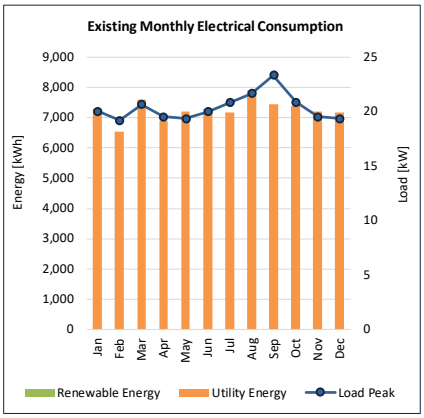
Energy Report Card
Airport (Bldg 312 & 313: Flight School)
1503 & 1523 Cecil Cook Pl, Santa Barbara, CA 93117

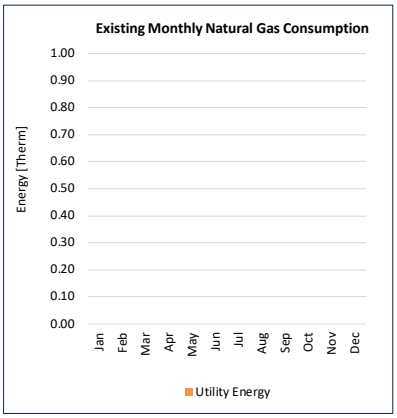
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	7,764 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	87,065 kWh
Peak Power Purchased:	23 kW
Blended Utility Rate:	$0.19/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	n/a
Utility Rate Tariff:	n/a
Energy Purchased:	0 thm
Utility Rate:	$0.00/thm

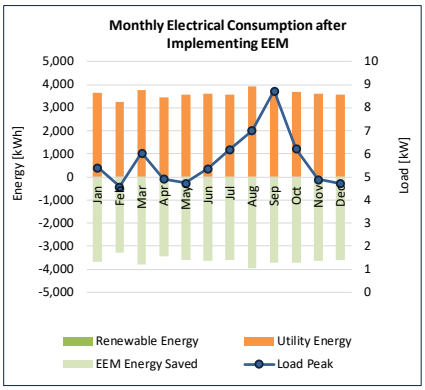


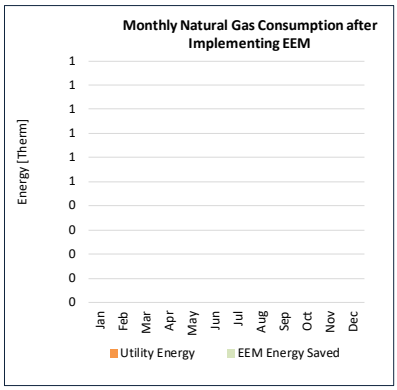


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Retrofit interior lighting with LED
EEM-3:	Replace exterior lighting with LED
EEM-4:	Advanced Package Unit Controllers
EEM-5:	Replace HVAC (Package, Split and Window) Units
EEM-6:	Duct Sealing
EEM-7:	Programmable Thermostats
EEM-8:	HVAC Systems Advanced Maintenance
EEM-9:	Evaporator fan motor replacement
EEM-10:	Exposed Rooftop Ductwork Spray-On Insulation
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	43,686 kWh (50%)
Demand Reduction:	14.62 kW (63%)
Natural Gas Savings:	0.00 thm (0%)
EEM Implementation Cost:	$76,410
EEM Annual Cost Savings:	$9,134
EEM Simple Payback	8.4 years



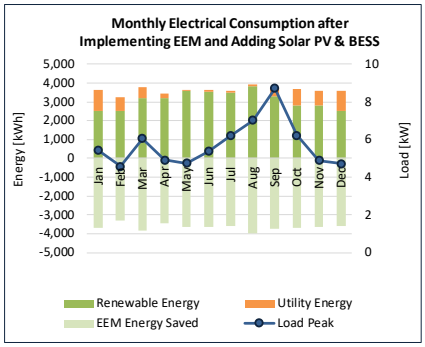


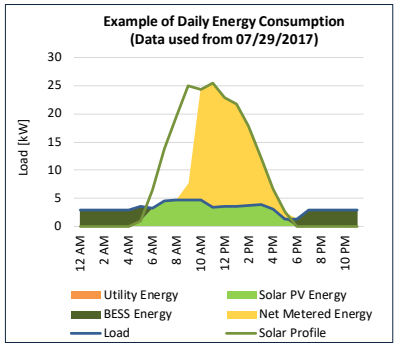
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	22 kWdc RT ; 13 kWdc CP
Total PV Capacity:	35 kWdc
BESS Storage Capacity:	50 kWh
BESS Inverter Capacity:	25 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	37,305 kWh (43%)
Ren. Energy Generated Used:	37,305 kWh (70%)
Ren. Energy Generated Sold:	15,761 kWh (30%)
PV & BESS Cost:	$123,100
PV & BESS Project Incentives:	$17,500
PV & BESS Net Project Cost:	$105,600
Annual Cost Savings:	$7,010
PV & BESS Simple Payback:	15.1 years



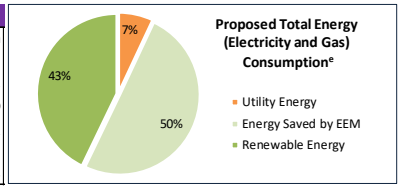


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	80,991 kWh (93%)
Natural Gas Savings:	0.00 thm (0%)
Renewable vs Conventional Energy:	61%
GHG Emissions Reduction:	22.7 MTCO2
SO_2 & NO_x reductions:	728.5 lb
Total Project Cost:	$199,510
Cost Savings (including NET metering):	$16,144

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	2,025 MWh
Natural Gas Savings:	0 thm
GHG Emissions Reduction:	567 MTCO2
SO_2 & NO_x reductions:	18,213 lb
Net Present Value (NPV):	$230,531
Internal Rate of Return (IRR):	10%
Overall Project Payback:	9.9 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

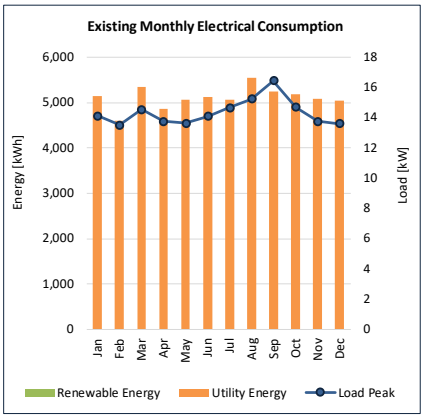
Energy Report Card
Airport (Bldg 261 Hangar 4)
520 E Yanonali St, Santa Barbara, CA 93103

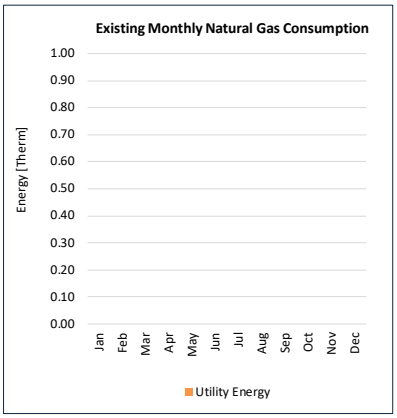
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	9,760 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	61,291 kWh
Peak Power Purchased:	16 kW
Blended Utility Rate:	$0.19/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	n/a
Utility Rate Tariff:	n/a
Energy Purchased:	0 thm
Utility Rate:	$0.00/thm

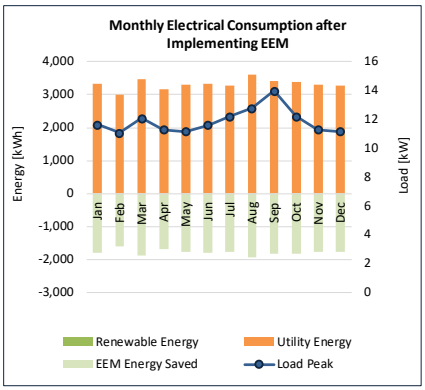


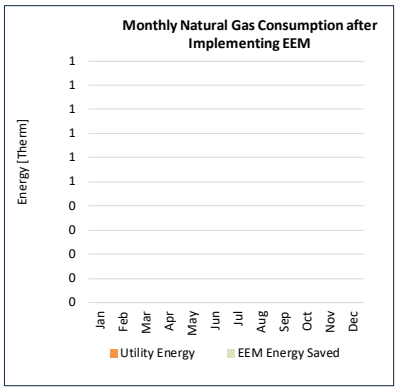


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Replace exterior lighting with LED
EEM-3:	Programmable Thermostats
EEM-4:	HVAC Systems Advanced Maintenance
EEM-5:	Duct Sealing
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	21,426 kWh (35%)
Demand Reduction:	2.46 kW (15%)
Natural Gas Savings:	0.00 thm (0%)
EEM Implementation Cost:	$11,178
EEM Annual Cost Savings:	$4,259
EEM Simple Payback	2.6 years



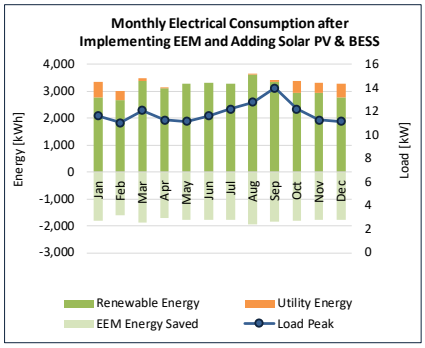


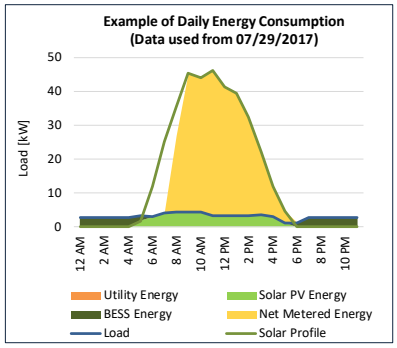
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	64 kWdc RT
Total PV Capacity:	64 kWdc
BESS Storage Capacity:	50 kWh
BESS Inverter Capacity:	25 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	37,472 kWh (61%)
Ren. Energy Generated Used:	37,472 kWh (39%)
Ren. Energy Generated Sold:	58,505 kWh (61%)
PV & BESS Cost:	$167,200
PV & BESS Project Incentives:	$17,500
PV & BESS Net Project Cost:	$149,700
Annual Cost Savings:	$8,166
PV & BESS Simple Payback:	18.3 years



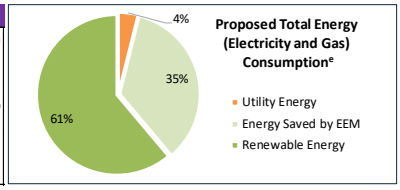


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	58,898 kWh (96%)
Natural Gas Savings:	0.00 thm (0%)
Renewable vs Conventional Energy:	157%
GHG Emissions Reduction:	16.5 MTCO2
SO_2 & NO_x reductions:	529.8 lb
Total Project Cost:	$178,378
Cost Savings (including NET metering):	$12,425

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	1,472 MWh
Natural Gas Savings:	0 thm
GHG Emissions Reduction:	412 MTCO2
SO_2 & NO_x reductions:	13,244 lb
Net Present Value (NPV):	$156,631
Internal Rate of Return (IRR):	9%
Overall Project Payback:	11.1 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

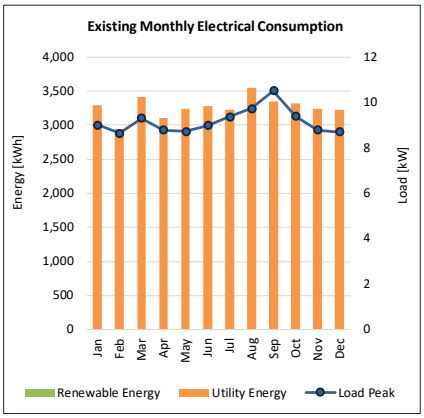
Energy Report Card
Airport (Bldg 315: Offices)
90-A Dean Arnold Pl, Santa Barbara, CA 93117

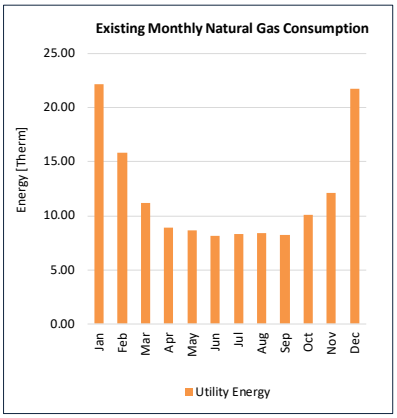
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	6,240 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	39,186 kWh
Peak Power Purchased:	11 kW
Blended Utility Rate:	$0.19/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	398148104
Utility Rate Tariff:	Unknown
Energy Purchased:	144 thm
Utility Rate:	$0.90/thm

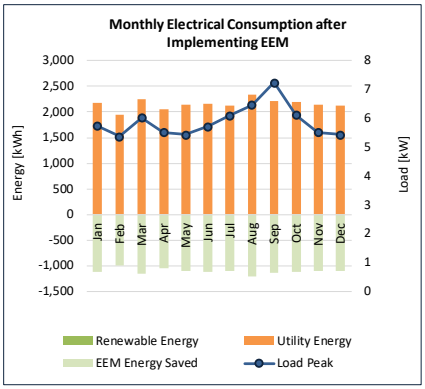


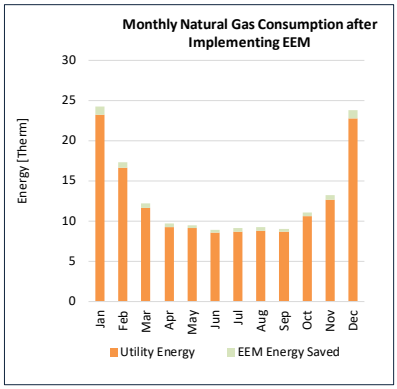


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Retrofit interior lighting with LED
EEM-3:	Replace exterior lighting with LED
EEM-4:	Replace HVAC (Package, Split and Window) Units
EEM-5:	Programmable Thermostats
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	13,307 kWh (34%)
Demand Reduction:	3.27 kW (31%)
Natural Gas Savings:	-6.60 thm (-5%)
EEM Implementation Cost:	$30,697
EEM Annual Cost Savings:	$2,987
EEM Simple Payback	10.3 years



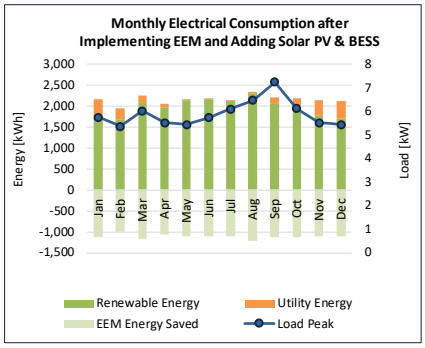


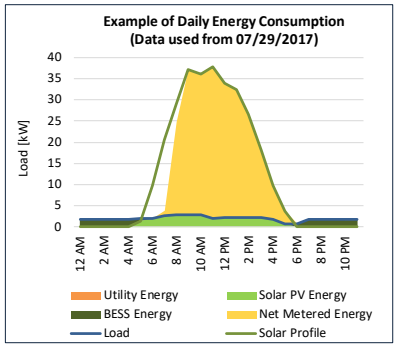
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	52 kWdc RT
Total PV Capacity:	52 kWdc
BESS Storage Capacity:	25 kWh
BESS Inverter Capacity:	13 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	23,573 kWh (60%)
Ren. Energy Generated Used:	23,573 kWh (30%)
Ren. Energy Generated Sold:	54,698 kWh (69%)
PV & BESS Cost:	$124,400
PV & BESS Project Incentives:	$8,750
PV & BESS Net Project Cost:	$115,650
Annual Cost Savings:	$5,655
PV & BESS Simple Payback:	20.5 years



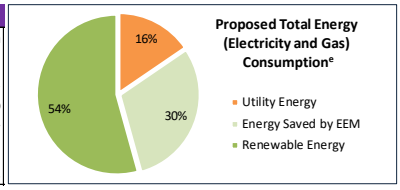


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	36,879 kWh (94%)
Natural Gas Savings:	-6.60 thm (-5%)
Renewable vs Conventional Energy:	201%
GHG Emissions Reduction:	10.3 MTCO2
SO_2 & NO_x reductions:	331.7 lb
Total Project Cost:	$155,097
Cost Savings (including NET metering):	$8,642

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	922 MWh
Natural Gas Savings:	-165 thm
GHG Emissions Reduction:	257 MTCO2
SO_2 & NO_x reductions:	8,293 lb
Net Present Value (NPV):	$74,497
Internal Rate of Return (IRR):	6%
Overall Project Payback:	13.9 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

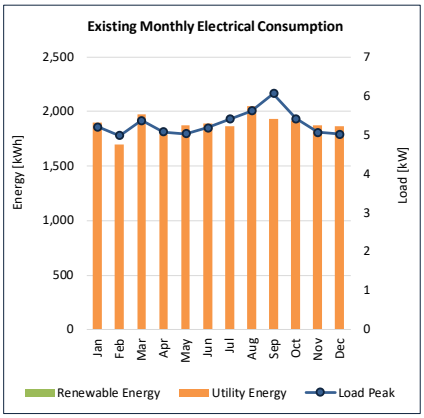
Energy Report Card
Airport (Bldg 227: Offices)
6159 Robert Keister Pl, Santa Barbara, CA 93117

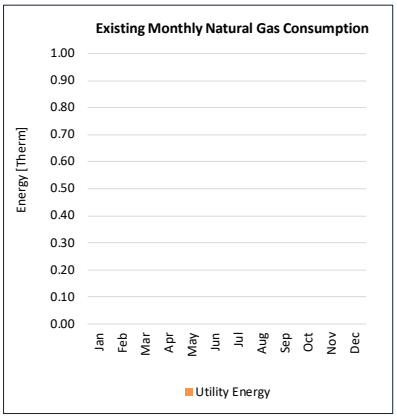
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	3,650 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	Unknown
Utility Rate Tariff:	TOU-8-R
Energy Purchased:	22,921 kWh
Peak Power Purchased:	6 kW
Blended Utility Rate:	$0.19/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	n/a
Utility Rate Tariff:	n/a
Energy Purchased:	0 thm
Utility Rate:	$0.00/thm

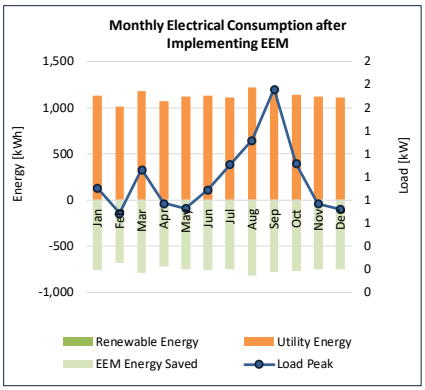


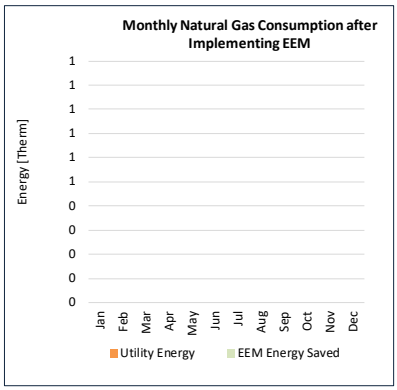


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Retrofit interior lighting with LED
EEM-3:	Programmable Thermostats
EEM-4:	HVAC Systems Advanced Maintenance
EEM-5:	Replace HVAC (Package, Split and Window) Units
EEM-6:	Duct Sealing
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	9,079 kWh (40%)
Demand Reduction:	4.30 kW (70%)
Natural Gas Savings:	0.00 thm (0%)
EEM Implementation Cost:	$26,233
EEM Annual Cost Savings:	$2,133
EEM Simple Payback	12.3 years



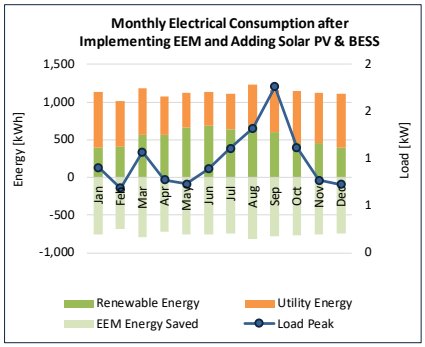


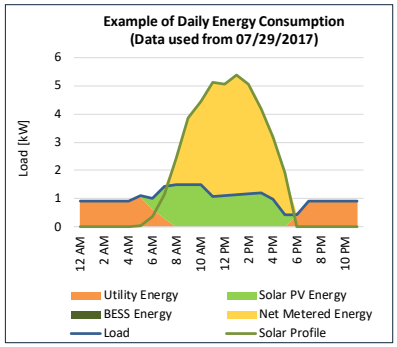
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	8 kWdc RT
Total PV Capacity:	8 kWdc
BESS Storage Capacity:	0 kWh
BESS Inverter Capacity:	0 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	6,531 kWh (28%)
Ren. Energy Generated Used:	6,531 kWh (56%)
Ren. Energy Generated Sold:	5,128 kWh (44%)
PV & BESS Cost:	$15,000
PV & BESS Project Incentives:	$0
PV & BESS Net Project Cost:	$15,000
Annual Cost Savings:	$1,357
PV & BESS Simple Payback:	11.1 years



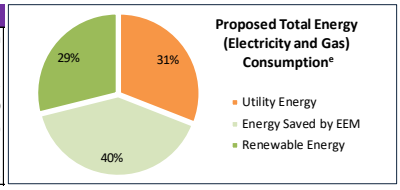


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	15,610 kWh (68%)
Natural Gas Savings:	0.00 thm (0%)
Renewable vs Conventional Energy:	52%
GHG Emissions Reduction:	4.4 MTCO2
SO_2 & NO_x reductions:	140.4 lb
Total Project Cost:	$41,233
Cost Savings (including NET metering):	$3,490

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	390 MWh
Natural Gas Savings:	0 thm
GHG Emissions Reduction:	109 MTCO2
SO_2 & NO_x reductions:	3,510 lb
Net Present Value (NPV):	$47,949
Internal Rate of Return (IRR):	10%
Overall Project Payback:	10.3 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

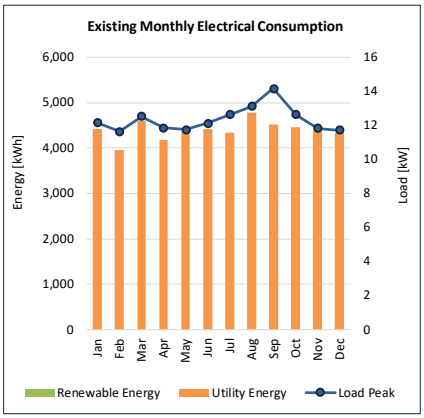
Energy Report Card
Airport (Bldg 226: Offices)
6190 Francis Botello Rd, Santa Barbara, CA 93117

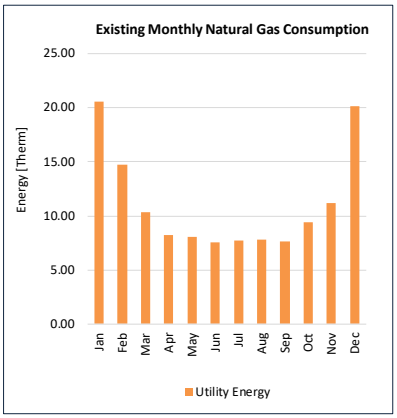
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	8,400 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	52,751 kWh
Peak Power Purchased:	14 kW
Blended Utility Rate:	$0.19/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	133 thm
Utility Rate:	$0.90/thm

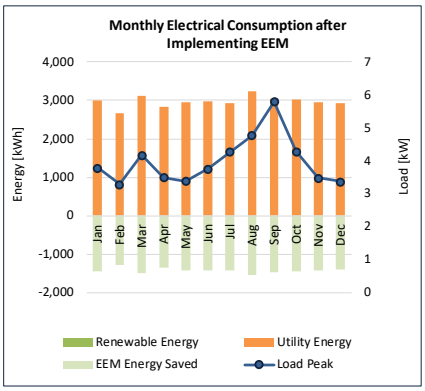


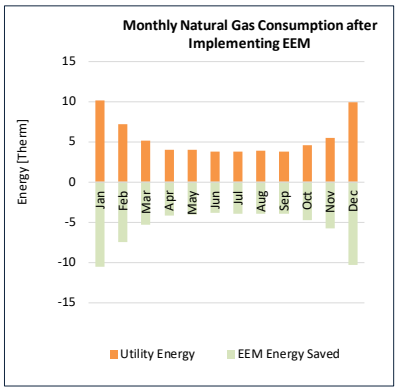


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Retrofit interior lighting with LED
EEM-3:	Programmable Thermostats
EEM-4:	HVAC Systems Advanced Maintenance
EEM-5:	Replace HVAC (Package, Split and Window) Units
EEM-6:	Duct Sealing
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	17,087 kWh (32%)
Demand Reduction:	8.34 kW (59%)
Natural Gas Savings:	67.94 thm (51%)
EEM Implementation Cost:	$68,594
EEM Annual Cost Savings:	$4,438
EEM Simple Payback	15.5 years



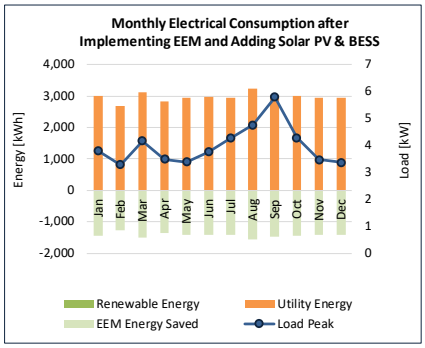


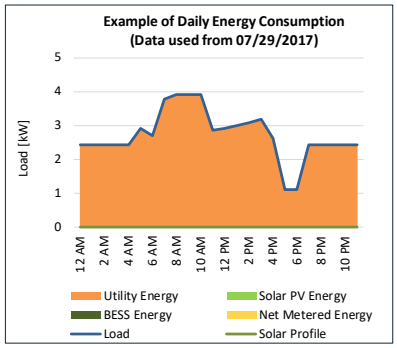
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
Reason for not proposing solar PV:	Space Unavailable
Total PV Capacity:	0 kWdc
BESS Storage Capacity:	0 kWh
BESS Inverter Capacity:	0 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	0 kWh (0%)
Ren. Energy Generated Used:	0 kWh (0%)
Ren. Energy Generated Sold:	0 kWh (0%)
PV & BESS Cost:	$0
PV & BESS Project Incentives:	$0
PV & BESS Net Project Cost:	$0
Annual Cost Savings:	$0
PV & BESS Simple Payback:	n/a



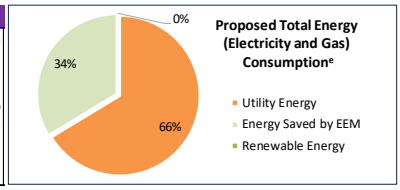


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	17,087 kWh (32%)
Natural Gas Savings:	67.94 thm (51%)
Renewable vs Conventional Energy:	0%
GHG Emissions Reduction:	5.1 MTCO2
SO_2 & NO_x reductions:	153.7 lb
Total Project Cost:	$68,594
Cost Savings (including NET metering):	$4,438

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	427 MWh
Natural Gas Savings:	1,698 thm
GHG Emissions Reduction:	129 MTCO2
SO_2 & NO_x reductions:	3,842 lb
Net Present Value (NPV):	$44,817
Internal Rate of Return (IRR):	7%
Overall Project Payback:	12.9 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

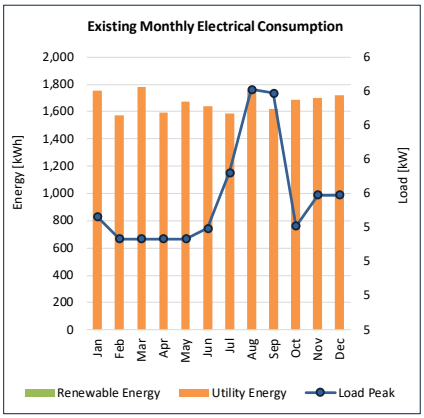
Energy Report Card
Airport (Bldg 370: Tire Shop)
6010 Hollister Ave, Goleta, CA 93117

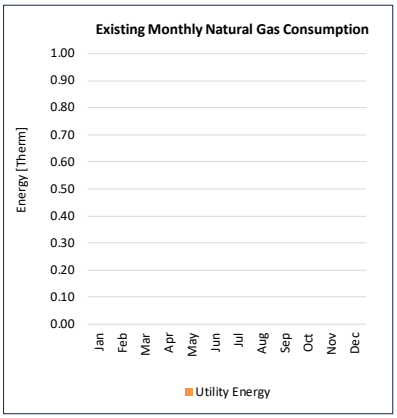
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	4,484 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	20,083 kWh
Peak Power Purchased:	6 kW
Blended Utility Rate:	$0.19/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	n/a
Utility Rate Tariff:	n/a
Energy Purchased:	0 thm
Utility Rate:	$0.00/thm

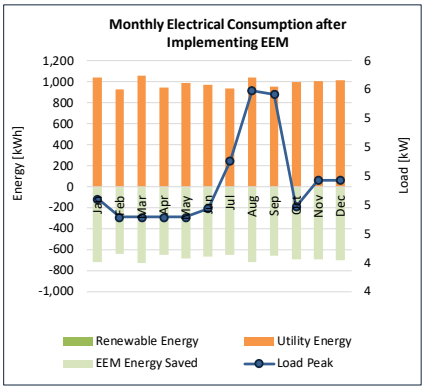


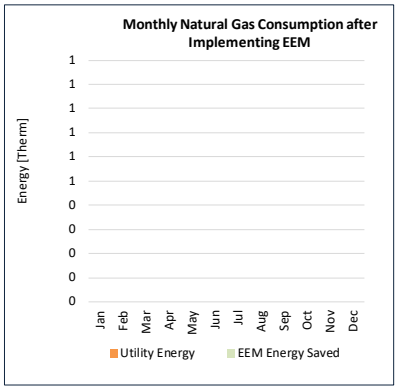


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Replace exterior lighting with LED
EEM-3:	n/a
EEM-4:	n/a
EEM-5:	n/a
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	8,171 kWh (41%)
Demand Reduction:	0.62 kW (10%)
Natural Gas Savings:	0.00 thm (0%)
EEM Implementation Cost:	$10,062
EEM Annual Cost Savings:	$1,754
EEM Simple Payback	5.7 years



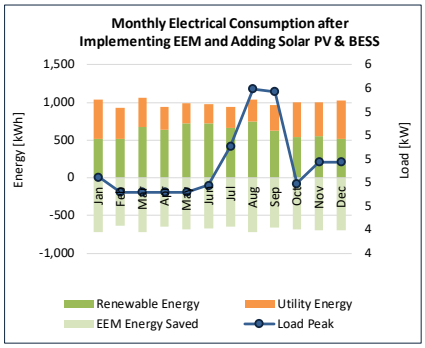


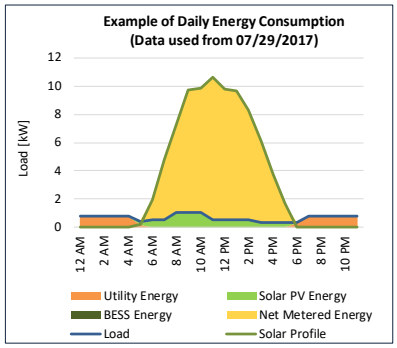
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	15 kWdc RT
Total PV Capacity:	15 kWdc
BESS Storage Capacity:	0 kWh
BESS Inverter Capacity:	0 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	7,454 kWh (37%)
Ren. Energy Generated Used:	7,454 kWh (33%)
Ren. Energy Generated Sold:	15,451 kWh (67%)
PV & BESS Cost:	$29,400
PV & BESS Project Incentives:	$0
PV & BESS Net Project Cost:	$29,400
Annual Cost Savings:	$1,806
PV & BESS Simple Payback:	16.3 years



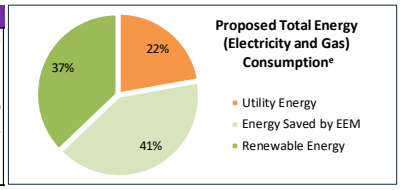


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	15,626 kWh (78%)
Natural Gas Savings:	0.00 thm (0%)
Renewable vs Conventional Energy:	114%
GHG Emissions Reduction:	4.4 MTCO2
SO_2 & NO_x reductions:	140.6 lb
Total Project Cost:	$39,462
Cost Savings (including NET metering):	$3,560

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	391 MWh
Natural Gas Savings:	0 thm
GHG Emissions Reduction:	109 MTCO2
SO_2 & NO_x reductions:	3,514 lb
Net Present Value (NPV):	$51,514
Internal Rate of Return (IRR):	10%
Overall Project Payback:	9.7 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

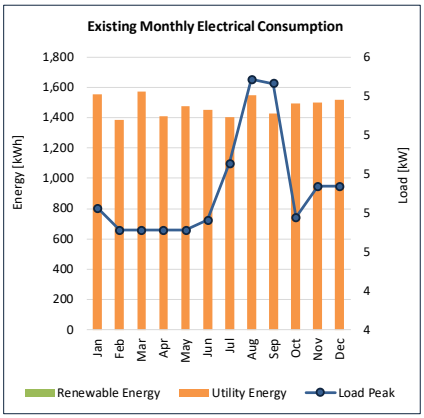
Energy Report Card
Airport (Bldg 305: Industrial)
20 Dean Arnold Place, Santa Barbara, CA 93117

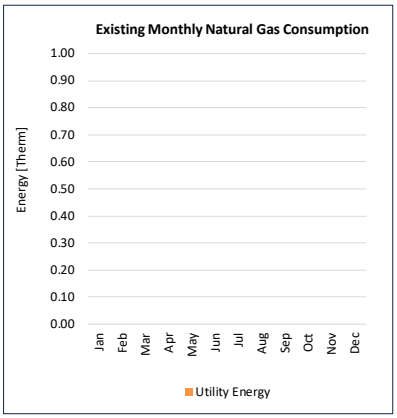
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	3,960 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	17,736 kWh
Peak Power Purchased:	5 kW
Blended Utility Rate:	$0.19/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	n/a
Utility Rate Tariff:	n/a
Energy Purchased:	0 thm
Utility Rate:	$0.00/thm

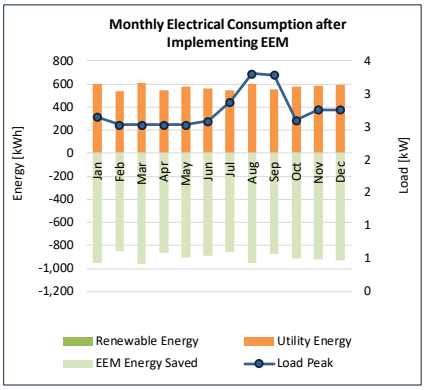


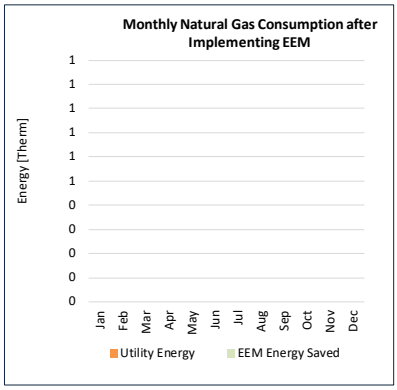


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Retrofit interior lighting with LED
EEM-3:	Duct Sealing
EEM-4:	HVAC Systems Advanced Maintenance
EEM-5:	Programmable Thermostats
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	10,846 kWh (61%)
Demand Reduction:	2.18 kW (40%)
Natural Gas Savings:	0.00 thm (0%)
EEM Implementation Cost:	$19,849
EEM Annual Cost Savings:	$2,411
EEM Simple Payback	8.2 years



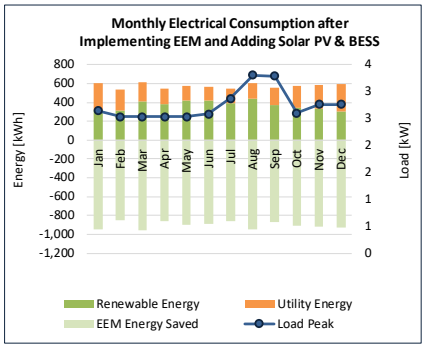


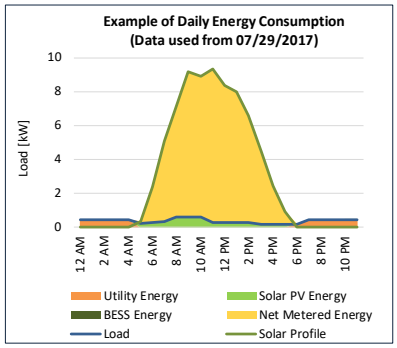
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	13 kWdc RT
Total PV Capacity:	13 kWdc
BESS Storage Capacity:	0 kWh
BESS Inverter Capacity:	0 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	4,456 kWh (25%)
Ren. Energy Generated Used:	4,456 kWh (23%)
Ren. Energy Generated Sold:	15,050 kWh (77%)
PV & BESS Cost:	$25,800
PV & BESS Project Incentives:	$0
PV & BESS Net Project Cost:	$25,800
Annual Cost Savings:	$1,234
PV & BESS Simple Payback:	20.9 years



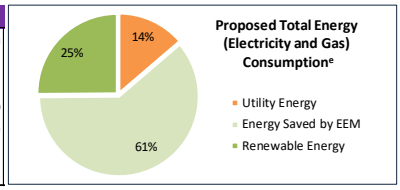


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	15,301 kWh (86%)
Natural Gas Savings:	0.00 thm (0%)
Renewable vs Conventional Energy:	110%
GHG Emissions Reduction:	4.3 MTCO2
SO_2 & NO_x reductions:	137.6 lb
Total Project Cost:	$45,649
Cost Savings (including NET metering):	$3,645

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	383 MWh
Natural Gas Savings:	0 thm
GHG Emissions Reduction:	107 MTCO2
SO_2 & NO_x reductions:	3,441 lb
Net Present Value (NPV):	$47,489
Internal Rate of Return (IRR):	9%
Overall Project Payback:	10.8 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

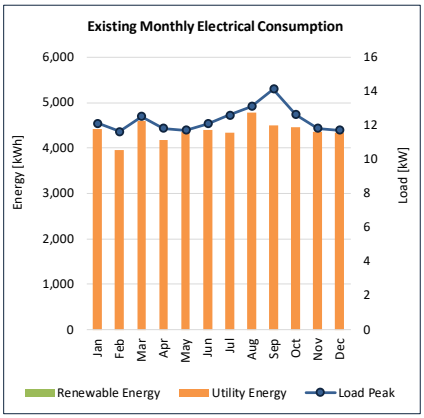
Energy Report Card
Airport (Bldg 124: Atlantic Aviation)
404 Wm L Moffett Pl, Santa Barbara, CA 93117

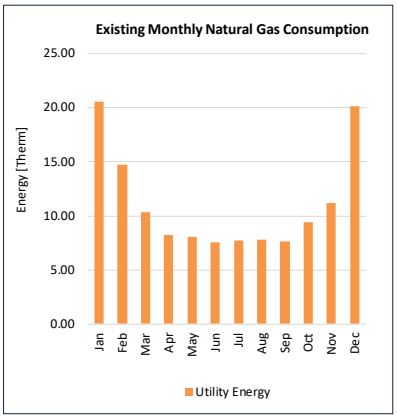
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	4,700 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	65,504 kWh
Peak Power Purchased:	18 kW
Blended Utility Rate:	$0.15/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	133 thm
Utility Rate:	$0.90/thm

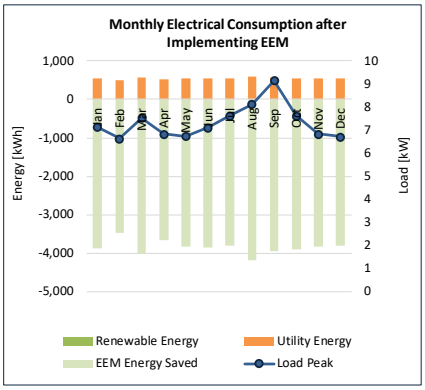


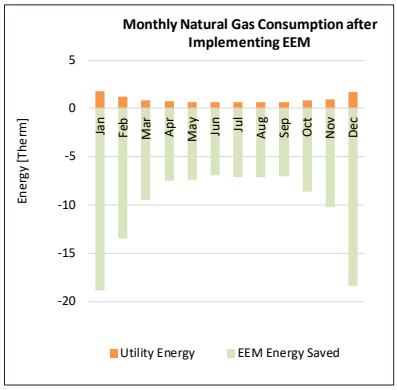


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Replace exterior lighting with LED
EEM-3:	HVAC Systems Advanced Maintenance
EEM-4:	Evaporator Fan Motor Replacement
EEM-5:	Vending Miser Controller
EEM-6:	Advanced Package Unit Controllers
EEM-7:	Duct Sealing
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	46,145 kWh (70%)
Demand Reduction:	4.98 kW (28%)
Natural Gas Savings:	121.92 thm (91%)
EEM Implementation Cost:	$48,798
EEM Annual Cost Savings:	$9,389
EEM Simple Payback	5.2 years



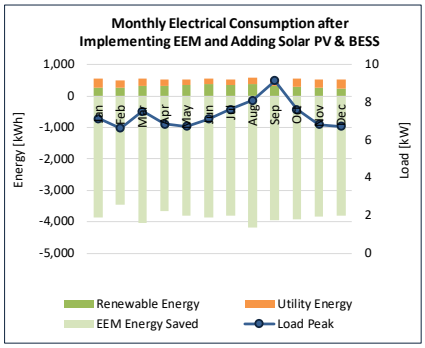


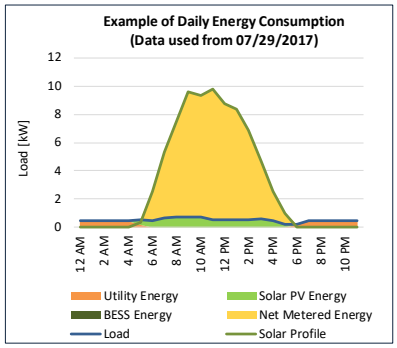
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	14 kWdc RT
Total PV Capacity:	14 kWdc
BESS Storage Capacity:	0 kWh
BESS Inverter Capacity:	0 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	3,813 kWh (6%)
Ren. Energy Generated Used:	3,813 kWh (19%)
Ren. Energy Generated Sold:	16,600 kWh (81%)
PV & BESS Cost:	$27,000
PV & BESS Project Incentives:	$0
PV & BESS Net Project Cost:	$27,000
Annual Cost Savings:	$1,017
PV & BESS Simple Payback:	26.5 years



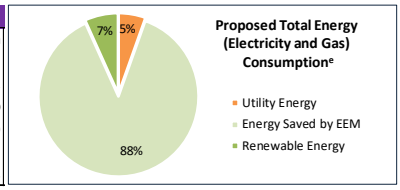


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	49,958 kWh (76%)
Natural Gas Savings:	121.92 thm (91%)
Renewable vs Conventional Energy:	39%
GHG Emissions Reduction:	14.6 MTCO2
SO_2 & NO_x reductions:	449.4 lb
Total Project Cost:	$75,798
Cost Savings (including NET metering):	$10,407

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	1,249 MWh
Natural Gas Savings:	3,048 thm
GHG Emissions Reduction:	366 MTCO2
SO_2 & NO_x reductions:	11,234 lb
Net Present Value (NPV):	$190,129
Internal Rate of Return (IRR):	16%
Overall Project Payback:	6.7 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

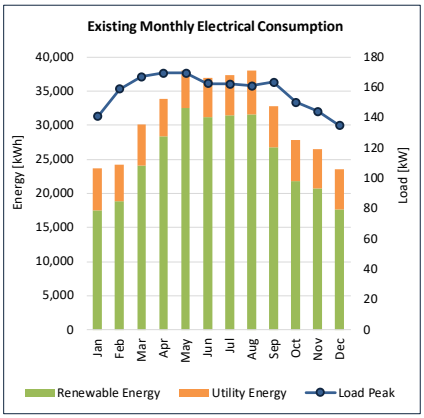
Energy Report Card
Airport (Bldg 508: QTA)
25 David Love Pl, Santa Barbara, CA 93117

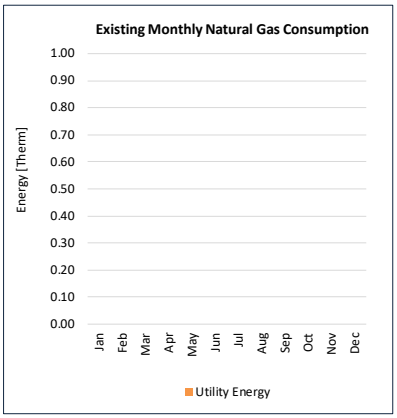
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	10,000 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	70,338 kWh
Peak Power Purchased:	23 kW
Blended Utility Rate:	$0.19/kWh
Solar PV Capacity:	190 kWdc
Renewable Energy:	302,636 kWh (81%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	n/a
Utility Rate Tariff:	n/a
Energy Purchased:	0 thm
Utility Rate:	$0.00/thm

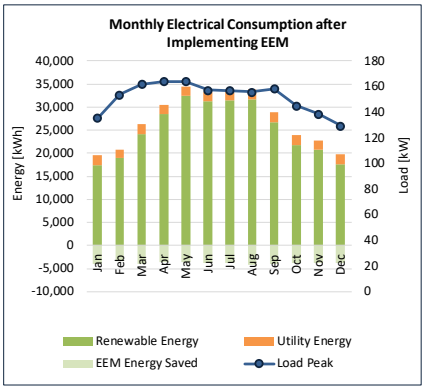


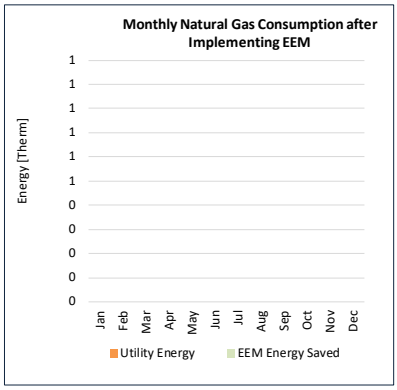


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Retrofit interior lighting with LED
EEM-3:	Replace exterior lighting with LED
EEM-4:	Duct Sealing
EEM-5:	Programmable Thermostats
EEM-6:	HVAC Systems Advanced Maintenance
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	45,407 kWh (65%)
Demand Reduction:	5.26 kW (22%)
Natural Gas Savings:	0.00 thm (0%)
EEM Implementation Cost:	$51,443
EEM Annual Cost Savings:	$9,569
EEM Simple Payback	5.4 years



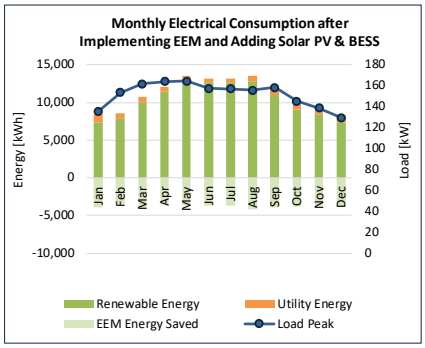


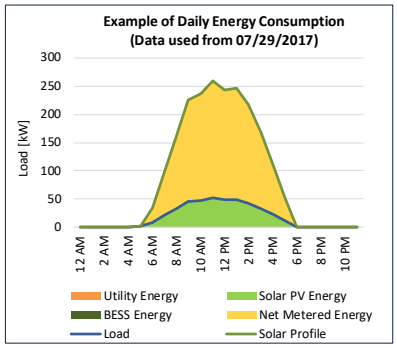
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	170 kWdc CP
Total PV Capacity:	360 kWdc
BESS Storage Capacity:	0 kWh
BESS Inverter Capacity:	0 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	123,372 kWh (175%)
Ren. Energy Generated Used:	123,372 kWh (22%)
Ren. Energy Generated Sold:	450,204 kWh (78%)
PV & BESS Cost:	$510,300
PV & BESS Project Incentives:	$0
PV & BESS Net Project Cost:	$510,300
Annual Cost Savings:	$35,235
PV & BESS Simple Payback:	14.5 years



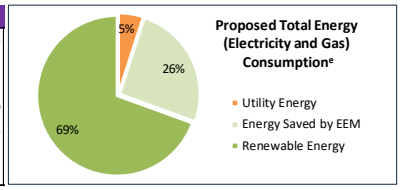


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	168,779 kWh (240%)
Natural Gas Savings:	0.00 thm (0%)
Renewable vs Conventional Energy:	154%
GHG Emissions Reduction:	47.3 MTCO2
SO_2 & NO_x reductions:	1,518.1 lb
Total Project Cost:	$561,743
Cost Savings (including NET metering):	$44,804

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	4,219 MWh
Natural Gas Savings:	0 thm
GHG Emissions Reduction:	1,181 MTCO2
SO_2 & NO_x reductions:	37,954 lb
Net Present Value (NPV):	$583,168
Internal Rate of Return (IRR):	9%
Overall Project Payback:	10.8 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

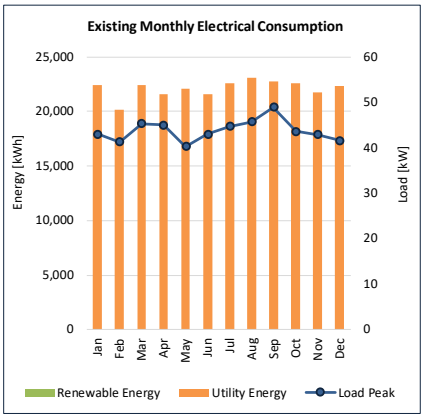
Energy Report Card
Airport (Bldg 252: Restaurant)
521 Firestone Rd, Goleta, CA 93117

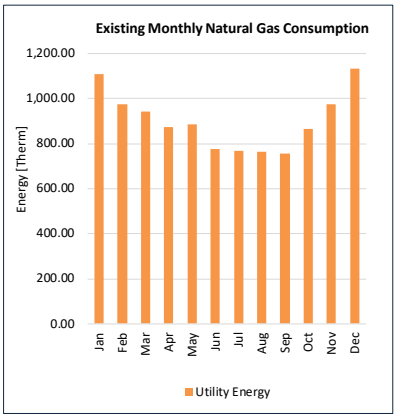
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	8,695 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-040-8446-48 & Two Unknown SA
Utility Rate Tariff:	Unknown
Energy Purchased:	265,569 kWh
Peak Power Purchased:	49 kW
Blended Utility Rate:	$0.19/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	10,828 thm
Utility Rate:	$0.90/thm

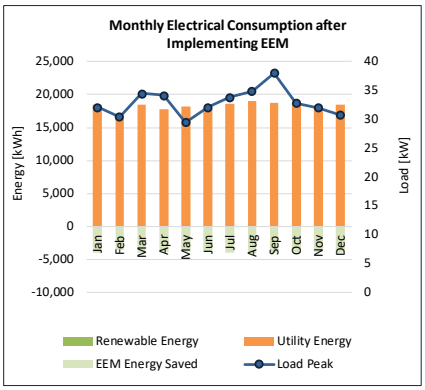


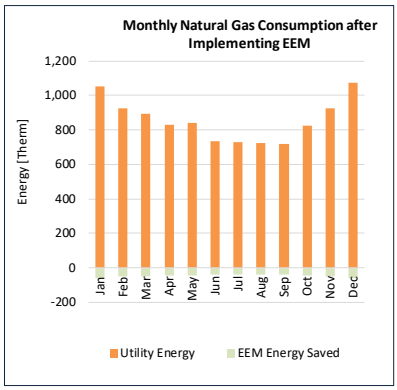


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Retrofit interior lighting with LED
EEM-3:	Kitchen Hood Exhaust
EEM-4:	Advanced Package Unit Controllers
EEM-5:	Replace HVAC (Package, Split and Window) Units
EEM-6:	Duct Sealing
EEM-7:	Programmable Thermostats
EEM-8:	HVAC Systems Advanced Maintenance
EEM-9:	Exposed Rooftop Ductwork Spray-On Insulation
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	46,772 kWh (18%)
Demand Reduction:	10.87 kW (22%)
Natural Gas Savings:	567.16 thm (5%)
EEM Implementation Cost:	$63,333
EEM Annual Cost Savings:	$9,057
EEM Simple Payback	7.0 years



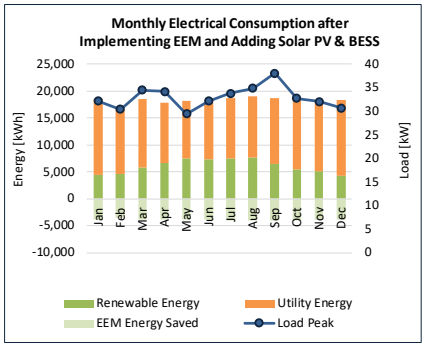


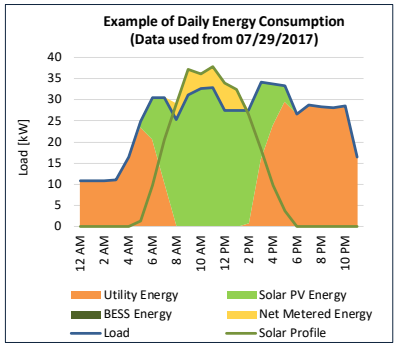
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	17 kWdc RT ; 35 kWdc CP
Total PV Capacity:	52 kWdc
BESS Storage Capacity:	0 kWh
BESS Inverter Capacity:	0 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	72,802 kWh (27%)
Ren. Energy Generated Used:	72,802 kWh (92%)
Ren. Energy Generated Sold:	6,128 kWh (8%)
PV & BESS Cost:	$139,500
PV & BESS Project Incentives:	$0
PV & BESS Net Project Cost:	$139,500
Annual Cost Savings:	$13,749
PV & BESS Simple Payback:	10.1 years



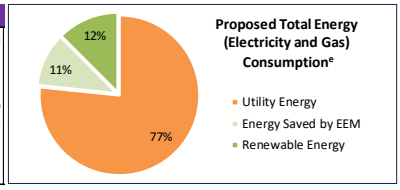


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	119,574 kWh (45%)
Natural Gas Savings:	567.16 thm (5%)
Renewable vs Conventional Energy:	30%
GHG Emissions Reduction:	36.5 MTCO2
SO_2 & NO_x reductions:	1,075.6 lb
Total Project Cost:	$202,833
Cost Savings (including NET metering):	$22,806

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	2,989 MWh
Natural Gas Savings:	14,179 thm
GHG Emissions Reduction:	912 MTCO2
SO_2 & NO_x reductions:	26,889 lb
Net Present Value (NPV):	$379,947
Internal Rate of Return (IRR):	13%
Overall Project Payback:	8.0 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

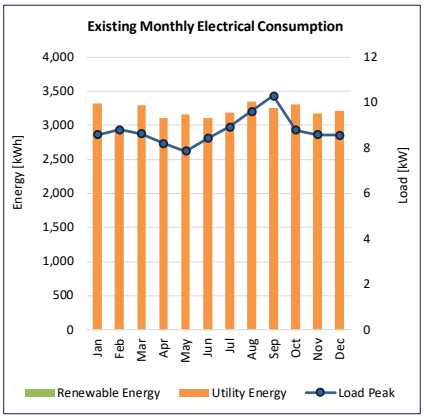
Energy Report Card
Airport (Bldg 223: Industrial Retail)
94 B&C Frederick Lopez Rd

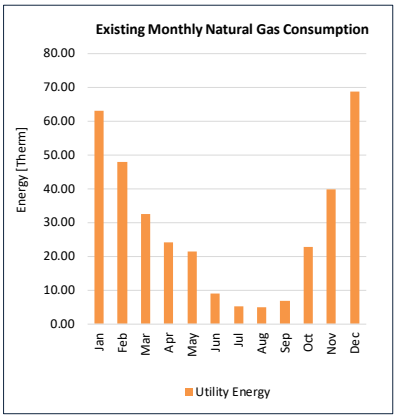
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	6,400 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	38,402 kWh
Peak Power Purchased:	10 kW
Blended Utility Rate:	$0.19/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	347 thm
Utility Rate:	$0.90/thm

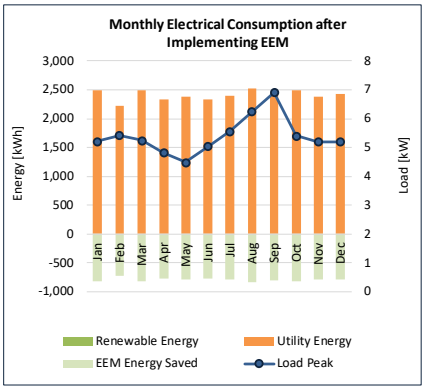


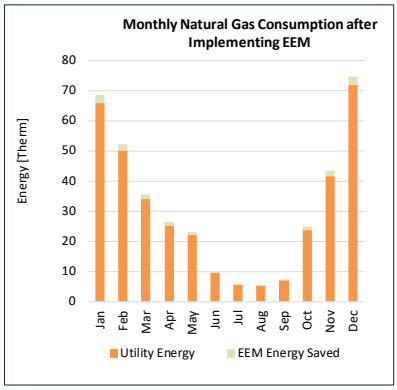


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Retrofit interior lighting with LED
EEM-3:	n/a
EEM-4:	n/a
EEM-5:	n/a
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	9,485 kWh (25%)
Demand Reduction:	3.37 kW (33%)
Natural Gas Savings:	-14.91 thm (-4%)
EEM Implementation Cost:	$38,835
EEM Annual Cost Savings:	$2,579
EEM Simple Payback	15.1 years



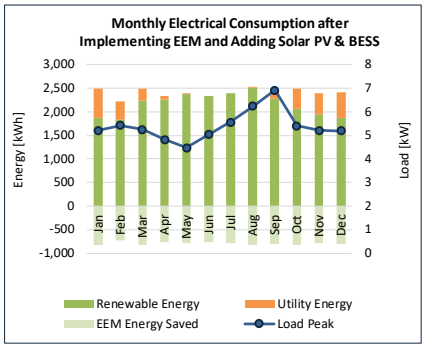


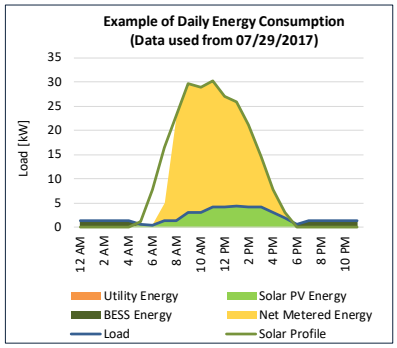
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	42 kWdc RT
Total PV Capacity:	42 kWdc
BESS Storage Capacity:	25 kWh
BESS Inverter Capacity:	13 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	26,008 kWh (68%)
Ren. Energy Generated Used:	26,008 kWh (41%)
Ren. Energy Generated Sold:	36,728 kWh (58%)
PV & BESS Cost:	$103,400
PV & BESS Project Incentives:	$8,750
PV & BESS Net Project Cost:	$94,650
Annual Cost Savings:	$5,641
PV & BESS Simple Payback:	16.8 years



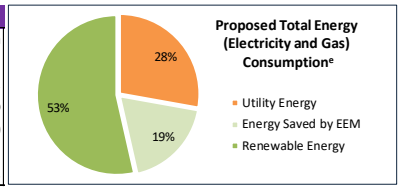


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	35,493 kWh (92%)
Natural Gas Savings:	-14.91 thm (-4%)
Renewable vs Conventional Energy:	164%
GHG Emissions Reduction:	9.9 MTCO2
SO_2 & NO_x reductions:	319.3 lb
Total Project Cost:	$142,235
Cost Savings (including NET metering):	$8,220

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	887 MWh
Natural Gas Savings:	-373 thm
GHG Emissions Reduction:	246 MTCO2
SO_2 & NO_x reductions:	7,981 lb
Net Present Value (NPV):	$76,570
Internal Rate of Return (IRR):	6%
Overall Project Payback:	13.4 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

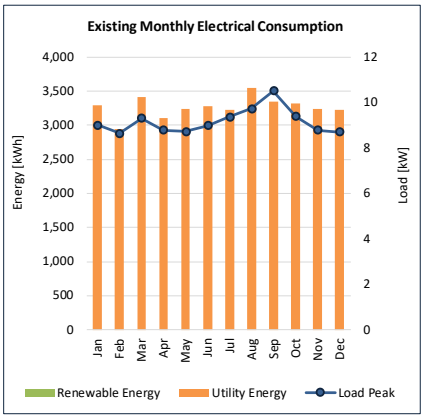
Energy Report Card
Airport (Bldg 314: Offices)
101 Dean Arnold Pl, Santa Barbara, CA 93117

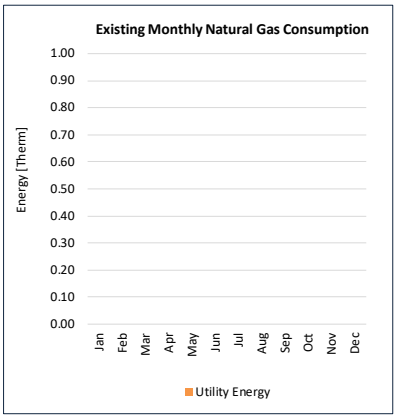
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	6,240 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-040-5283-12, 3-040-5283-26, Two Other Unknown SA
Utility Rate Tariff:	Unknown
Energy Purchased:	39,186 kWh
Peak Power Purchased:	11 kW
Blended Utility Rate:	$0.19/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	n/a
Utility Rate Tariff:	n/a
Energy Purchased:	0 thm
Utility Rate:	$0.00/thm

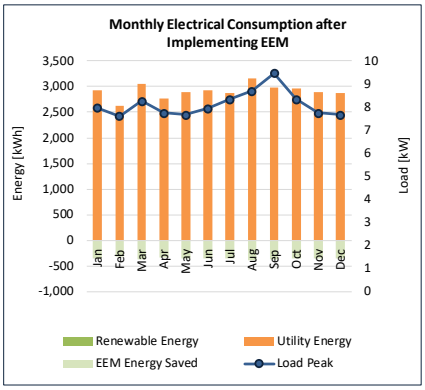


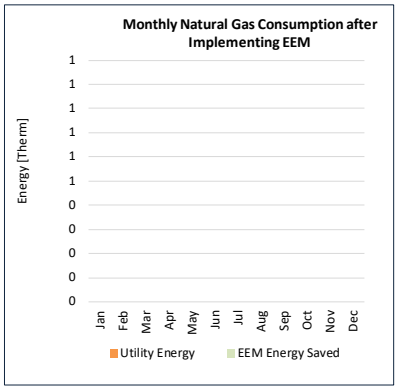


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Retrofit interior lighting with LED
EEM-3:	n/a
EEM-4:	n/a
EEM-5:	n/a
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	4,223 kWh (11%)
Demand Reduction:	1.04 kW (10%)
Natural Gas Savings:	0.00 thm (0%)
EEM Implementation Cost:	$16,000
EEM Annual Cost Savings:	$1,594
EEM Simple Payback	10.0 years



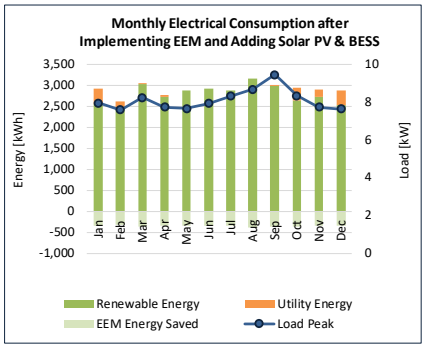


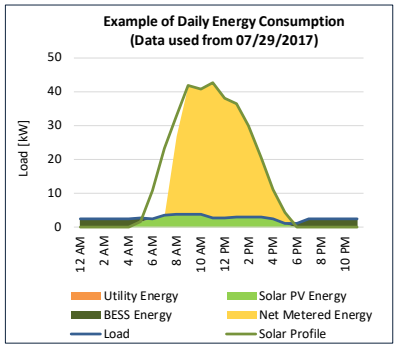
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	59 kWdc RT
Total PV Capacity:	59 kWdc
BESS Storage Capacity:	50 kWh
BESS Inverter Capacity:	25 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	33,532 kWh (86%)
Ren. Energy Generated Used:	33,532 kWh (38%)
Ren. Energy Generated Sold:	55,275 kWh (62%)
PV & BESS Cost:	$157,600
PV & BESS Project Incentives:	$17,500
PV & BESS Net Project Cost:	$140,100
Annual Cost Savings:	$7,344
PV & BESS Simple Payback:	19.1 years



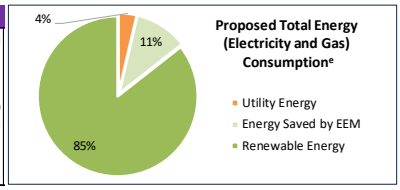


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	37,755 kWh (96%)
Natural Gas Savings:	0.00 thm (0%)
Renewable vs Conventional Energy:	227%
GHG Emissions Reduction:	10.6 MTCO2
SO_2 & NO_x reductions:	339.6 lb
Total Project Cost:	$173,600
Cost Savings (including NET metering):	$8,938

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	944 MWh
Natural Gas Savings:	0 thm
GHG Emissions Reduction:	264 MTCO2
SO_2 & NO_x reductions:	8,490 lb
Net Present Value (NPV):	$72,297
Internal Rate of Return (IRR):	6%
Overall Project Payback:	14.3 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

Energy Report Card

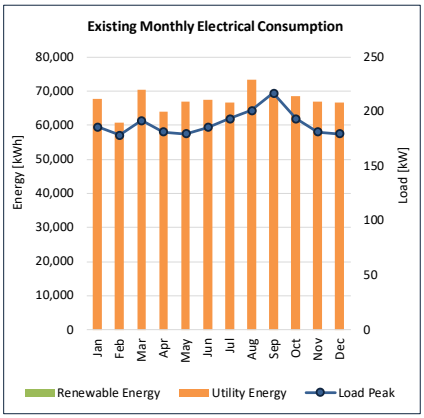
Airport (Bldgs 267: Hangar 3, 268: Storage, 303: Industrial, 304: Offices, 307: Hangar, 309: Hangar 2, 333: Offices & R&D, 344: Offices & R&D, 345: Offices, 347: Office, and 351: Maint. Scho
Multiple Addresses

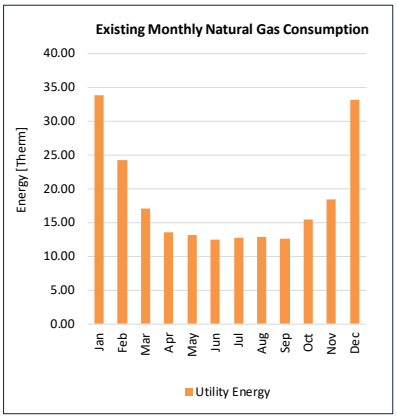
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	103028 (11 Buildings Total) sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	Unknown (Meter # 222013-824575 & 222013-824573), 3-029-1390-17 & 3-033-9244-53
Utility Rate Tariff:	Unknown
Energy Purchased:	452,899 kWh
Peak Power Purchased:	121 kW
Blended Utility Rate:	$0.19/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	608148128
Utility Rate Tariff:	Unknown
Energy Purchased:	220 thm
Utility Rate:	$0.90/thm

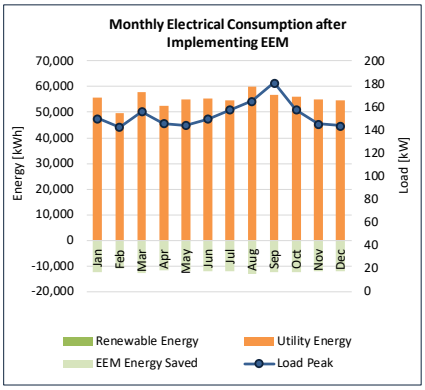


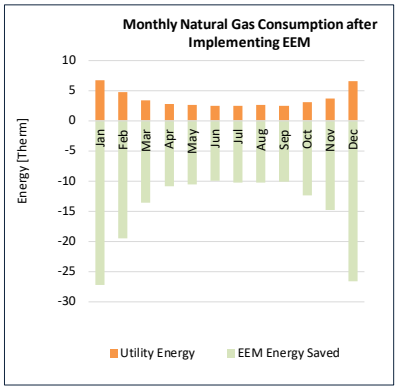


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Retrofit interior lighting with LED
EEM-3:	Replace exterior lighting with LED
EEM-4:	Advanced Package Unit Controllers
EEM-5:	CRAC units evaporator fan motor replacement
EEM-6:	DHW Heater Replacement
EEM-7:	Duct Sealing
EEM-8:	Evaporator fan motor replacement
EEM-9:	HVAC Systems Advanced Maintenance
EEM-10:	Programmable Thermostats
EEM-11:	Exposed Rooftop Ductwork Spray-On Insulation

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	145,572 kWh (32%)
Demand Reduction:	35.78 kW (29%)
Natural Gas Savings:	176.19 thm (80%)
EEM Implementation Cost:	$290,149
EEM Annual Cost Savings:	$41,235
EEM Simple Payback	7.0 years



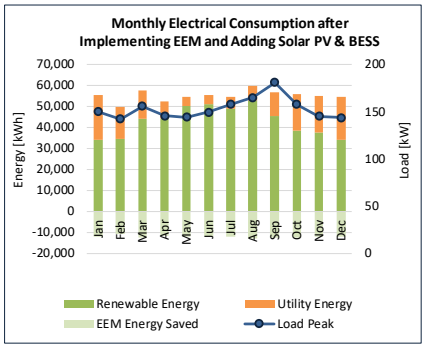


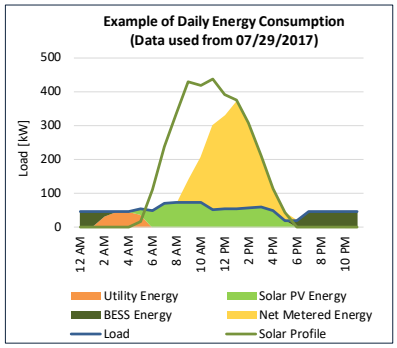
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	605 kWdc RT
Total PV Capacity:	605 kWdc
BESS Storage Capacity:	500 kWh
BESS Inverter Capacity:	75 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	515,705 kWh (114%)
Ren. Energy Generated Used:	515,705 kWh (56%)
Ren. Energy Generated Sold:	201,323 kWh (22%)
PV & BESS Cost:	$1,539,000
PV & BESS Project Incentives:	$175,000
PV & BESS Net Project Cost:	$1,364,000
Annual Cost Savings:	$97,928
PV & BESS Simple Payback:	13.9 years



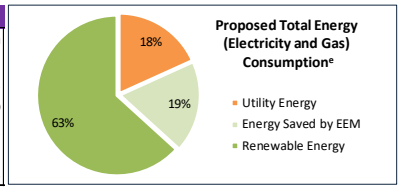


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	661,277 kWh (146%)
Natural Gas Savings:	176.19 thm (80%)
Renewable vs Conventional Energy:	113%
GHG Emissions Reduction:	186.1 MTCO2
SO_2 & NO_x reductions:	5,948.1 lb
Total Project Cost:	$1,829,149
Cost Savings (including NET metering):	$139,163

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	16,532 MWh
Natural Gas Savings:	4,405 thm
GHG Emissions Reduction:	4,652 MTCO2
SO_2 & NO_x reductions:	148,703 lb
Net Present Value (NPV):	$1,901,982
Internal Rate of Return (IRR):	10%
Overall Project Payback:	10.3 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.

e) NET metered Energy is not included in the graph.

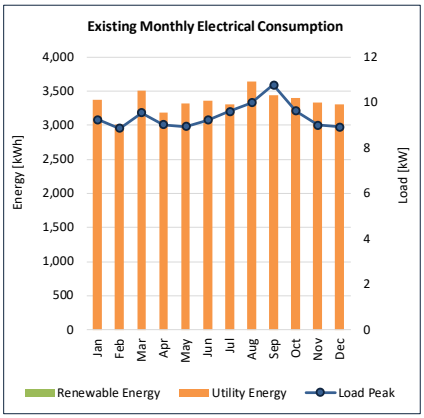
Energy Report Card
Airport (Bldg 224: Offices)
6100 Francis Botello Rd, Santa Barbara, CA 93117

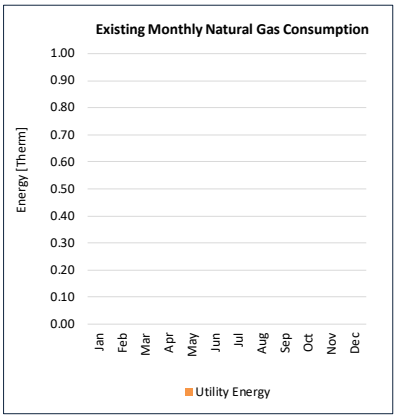
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	6,000 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	37,578 kWh
Peak Power Purchased:	10 kW
Blended Utility Rate:	$0.19/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	n/a
Utility Rate Tariff:	n/a
Energy Purchased:	0 thm
Utility Rate:	$0.00/thm

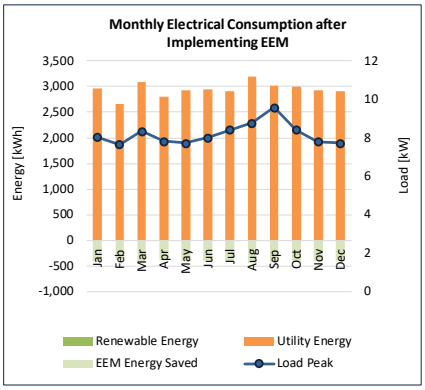


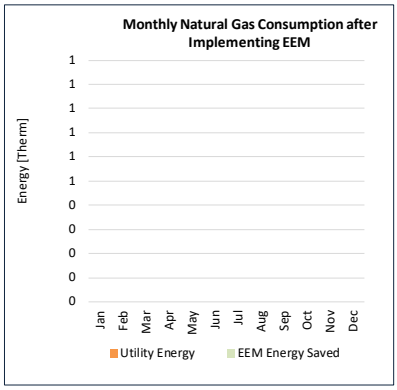


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Retrofit interior lighting with LED
EEM-3:	n/a
EEM-4:	n/a
EEM-5:	n/a
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	4,863 kWh (13%)
Demand Reduction:	1.20 kW (12%)
Natural Gas Savings:	0.00 thm (0%)
EEM Implementation Cost:	$10,014
EEM Annual Cost Savings:	$1,124
EEM Simple Payback	8.9 years



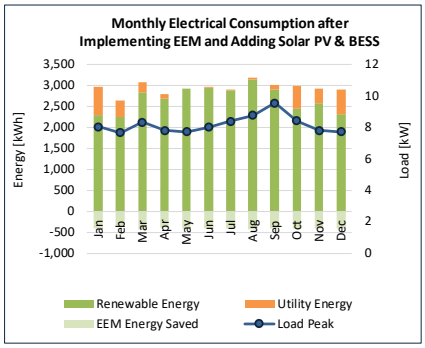


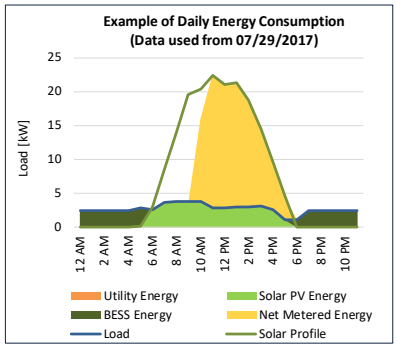
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	31 kWdc RT
Total PV Capacity:	31 kWdc
BESS Storage Capacity:	50 kWh
BESS Inverter Capacity:	25 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	32,222 kWh (86%)
Ren. Energy Generated Used:	32,222 kWh (65%)
Ren. Energy Generated Sold:	17,463 kWh (35%)
PV & BESS Cost:	$102,400
PV & BESS Project Incentives:	$17,500
PV & BESS Net Project Cost:	$84,900
Annual Cost Savings:	$6,109
PV & BESS Simple Payback:	13.9 years



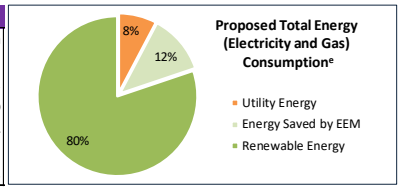


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	37,085 kWh (99%)
Natural Gas Savings:	0.00 thm (0%)
Renewable vs Conventional Energy:	124%
GHG Emissions Reduction:	10.4 MTCO2
SO_2 & NO_x reductions:	333.6 lb
Total Project Cost:	$112,414
Cost Savings (including NET metering):	$7,233

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	927 MWh
Natural Gas Savings:	0 thm
GHG Emissions Reduction:	260 MTCO2
SO_2 & NO_x reductions:	8,339 lb
Net Present Value (NPV):	$89,924
Internal Rate of Return (IRR):	9%
Overall Project Payback:	11.2 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

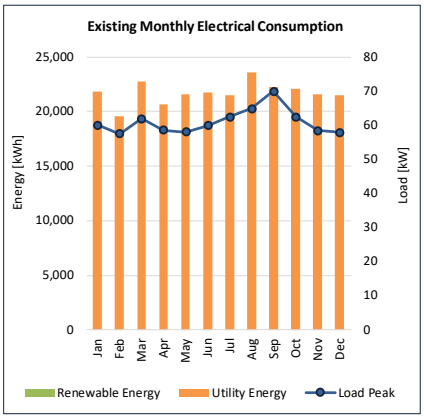
Energy Report Card
Airport (Bldgs 121: Hangar 5,210: Maintenance Hangar, and 225: Offices)
Multiple Addresses

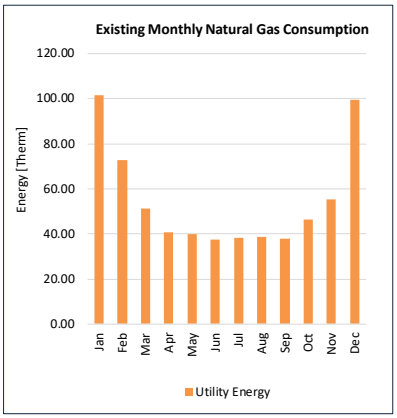
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	Bldg 210: 6572, Bldg 225: 66117 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	Unknown (Meter # 256000-118321, 256000-118318 & 256000-118319) & 3-020-1255-38)
Utility Rate Tariff:	Unknown
Energy Purchased:	260,824 kWh
Peak Power Purchased:	70 kW
Blended Utility Rate:	$0.19/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	660 thm
Utility Rate:	$0.90/thm

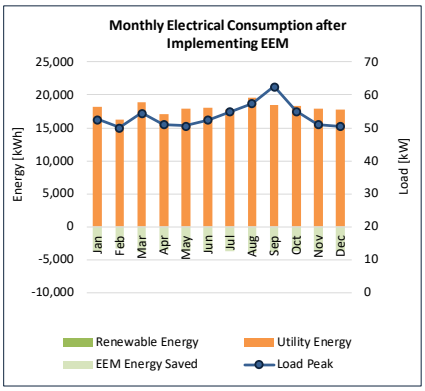


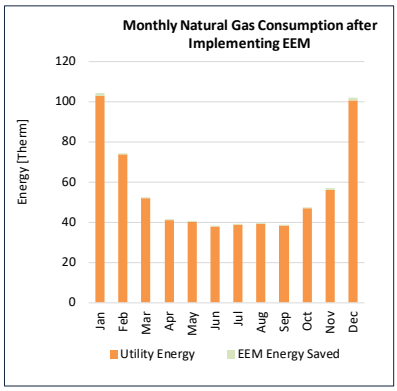


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Retrofit interior lighting with LED
EEM-3:	Replace exterior lighting with LED
EEM-4:	n/a
EEM-5:	n/a
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	44,411 kWh (17%)
Demand Reduction:	7.40 kW (11%)
Natural Gas Savings:	-7.38 thm (-1%)
EEM Implementation Cost:	$75,385
EEM Annual Cost Savings:	$12,174
EEM Simple Payback	6.2 years



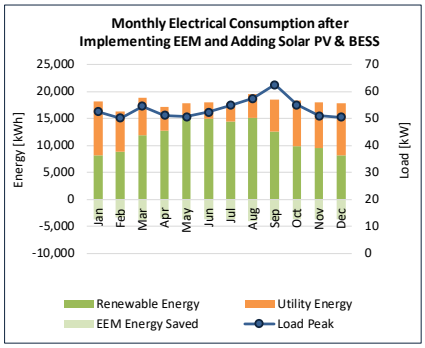


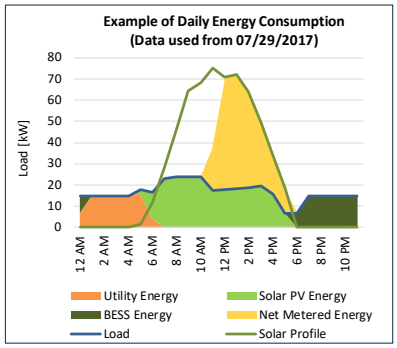
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	107 kWdc RT
Total PV Capacity:	107 kWdc
BESS Storage Capacity:	150 kWh
BESS Inverter Capacity:	50 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	141,368 kWh (54%)
Ren. Energy Generated Used:	141,368 kWh (86%)
Ren. Energy Generated Sold:	22,248 kWh (14%)
PV & BESS Cost:	$323,600
PV & BESS Project Incentives:	$52,500
PV & BESS Net Project Cost:	$271,100
Annual Cost Savings:	$25,961
PV & BESS Simple Payback:	10.4 years



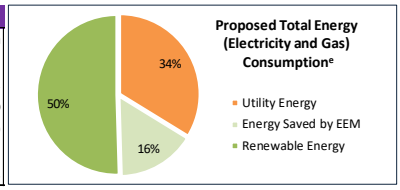


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	185,780 kWh (71%)
Natural Gas Savings:	-7.38 thm (-1%)
Renewable vs Conventional Energy:	63%
GHG Emissions Reduction:	52.0 MTCO2
SO_2 & NO_x reductions:	1,671.1 lb
Total Project Cost:	$398,985
Cost Savings (including NET metering):	$38,136

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	4,644 MWh
Natural Gas Savings:	-185 thm
GHG Emissions Reduction:	1,299 MTCO2
SO_2 & NO_x reductions:	41,777 lb
Net Present Value (NPV):	$630,689
Internal Rate of Return (IRR):	13%
Overall Project Payback:	8.1 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

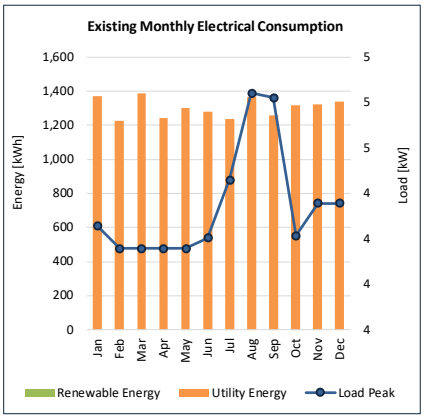
Energy Report Card
Airport (Bldg 251: Storage)
400 Robert Marxmiller Pl, Santa Barbara, CA 93117

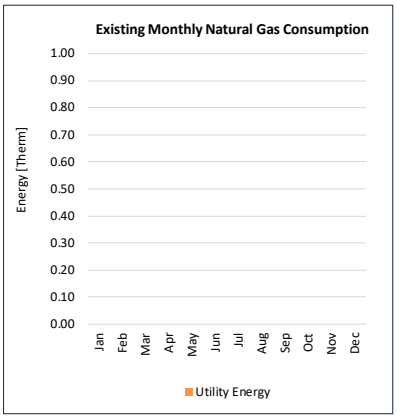
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	6,240 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-029-1389-97, 3-033-9244-53, 3-029-1390-17, Two other unknown accounts
Utility Rate Tariff:	Unknown
Energy Purchased:	15,651 kWh
Peak Power Purchased:	5 kW
Blended Utility Rate:	$0.19/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	n/a
Utility Rate Tariff:	n/a
Energy Purchased:	0 thm
Utility Rate:	$0.00/thm

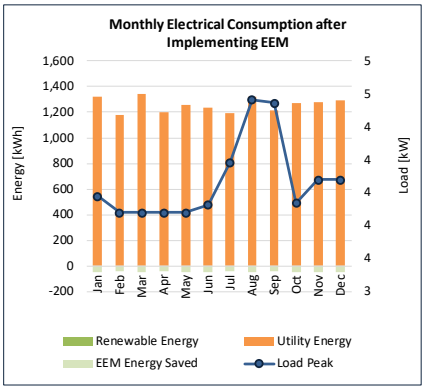


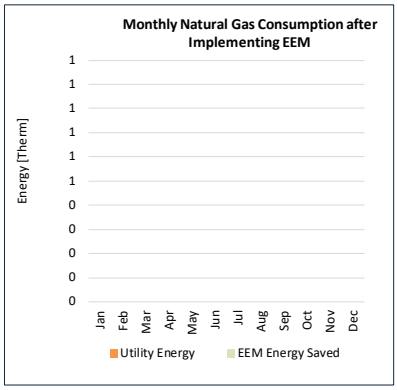


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	n/a
EEM-3:	n/a
EEM-4:	n/a
EEM-5:	n/a
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	539 kWh (3%)
Demand Reduction:	0.28 kW (6%)
Natural Gas Savings:	0.00 thm (0%)
EEM Implementation Cost:	$1,637
EEM Annual Cost Savings:	$396
EEM Simple Payback	4.1 years



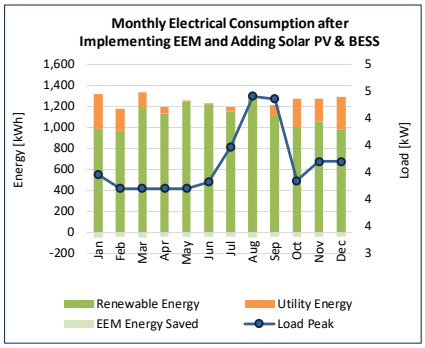


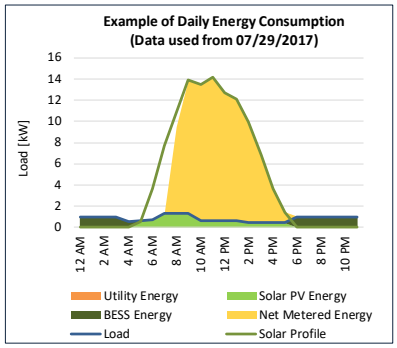
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	20 kWdc RT
Total PV Capacity:	20 kWdc
BESS Storage Capacity:	13 kWh
BESS Inverter Capacity:	13 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	13,329 kWh (85%)
Ren. Energy Generated Used:	13,329 kWh (45%)
Ren. Energy Generated Sold:	16,151 kWh (55%)
PV & BESS Cost:	$51,500
PV & BESS Project Incentives:	$4,375
PV & BESS Net Project Cost:	$47,125
Annual Cost Savings:	$2,795
PV & BESS Simple Payback:	16.9 years



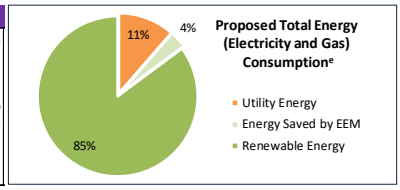


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	13,868 kWh (89%)
Natural Gas Savings:	0.00 thm (0%)
Renewable vs Conventional Energy:	188%
GHG Emissions Reduction:	3.9 MTCO2
SO_2 & NO_x reductions:	124.7 lb
Total Project Cost:	$53,137
Cost Savings (including NET metering):	$3,190

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	347 MWh
Natural Gas Savings:	0 thm
GHG Emissions Reduction:	97 MTCO2
SO_2 & NO_x reductions:	3,119 lb
Net Present Value (NPV):	$32,767
Internal Rate of Return (IRR):	7%
Overall Project Payback:	12.8 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

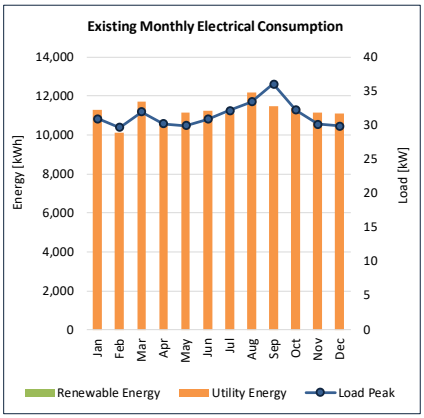
Energy Report Card
Airport (Bldg 114: Offices)
140 Frederick Lopez Rd, Santa Barbara, CA 93117

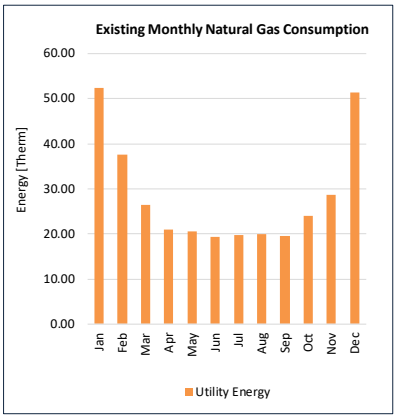
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	13,000 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	3-019-7585-82
Utility Rate Tariff:	TOU-GS1A
Energy Purchased:	134,568 kWh
Peak Power Purchased:	36 kW
Blended Utility Rate:	$0.19/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	340 thm
Utility Rate:	$0.90/thm

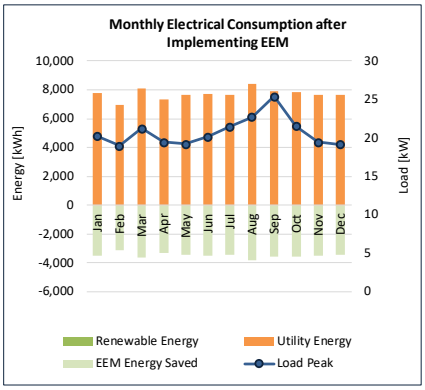


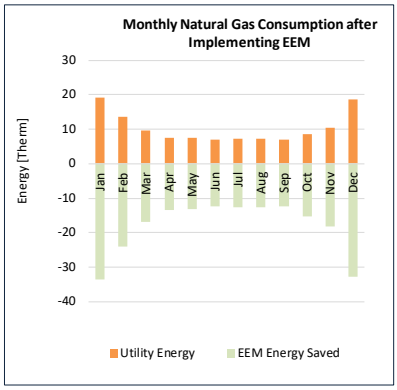


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Retrofit interior lighting with LED
EEM-3:	Replace exterior lighting with LED
EEM-4:	Advanced Package Unit Controllers
EEM-5:	HVAC Systems Advanced Maintenance
EEM-6:	Duct Sealing
EEM-7:	Evaporator fan motor replacement
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	41,951 kWh (31%)
Demand Reduction:	10.73 kW (30%)
Natural Gas Savings:	216.97 thm (64%)
EEM Implementation Cost:	$81,972
EEM Annual Cost Savings:	$9,130
EEM Simple Payback	9.0 years



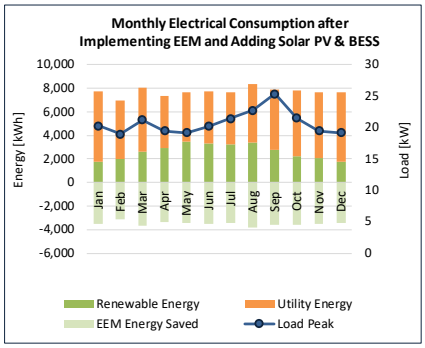


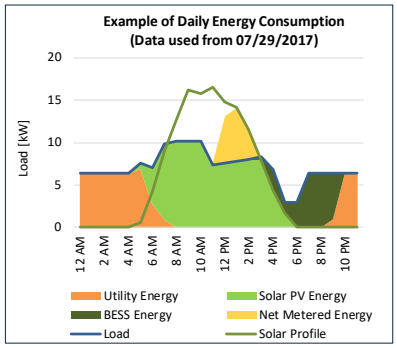
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	23 kWdc RT
Total PV Capacity:	23 kWdc
BESS Storage Capacity:	25 kWh
BESS Inverter Capacity:	13 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	31,561 kWh (23%)
Ren. Energy Generated Used:	31,561 kWh (92%)
Ren. Energy Generated Sold:	2,913 kWh (8%)
PV & BESS Cost:	$65,600
PV & BESS Project Incentives:	$8,750
PV & BESS Net Project Cost:	$56,850
Annual Cost Savings:	$5,782
PV & BESS Simple Payback:	9.8 years



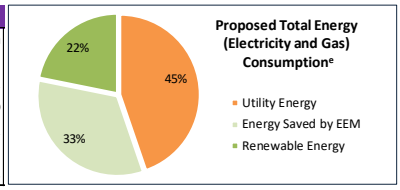


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	73,512 kWh (55%)
Natural Gas Savings:	216.97 thm (64%)
Renewable vs Conventional Energy:	26%
GHG Emissions Reduction:	21.7 MTCO2
SO_2 & NO_x reductions:	661.2 lb
Total Project Cost:	$147,572
Cost Savings (including NET metering):	$14,912

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	1,838 MWh
Natural Gas Savings:	5,424 thm
GHG Emissions Reduction:	543 MTCO2
SO_2 & NO_x reductions:	16,531 lb
Net Present Value (NPV):	$242,241
Internal Rate of Return (IRR):	13%
Overall Project Payback:	8.3 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

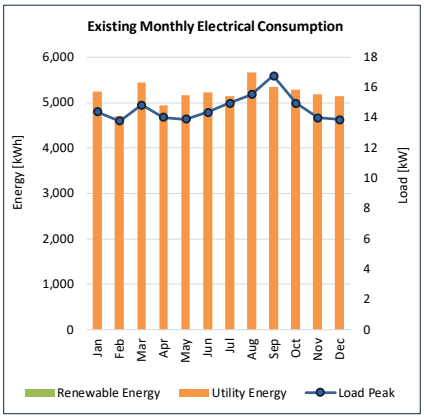
Energy Report Card
Airport (Bldg 306: Office)
1699 Firestone Rd, Santa Barbara, CA 93117

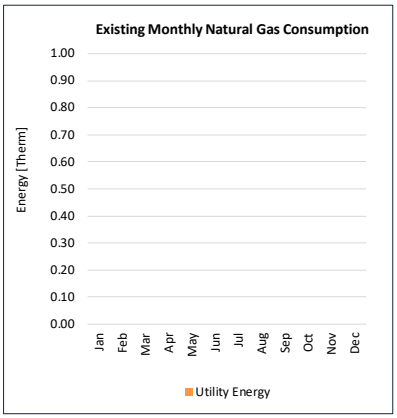
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	9,950 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	Unknown
Utility Rate Tariff:	TOU-GS1A
Energy Purchased:	62,485 kWh
Peak Power Purchased:	17 kW
Blended Utility Rate:	$0.19/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	n/a
Utility Rate Tariff:	n/a
Energy Purchased:	0 thm
Utility Rate:	$0.00/thm

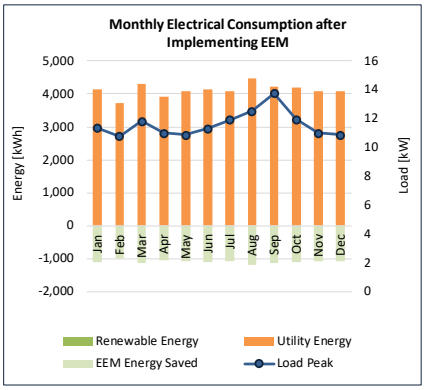


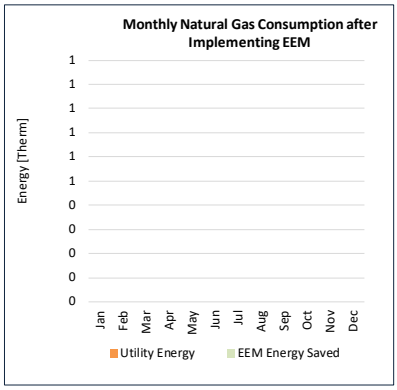


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Retrofit interior lighting with LED
EEM-3:	Replace exterior lighting with LED
EEM-4:	n/a
EEM-5:	n/a
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	13,102 kWh (21%)
Demand Reduction:	3.01 kW (18%)
Natural Gas Savings:	0.00 thm (0%)
EEM Implementation Cost:	$27,288
EEM Annual Cost Savings:	$3,035
EEM Simple Payback	9.0 years



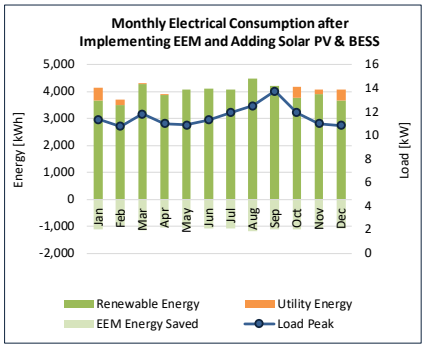


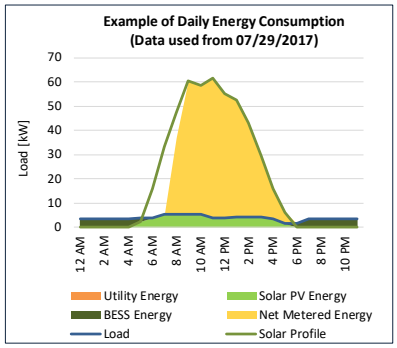
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	85 kWdc RT
Total PV Capacity:	85 kWdc
BESS Storage Capacity:	75 kWh
BESS Inverter Capacity:	25 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	47,669 kWh (76%)
Ren. Energy Generated Used:	47,669 kWh (37%)
Ren. Energy Generated Sold:	78,969 kWh (62%)
PV & BESS Cost:	$224,800
PV & BESS Project Incentives:	$26,250
PV & BESS Net Project Cost:	$198,550
Annual Cost Savings:	$10,480
PV & BESS Simple Payback:	18.9 years



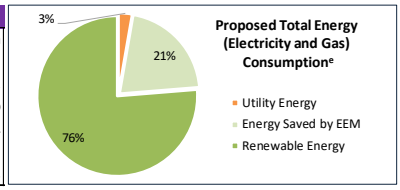


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	60,771 kWh (97%)
Natural Gas Savings:	0.00 thm (0%)
Renewable vs Conventional Energy:	205%
GHG Emissions Reduction:	17.0 MTCO2
SO_2 & NO_x reductions:	546.6 lb
Total Project Cost:	$252,088
Cost Savings (including NET metering):	$13,515

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	1,519 MWh
Natural Gas Savings:	0 thm
GHG Emissions Reduction:	425 MTCO2
SO_2 & NO_x reductions:	13,666 lb
Net Present Value (NPV):	$119,524
Internal Rate of Return (IRR):	6%
Overall Project Payback:	13.7 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

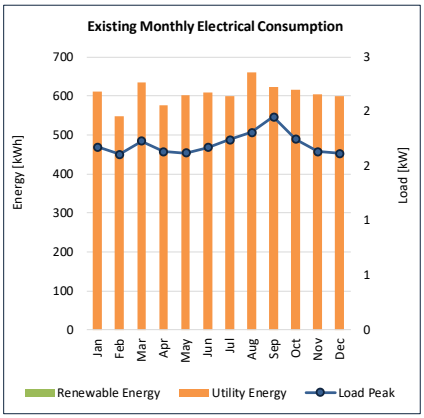
Energy Report Card
Airport (Bldg 311: Office)
1407 Firestone Rd, Santa Barbara, CA 93117

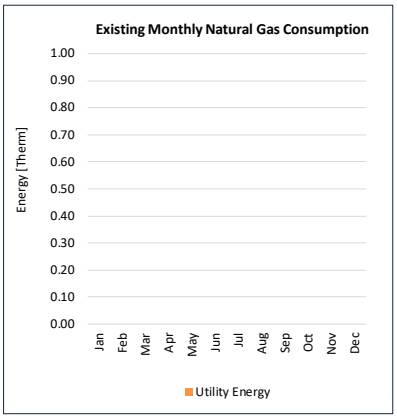
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	1,160 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	7,285 kWh
Peak Power Purchased:	2 kW
Blended Utility Rate:	$0.19/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	n/a
Utility Rate Tariff:	n/a
Energy Purchased:	0 thm
Utility Rate:	$0.00/thm

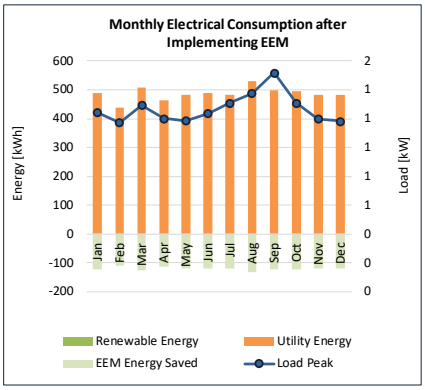


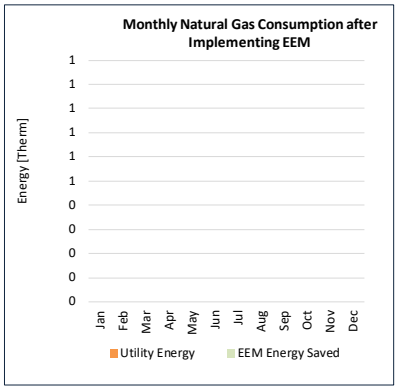


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Retrofit interior lighting with LED
EEM-3:	DHW Heater Replacement
EEM-4:	n/a
EEM-5:	n/a
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	1,446 kWh (20%)
Demand Reduction:	0.43 kW (22%)
Natural Gas Savings:	0.00 thm (0%)
EEM Implementation Cost:	$5,245
EEM Annual Cost Savings:	$365
EEM Simple Payback	14.4 years



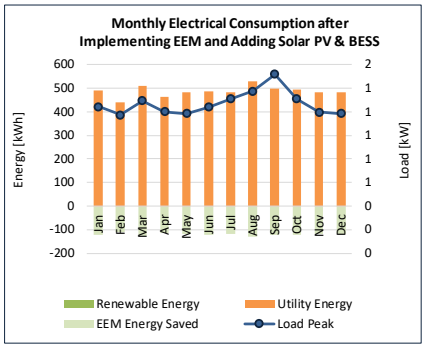


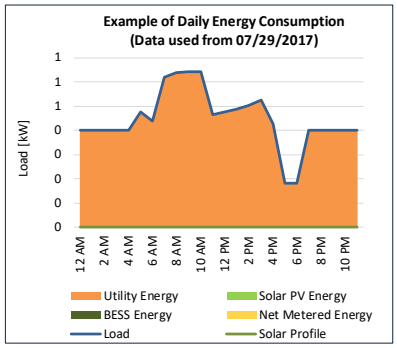
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
Reason for not proposing solar PV:	Space Unavailable
Total PV Capacity:	0 kWdc
BESS Storage Capacity:	0 kWh
BESS Inverter Capacity:	0 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	0 kWh (0%)
Ren. Energy Generated Used:	0 kWh (0%)
Ren. Energy Generated Sold:	0 kWh (0%)
PV & BESS Cost:	$0
PV & BESS Project Incentives:	$0
PV & BESS Net Project Cost:	$0
Annual Cost Savings:	$0
PV & BESS Simple Payback:	n/a



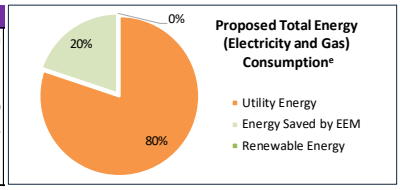


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	1,446 kWh (20%)
Natural Gas Savings:	0.00 thm (0%)
Renewable vs Conventional Energy:	0%
GHG Emissions Reduction:	0.4 MTCO2
SO_2 & NO_x reductions:	13.0 lb
Total Project Cost:	$5,245
Cost Savings (including NET metering):	$365

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	36 MWh
Natural Gas Savings:	0 thm
GHG Emissions Reduction:	10 MTCO2
SO_2 & NO_x reductions:	325 lb
Net Present Value (NPV):	$4,074
Internal Rate of Return (IRR):	8%
Overall Project Payback:	12.1 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

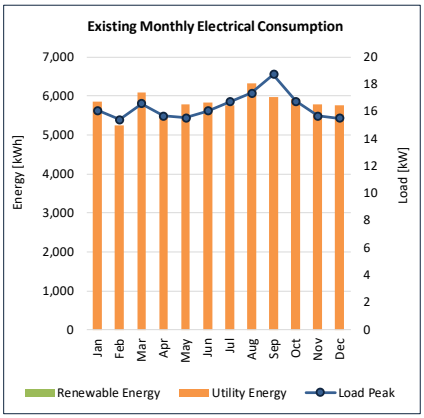
Energy Report Card
Airport (Bldg 317: Hangar 1)
1601 Cecil Cook Place

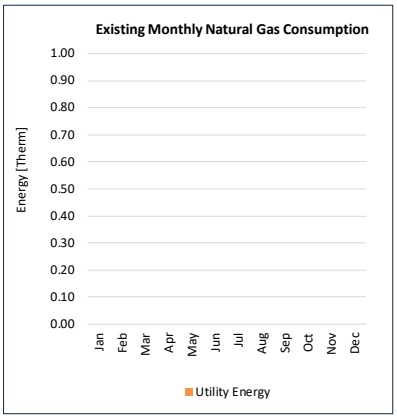
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	11,130 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	69,895 kWh
Peak Power Purchased:	19 kW
Blended Utility Rate:	$0.19/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	n/a
Utility Rate Tariff:	n/a
Energy Purchased:	0 thm
Utility Rate:	$0.00/thm

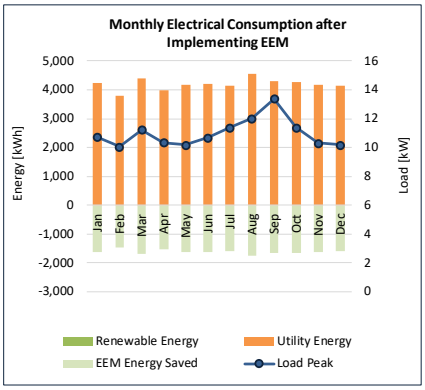


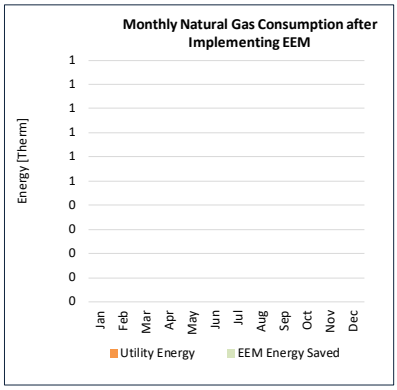


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Retrofit interior lighting with LED
EEM-3:	Replace exterior lighting with LED
EEM-4:	n/a
EEM-5:	n/a
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	19,478 kWh (28%)
Demand Reduction:	5.35 kW (29%)
Natural Gas Savings:	0.00 thm (0%)
EEM Implementation Cost:	$21,110
EEM Annual Cost Savings:	$4,123
EEM Simple Payback	5.1 years



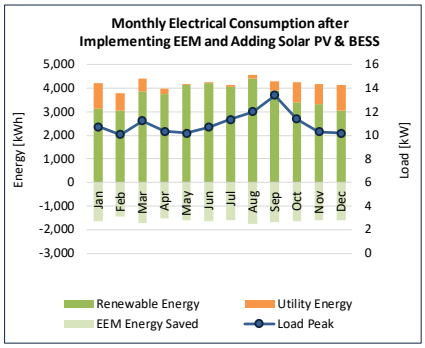


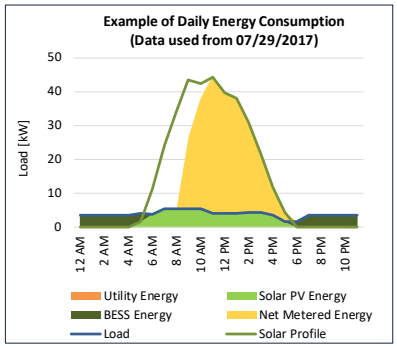
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	61 kWdc RT
Total PV Capacity:	61 kWdc
BESS Storage Capacity:	50 kWh
BESS Inverter Capacity:	13 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	44,305 kWh (63%)
Ren. Energy Generated Used:	44,305 kWh (48%)
Ren. Energy Generated Sold:	41,641 kWh (45%)
PV & BESS Cost:	$157,400
PV & BESS Project Incentives:	$17,500
PV & BESS Net Project Cost:	$139,900
Annual Cost Savings:	$9,033
PV & BESS Simple Payback:	15.5 years



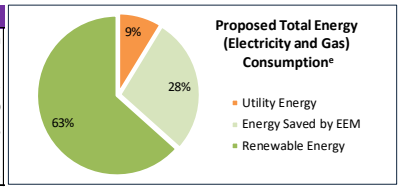


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	63,783 kWh (91%)
Natural Gas Savings:	0.00 thm (0%)
Renewable vs Conventional Energy:	132%
GHG Emissions Reduction:	17.9 MTCO2
SO_2 & NO_x reductions:	573.7 lb
Total Project Cost:	$178,510
Cost Savings (including NET metering):	$13,156

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	1,595 MWh
Natural Gas Savings:	0 thm
GHG Emissions Reduction:	446 MTCO2
SO_2 & NO_x reductions:	14,343 lb
Net Present Value (NPV):	$175,168
Internal Rate of Return (IRR):	9%
Overall Project Payback:	10.6 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

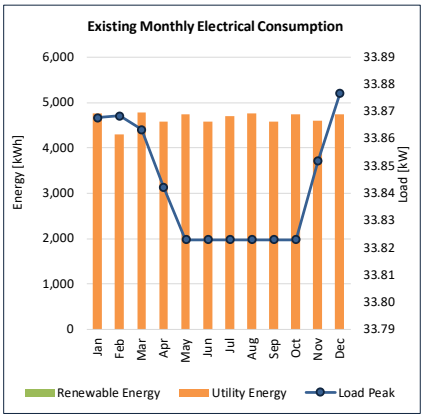
Energy Report Card
Airport (Bldg 363: Golf Shop)
6034 Hollister Ave, Goleta, CA 93117

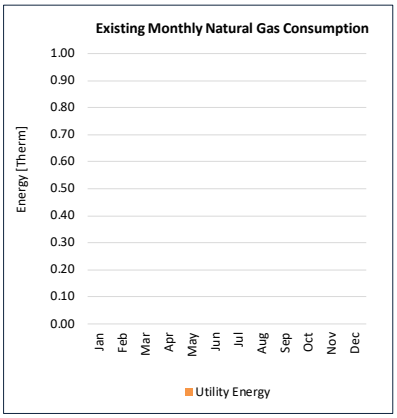
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	1,597 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	55,844 kWh
Peak Power Purchased:	34 kW
Blended Utility Rate:	$0.19/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	n/a
Utility Rate Tariff:	n/a
Energy Purchased:	0 thm
Utility Rate:	$0.00/thm

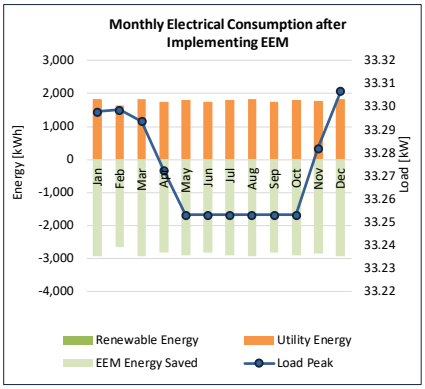


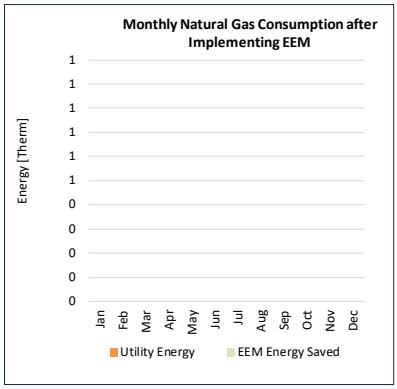


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Retrofit interior lighting with LED
EEM-3:	Replace exterior lighting with LED
EEM-4:	n/a
EEM-5:	n/a
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	34,426 kWh (62%)
Demand Reduction:	0.57 kW (2%)
Natural Gas Savings:	0.00 thm (0%)
EEM Implementation Cost:	$70,460
EEM Annual Cost Savings:	$7,950
EEM Simple Payback	8.9 years



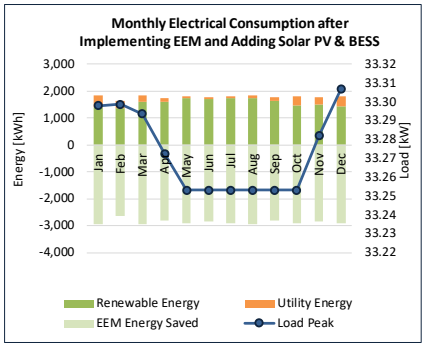


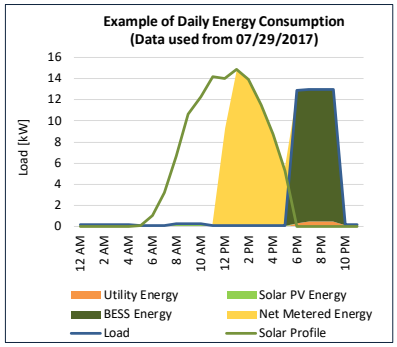
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
New Solar PV Capacity:	21 kWdc RT
Total PV Capacity:	21 kWdc
BESS Storage Capacity:	50 kWh
BESS Inverter Capacity:	13 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	18,934 kWh (34%)
Ren. Energy Generated Used:	18,934 kWh (59%)
Ren. Energy Generated Sold:	12,884 kWh (40%)
PV & BESS Cost:	$76,400
PV & BESS Project Incentives:	$17,500
PV & BESS Net Project Cost:	$58,900
Annual Cost Savings:	$3,568
PV & BESS Simple Payback:	16.5 years



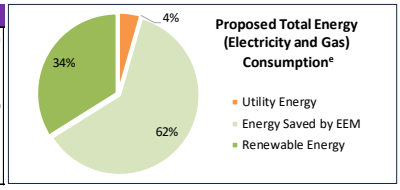


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	53,360 kWh (96%)
Natural Gas Savings:	0.00 thm (0%)
Renewable vs Conventional Energy:	58%
GHG Emissions Reduction:	14.9 MTCO2
SO_2 & NO_x reductions:	480.0 lb
Total Project Cost:	$146,860
Cost Savings (including NET metering):	$11,518

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	1,334 MWh
Natural Gas Savings:	0 thm
GHG Emissions Reduction:	374 MTCO2
SO_2 & NO_x reductions:	11,999 lb
Net Present Value (NPV):	$164,972
Internal Rate of Return (IRR):	10%
Overall Project Payback:	9.8 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

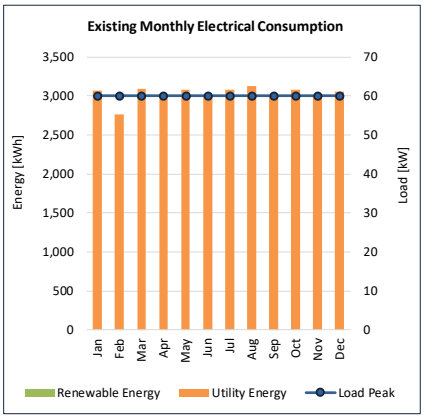
Energy Report Card
Las Positas Tennis Center
1002 Las Positas Rd, Santa Barbara CA

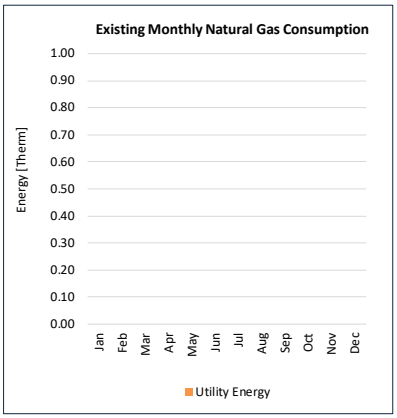
SITE & BASELINE CONDITIONS

BASIC INFORMATION	
Building(s) Area:	710 sq.ft.
Building(s) Vintage:	Unknown

CURRENT ELECTRICITY BILLING DATA & SELF GENERATION	
Service Account Number:	Unknown
Utility Rate Tariff:	Unknown
Energy Purchased:	36,332 kWh
Peak Power Purchased:	60 kW
Blended Utility Rate:	$0.19/kWh
Solar PV Capacity:	0 kWdc
Renewable Energy:	0 kWh (0%)

CURRENT NATURAL GAS BILLING DATA	
Service Account:	n/a
Utility Rate Tariff:	n/a
Energy Purchased:	0 thm
Utility Rate:	$0.00/thm

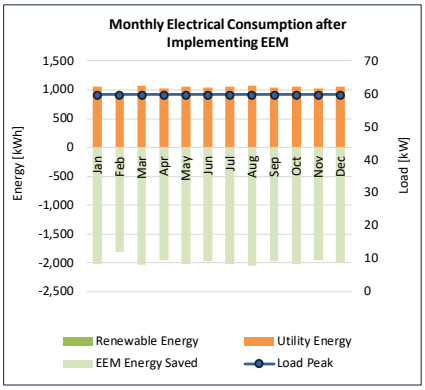


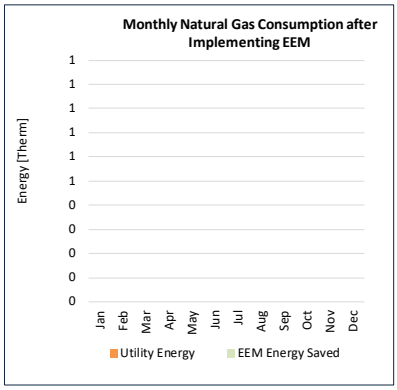


ENERGY EFFICIENCY

PROPOSED ENERGY EFFICIENCY MEASURES (EEM)[a]	
EEM-1:	Replace interior lighting with LED
EEM-2:	Retrofit interior lighting with LED
EEM-3:	Replace exterior lighting with LED
EEM-4:	n/a
EEM-5:	n/a
EEM-6:	n/a
EEM-7:	n/a
EEM-8:	n/a
EEM-9:	n/a
EEM-10:	n/a
EEM-11:	n/a

EEM POTENTIAL SAVINGS & COST	
Electricity Savings:	23,855 kWh (66%)
Demand Reduction:	0.20 kW (0%)
Natural Gas Savings:	0.00 thm (0%)
EEM Implementation Cost:	$78,384
EEM Annual Cost Savings:	$6,100
EEM Simple Payback	12.8 years



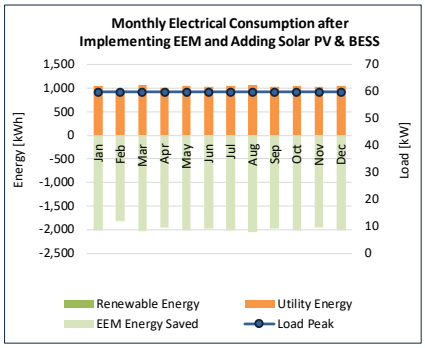


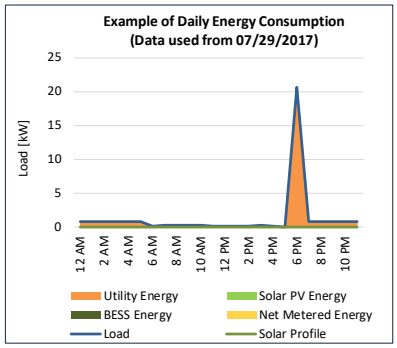
a) Refer to the "Proposed Energy Efficiency Measures" section of the report for a detailed description of each of the proposed EEM, as well as for the savings and cost associated to the implementation of each of them.

RENEWABLE ENERGY

SOLAR PV & BATTERY ENERGY STORAGE SYSTEM (BESS)[bc]	
Reason for not proposing solar PV:	Space Unavailable
Total PV Capacity:	0 kWdc
BESS Storage Capacity:	0 kWh
BESS Inverter Capacity:	0 kW

SOLAR PV & BESS POTENTIAL SAVINGS & COST	
Electricity Savings:	0 kWh (0%)
Ren. Energy Generated Used:	0 kWh (0%)
Ren. Energy Generated Sold:	0 kWh (0%)
PV & BESS Cost:	$0
PV & BESS Project Incentives:	$0
PV & BESS Net Project Cost:	$0
Annual Cost Savings:	$0
PV & BESS Simple Payback:	n/a



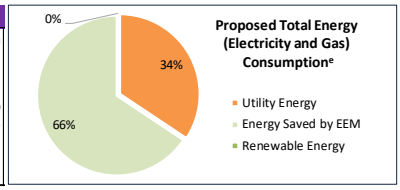


b) The size of the new solar PV system has been maximized based on area. The utility electric distribution diagrams must be analyzed if the system is to be installed.
c) RT: Rooftop; GD: Ground Mounted; CP: Carport

SUMMARY

TOTAL ANNUAL SAVINGS, EMISSIONS REDUCTION & COST	
Electricity Savings:	23,855 kWh (66%)
Natural Gas Savings:	0.00 thm (0%)
Renewable vs Conventional Energy:	0%
GHG Emissions Reduction:	6.7 MTCO2
SO_2 & NO_x reductions:	214.6 lb
Total Project Cost:	$78,384
Cost Savings (including NET metering):	$6,100

25 YR LIFETIME SAVINGS, EMISSIONS REDUCTION & COST[d]	
Electricity Savings:	596 MWh
Natural Gas Savings:	0 thm
GHG Emissions Reduction:	167 MTCO2
SO_2 & NO_x reductions:	5,364 lb
Net Present Value (NPV):	$77,497
Internal Rate of Return (IRR):	9%
Overall Project Payback:	11.0 years



d) An inflation rate of 3% and a discount rate of 5% have been assumed in the calculations.
e) NET metered Energy is not included in the graph.

5 Proposed Energy Efficiency Measures

The City of Santa Barbara's facilities feature similar mechanical equipment. Package units, split systems, window units, and furnaces condition most of the facilities. See Table 4 for a brief summary of the overall combined cooling and heating capacities of all the buildings.

HVAC Unit	Qty.	Total Cooling Output Capacity [Ton]	Total Heating Output Capacity [kBtu/h]
Heating Ventilation Unit	24	0	925
Package Unit AC-Cooling Only	4	13	0
Package Unit AC-Gas Heating	88	459	6,380
Package Unit Heat Pump (HP)	25	82	907
Refrigeration Unit	11	3	0
Split System AC	36	125	0
Split System HP	48	176	2,029
Window AC	28	19	0
Window HP	1	1	4
TOTAL	**265**	**877**	**10,245**

Table 4: Overall Combined Cooling and Heating Capacities of All Buildings

Just 8 out of the 104 buildings visited and included in this project are currently connected to the City's Carrier i-Vu Building Management System (BMS). These buildings are:

- Carrillo Rec Center - Recreation Center
- Cater WTP - Administration & Maintenance
- Central Library
- City Hall
- Community Development Center
- Eastside Library
- Parks Department - Administration Office
- Police Station

In order to estimate savings from the mechanical EEMs, TRC created a representative eQuest model of City Hall. TRC prorated the results based on capacity (i.e., tonnage) to account for the savings obtained in the remaining City buildings. TRC selected City Hall because it features a good combination of the unit types listed in Table 4.

The existing lighting equipment consists of a mixture of HID, fluorescent, incandescent, halogen, and LED lamps and fixtures. Manual switches mostly control interior lighting. Exterior fixtures, for the most part, operate from dusk to dawn with photocell control.

Refer to Appendix B – Existing Equipment Inventory for more detailed information on the existing HVAC, lighting, and energy generation equipment of each of building.

The following sub sections present the EEM portfolio-wide opportunities and economics. Table 5 summarizes all the measures, savings, and costs identified.

Energy Efficiency Measure (EEM)	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Simple Payback Period
	(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	527,635	113.83	-950.54	$116,709	$1,317,404	11.3
EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	433,539	58.14	-879.99	$84,634	$535,649	6.3
EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	353,375	0.00	0.00	$69,422	$396,410	5.7
EEM 4: Upgrade existing HID tennis lighting to LED	17,211	0.00	0.00	$4,769	$74,938	15.7
EEM 5: Programmable thermostats	52,578	10.39	150.76	$9,608	$43,680	4.6
EEM 6: HVAC systems advanced maintenance	99,518	112.76	3,387.77	$20,331	$72,370	3.6
EEM 7: Evaporator fan motor replacement	5,121	0.00	0.00	$925	$8,100	8.8
EEM 8: CRAC units evaporator fan motor replacement	2,615	0.23	0.00	$405	$1,800	4.4
EEM 9: Exposed rooftop ductwork spray-on insulation	5,940	2.81	2,484.00	$3,447	$3,580	1.0
EEM 10: Kitchen hood exhaust	13,269	1.65	0.00	$2,294	$5,973	2.6
EEM 11: Circulating block heater for emergency generators	52,433	6.57	471.00	$8,823	$8,335	0.9
EEM 12: Vending miser controller	3,565	0.00	0.00	$804	$1,895	2.4
EEM 13: DHW heater replacement	3,167	0.00	3,075.29	$3,506	$26,862	7.7
EEM 14: Advanced package unit controllers	234,241	13.29	360.05	$41,223	$452,177	11.0
EEM 15: Replace package units, split systems, and window units	72,161	53.80	12.37	$11,922	$266,678	22.4
EEM 16: Duct sealing*	335	0.70	31.05	$86	$26,750	> 30
EEM 17: Replace furnace with high energy efficiency furnaces*	0	0.00	18.80	$17	$10,369	> 30
TOTAL	**1,876,702**	**374.16**	**8,160.56**	**$378,924**	**$3,252,969**	**8.6**

Table 5: EEM Description

5.1 EEM 1: Retrofit of Interior Fluorescent Troffers with New LED Retrofit Kits

Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
527,635	113.83	-950.54	$116,709	$1,317,404	11.3

Table 6: EEM 1 Savings and Cost

Interior spaces of the Santa Barbara facilities are primarily lit by 2,865 troffers. Recently, the majority of the troffers' fluorescent lamps have been replaced with LED T8 lamps. TRC developed a customized Excel spreadsheet to determine the savings and cost analysis associated to this measure. This measure considered the following two options calculated against the same baseline:

A) Convert the remaining linear fluorescent lamps to LED T8 equivalents
B) Retrofit the entire fixtures with LED retrofit kits capable of advanced controls such as dimming and daylight sensing. This EEM recommends full LED fixture upgrades with corresponding lighting controls

The option presented in Table 6 recommended by TRC is Option B—replace the remaining T8 fluorescent fixtures with LED fixtures wherever feasible and with LED tubes in special conditions. The proposed LED fixtures and lamps feature equivalent or greater lighting output than the existing fixtures, thus maintaining or improving lighting levels while reducing energy consumption by roughly 70 percent. Additionally, they offer truer color rendering values than conventional area lighting methods, which is useful for color-sensitive task work. LED lights reduce maintenance costs associated with bulb replacement due to their significantly longer lifespans, which is especially applicable to elevated lights, which require extra time to replace. LED lights also create less waste heat, which will reduce HVAC cooling costs. The proposed LED fixtures are found on the Design Lights Consortium (DLC) and ENERGY STAR® (ES) qualified product lists.

Refer to Appendix C – Proposed Building Savings and Cost per EEM per for a breakdown of energy savings and cost, per building, and to Appendix B – Existing Equipment Inventory for more detailed information on the existing lighting equipment of each building.

Figure 2: Existing 2x2 Fluorescent T8 Recessed Troffer

Figure 3: Representative Proposed LED Recessed Troffer

5.2 EEM 2: Replacement of Interior Fluorescent, HID, and Incandescent Lamps and Fixtures with New LED Lamps and Fixtures

Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
433,539	58.14	-879.99	$84,634	$535,649	6.3

Table 7: EEM 2 Savings and Cost

This measure accounts for the replacement of 5,306 interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures. All interior lamps and fixtures, except for linear fluorescent lamps and fixtures, are covered within this measure.

The proposed LED fixtures and lamps feature equivalent or greater lighting output than the existing fixtures, thus maintaining or improving lighting levels while reducing energy consumption by roughly 70 percent. Additionally, they offer truer color rendering values than conventional area lighting methods, which is useful for color-sensitive task work. LED lights reduce maintenance costs associated with bulb replacement due to their significantly longer lifespans, which is especially applicable to elevated lights, which require extra time to replace. LED lights also create less waste heat, which will reduce HVAC cooling costs. The proposed LED fixtures are found on the DLC and ES qualified product lists. TRC developed a customized Excel spreadsheet to determine the savings and cost analysis associated to this measure.

Refer to Appendix C – Proposed Building Savings and Cost per EEM for a breakdown of energy savings and cost, per building, and to Appendix B – Existing Equipment Inventory for more detailed information on the existing lighting equipment of each building.

Figure 4: Existing CFL Screw-in Lamp

Figure 5: Representative Proposed LED Pin Lamp

5.3 EEM 3: Replacement of Exterior Fluorescent, HID, and Incandescent Lamps and Fixtures with New LED Lamps and Fixtures

Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
353,375	0.00	0.00	$69,422	$396,410	5.7

Table 8: EEM 3 Savings and Cost

The exteriors of the Santa Barbara facilities are lit by 1,228 exterior fixtures, meant to illuminate building exteriors, walkways, entrances, and parking lots. These exterior fixtures include compact fluorescent downlights and uplights, HID wall packs, flood fixtures, post top area lights, and pole-mounted parking lot fixtures. This measure recommends replacing these standard fixtures with high-efficiency LED fixtures.

The proposed LED fixtures and lamps feature equivalent or greater lighting output than the existing fixtures, thus maintaining or improving lighting levels while reducing energy consumption by roughly 70 percent. Additionally, they offer truer color rendering values than conventional area lighting methods, which is useful for color-sensitive task work. LED lights reduce maintenance costs associated with bulb replacement due to their significantly longer lifespans, which is especially applicable to elevated lights which require extra time to replace. LED lights also create less waste heat, which will reduce HVAC cooling costs. The proposed LED fixtures are found on the DLC and ES qualified product lists. TRC developed a customized Excel spreadsheet to determine the savings and cost analysis associated to this measure.

Refer to Appendix C – Proposed Building Savings and Cost per EEM for a breakdown of energy savings and cost, per building, and to Appendix B – Existing Equipment Inventory for more detailed information on the existing lighting equipment of each building.

Figure 6: Existing HID Wallpack

Figure 7: Representative Proposed LED Wallpack

5.4 EEM 4: Upgrade existing HID Tennis Lighting to LED

Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
17,211	0.00	0.00	$4,769	$74,938	15.7

Table 9: EEM 4 Savings and Cost

The Santa Barbara facilities include a set of tennis courts lit by pole-mounted HID fixtures. Because of their height and low operation hours, these lights were considered separately from the other exterior fixtures. This measure recommends replacing these high-wattage fixtures with high-efficiency LED fixtures.

The proposed LED fixtures can provide equal lighting output to the existing fixtures while consuming a fraction of the energy. LED lights offer truer color and produce less glare and light spill, creating a more comfortable sports environment for players, spectators, and facility neighbors. Additionally, the long lifespan of LEDs reduces the high maintenance cost associated with changing out tall pole-mounted fixtures. The proposed LED fixtures are found on the DLC qualified product list. TRC developed a customized Excel spreadsheet to determine the savings and cost analysis associated to this measure.

Refer to Appendix C – Proposed Building Savings and Cost per EEM for a breakdown of energy savings and cost, per building, and to Appendix B – Existing Equipment Inventory for more detailed information on the existing lighting equipment of each building.

Figure 8: Existing HID Tennis Fixture

Figure 9: Representative Proposed LED Tennis Fixture

5.5 EEM 5: Programmable Thermostats

Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
52,578	10.39	150.76	$9,608	$43,680	4.6

Table 10: EEM 5 Savings and Cost

Newer programmable thermostats are available that can better optimize HVAC operation by programming schedules and temperature setbacks. Many of the thermostats found during the audit process were non-programmable and outdated. This measure is proposed for any units that are not connected to the i-Vu system and for which advanced package unit controllers have not been proposed. Implementing this measure will also allow for greater control of HVAC operation for tenant needs, while reducing the risk of heating or cooling when not needed. The sites with programmable thermostats could be controlled via web portal, remotely.

This measure was also modeled in eQuest, simulated by adjusting the heating and cooling schedules. This measure applies to 126 of the 265 items in the HVAC equipment list (48 percent).

Figure 10: Representative Proposed Programmable Thermostat

Refer to Appendix C – Proposed Building Savings and Cost per EEM for a breakdown of energy savings and cost, per building, and to Appendix B – Existing Equipment Inventory more detailed information on the existing HVAC equipment of each building.

5.6 EEM 6 - HVAC Systems Advanced Maintenance

Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
99,518	112.76	3,387.77	$20,331	$72,370	3.6

Table 11: EEM 6 Savings and Cost

Advanced maintenance strategies can enable an air conditioner or heat pump HVAC equipment to operate at or near its optimal efficiency, while increasing their remaining useful life (RUL). This measure accounts for quality maintenance to be performed to all the existing package units and split systems that are not proposed for replacement, a total of 156 units, in order to increase their performance. This measure follows the recommendations of the highest available industry standard—Standard 180—and ensures the units maintains that level (therefore, extend their RUL) of performance for the life of a multi-year maintenance agreement.

Refer to Appendix C – Proposed Building Savings and Cost per EEM for a breakdown of energy savings and cost, per building, and to Appendix B – Existing Equipment Inventory for more detailed information on the existing HVAC equipment of each building. This EEM accounts for the following sub measures:

5.6.1 Refrigerant Charge Adjustment

This sub measure involves refrigerant charge correction to nonresidential direct expansion (DX) air-cooled HVAC units. When an HVAC unit's refrigerant charge does not meet the manufacturer recommended levels, it results in a decrease in the unit's energy efficiency ratio (EER). Some units may be undercharged, which can result in decreased power draw but potentially longer run times. Other units may be overcharged, which can result in increased power draw but potentially shorter run times. In either case, energy savings can be achieved by correcting refrigerant charge to optimum levels based on the manufacturers' specifications.

The energy savings and costs of the EEM were determined based on a Pacific Gas and Electric Company (PG&E) work paper PGE3PHVC160 (Refrigerant Charge Adjustment).

5.6.2 Evaporator & Condenser Coil Cleaning

Dirty or fouled evaporators and condensers restrict air flow, reduce heat transfer efficiency and compressor efficiency, and can increase compressor run time. Coil cleaning eliminates air blockages between fins and can remove dust, grime, and other contaminants from the fin and tube heat transfer surfaces thus improving heat transfer efficiency, decreasing compressor run time, and increasing efficiency.

The energy savings and costs of the EEM were determined based on PG&E work papers PGE3PHVC158 (Evaporator Coil Cleaning) & PGE3PHVC156 (Condenser Coil Cleaning).

5.6.3 Air flow Adjustment

When a building has balanced air flow, every room receives the right amount of air to ensure that it remains at an ideal temperature throughout the year. Along with keeping members of the building comfortable, correctly balanced airflow has the dual bonus of improving energy efficiency *and* reducing utility spending. This can be achieved many ways, including adjusting the system dampers or the small levers located on the round branch ducts.

The energy savings and costs of the EEM were determined based on SCE work paper SCE17HC029 (Residential HVAC Quality Maintenance).

5.7 EEM 7: Supply Fan Motor Replacement

Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
5,121	0.00	0.00	$925	$8,100	8.8

Table 12: EEM 7 Savings and Cost

Some of the package units are older than 10 years, but they are still in good operating condition and do not warrant a complete replacement of the unit. For these units, a supply fan motor replacement is recommended. The units currently use shaded pole motors, and this measure proposes installing new and more efficient electronically commutated (EC) motors. The EC motors will significantly reduce the energy associated with running the supply fan. The savings of these EEM were developed using the representative building eQuest model. The EEM applies to the 27 package units (23 percent of the total package units included in the project) that have not been proposed to be replaced, are older than 10 years old, and are not serving a computer room, as shown in Table 13.

Site Name - Building Name	Inspected Unit Location	Equipment Type	Qty.	Make	Model Number	Age (yr.)
Airport - Bldg 114: Offices	Outdoor (Roof)	Package Unit AC- Gas Heating	3	Carrier	48LCL005A2A5A 0A0A0	11
Airport - Bldg 114: Offices	Outdoor (Roof)	Package Unit AC- Gas Heating	1	York	D3NP024N0360 6NXA	11
Airport - Bldg 114: Offices	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier	48LCL004A2A5A 0A0A0	11
Airport - Bldg 114: Offices	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier	48HCDD08A2A5 A0A0A0	11
Airport - Bldg 124: Atlantic Aviation	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier	48HJM004--- 541--	12
Airport - Bldg 124: Atlantic Aviation	Outdoor (Roof)	Package Unit AC- Gas Heating	2	Carrier	48HJL005---551- -	12
Airport - Bldg 124: Atlantic Aviation	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier	48HJL006---541- -	12

Site Name - Building Name	Inspected Unit Location	Equipment Type	Qty.	Make	Model Number	Age (yr.)
Airport - Bldg 312 & 313: Flight School	Outdoor (Roof)	Package Unit HP	1	Bryant	601AEX060000A AAG	12
Airport - Bldg 344: Offices & R&D	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Bryant	574BNW036060 NA	12
Airport - Bldg 344: Offices & R&D	Outdoor (Roof)	Package Unit AC- Gas Heating	2	Bryant	574BNW048090 NB	12
Airport - Bldg 344: Offices & R&D	Outdoor (Roof)	Package Unit HP	1	Tempstar	PHF060L000E	13
Cater WTP - Admin & Maintenance	Indoor	Package Unit AC- Gas Heating	1	Carrier	38AKS016-- C621--	15
Central Library - Library	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Octagon	0AS-034T-11C-0350G-MZ	11
Comm Dev Center	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Bryant	574BPW060115 NB	12
Comm Dev Center	Outdoor (Roof)	Package Unit AC- Gas Heating	2	Bryant	574BPW060090 NB	13
Fire Station 1	Indoor	Package Unit AC- Gas Heating	1	Carrier	48PGLM09-AB50-HX	10
Franklin Center	Outdoor (Roof)	Package Unit AC- Gas Heating	2	Bryant	582APW060090 NAAG	13
Franklin Center	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Bryant	582APW036060 NBAF	13

Table 13: Existing Package Units whose Supply Fan Motor is Proposed to Be Replaced

Refer to Appendix C – Proposed Building Savings and Cost per EEM for a breakdown of energy savings and cost, per building, and to Appendix B – Existing Equipment Inventory for more detailed information on the existing HVAC equipment of each building.

Figure 11: Representative Proposed EC Motor

5.8 EEM 8: CRAC Units Supply Fan Motor Replacement

Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
2,615	0.23	0.00	$405	$1,800	4.4

Table 14: EEM 8 Savings and Cost

DX fan coil units that serve computer rooms are still in good operating condition and do not warrant a complete replacement of the unit. For these units a supply fan motor replacement is recommended, which will increase their remaining useful life.

The units currently use shaded pole motors, and this measure proposes installing new and more efficient EC motors. The EC motors will significantly reduce the energy associated with running the evaporator (supply) fan. The savings of these EEM were developed using the representative building eQuest model. The EEM applies to the seven package units (six percent of the total package units included in the project) that are serving computer rooms, as shown in Table 13.

Site Name - Building Name	Inspected Unit Location	Equipment Type	Qty.	Make	Model Number	Age (yr.)
Airport - Bldg 333: Offices & R&D	Outdoor (Roof)	Split System AC	1	York	Unknown	9
Airport - Bldg 344: Offices & R&D	Outdoor (Roof)	Split System HP	1	York	YHE36B21HA	1
City Hall	Outdoor (Ground)	Split System AC	2	York	H1RD060S25B	10
Comm. Dev Center	Outdoor (Roof)	Split System AC	1	Bryant	650AN030-A	20
Fire Station 1	Outdoor (Roof)	Split System AC	1	Sanyo	C3682	15
Police Station	Outdoor (Ground)	Split System AC	1	Carrier	38HDR060—5	10

Table 15: Existing CRAC Units whose Supply Fan Motor is Proposed to Be Replaced

Refer to Appendix C – Proposed Building Savings and Cost per EEM for a breakdown of energy savings and cost, per building, and to Appendix B – Existing Equipment Inventory for more detailed information on the existing HVAC equipment of each building.

5.9 EEM 9: Exposed Rooftop Ductwork Spray-On Insulation

Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
5,940	2.81	2,484.00	$3,447	$3,580	1.0

Table 16: EEM 9 Savings and Cost

TRC found some of the exterior ductwork on the rooftops of certain buildings (City Hall and the Central Library for example) to be uninsulated or poorly insulated at the time of the inspection. This measure recommends having the exposed ductwork treated with a coating of spray-on insulation to prevent temperature gains (during cooling mode) or temperature drops (during heating mode) across the length of the ductwork. It is estimated that this measure will apply to approximately 334 square feet (sq. ft.) of exposed ductwork, determined through Google Earth satellite imagery. In addition to insulation, the spray-on solution also helps to seal duct leaks, further adding to measure savings.

Savings were estimated using the Temperature Control Calculations for Air Ducts methodology from the ASHRAE Fundamentals Handbook – 2017, as well as reasonable assumptions for the HVAC system efficiencies, duct dimensions, airflow, and hours of operation. Duct length was obtained from Google Earth images. This measure is proposed for eight separate buildings with ductwork exposed to exterior conditions during the site inspection.

Figure 12: Existing Exposed Ductwork at City Hall

Figure 13: Existing Exposed Ductwork at Central Library

Refer to Appendix C – Proposed Building Savings and Cost per EEM for a breakdown of energy savings and cost, per building.

5.10 EEM 10: Kitchen Hood Exhaust

Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
13,269	1.65	0.00	$2,294	$5,973	2.6

Table 17: EEM 10 Savings and Cost

Conventional kitchen ventilation controls mainly consist of a manual on/off switch and a magnetic relay or motor starter for each fan. Exhaust and makeup air fans operate either at 100 percent speed or not at all. This measure proposes installing a demand-controlled kitchen ventilation (DCKV) system in the Airport restaurant building (building 252). A DCKV is essentially a demand-ventilation-based energy management system for commercial kitchen exhaust hoods that minimizes fan energy use by reducing the exhaust and makeup air fan speed and associated energy consumption when little or no cooking is occurring. Furthermore, as a function of the exhaust fan speed and associated airflow reduction, outdoor makeup air heating and cooling energy is also reduced. In addition, the kitchen ambient noise level is significantly decreased. This measure applies to a total of three horsepower (HP) located at the restaurant facility.

Figure 14: Airport Building 252 (Restaurant) Kitchen Exhaust Fans

The energy savings and costs of the EEM were determined based on SCE work paper SCE13CC008 (Commercial Kitchen Exhaust Hoods Demand Controlled Ventilation).

Refer to Appendix C – Proposed Building Savings and Cost per EEM for a breakdown of energy savings and cost, per building.

5.11 EEM 11: Circulating Block Heater for Emergency Generators

Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
52,433	6.57	471.00	$8,823	$8,335	0.9

Table 18: EEM 11 Savings and Cost

Block heaters typically consist of a simple resistance heater affixed at one of several locations to the engine of the emergency generator. Convection circulates heated fluids in a process known as thermosiphon. This measure proposes replacing the thermosiphon heaters of the nine diesel generators included in the project with electrical pump heaters. The electrical pump heaters will circulate coolant throughout the engine block while ensuring that there is a minimal temperature difference between the supply and return temperatures.

Figure 15: Existing Fire Station 5 Generator Engine

Figure 16: Representative Proposed Circulating Block Heater

The energy savings and costs of the EEM were determined based on SCE work paper SCE13CC008 (Circulating Block Heater).

Refer to Appendix C – Proposed Building Savings and Cost per EEM for a breakdown of energy savings and cost, per building.

5.12 EEM 12: Vending Miser Controller

Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
3,565	0.00	0.00	$804	$1,895	2.4

Table 19: EEM 12 Savings and Cost

Multiple vending machines were found during the audit process, including snack vending machines and refrigerated beverage machines. These vending machines do not have any type of smart controls installed. The proposed measure, the Vending Miser technology, will power down the machine when it determines the area to be unoccupied via an occupancy sensor. Vending Miser powers up the machine when people return and at regular intervals to keep the product cold. When equipped with the Vending Miser, refrigerated beverage vending machines use less energy and are comparable in daily energy performance to new ES qualified machines. A total of 15 vending machines were identified, 8 of which are refrigerated.

Site Name - Building Name	Equipment Type	Qty.	Refrigeration
Airport - Bldg 124: Atlantic Aviation	Vending Machine	1	Refrigerated
Airport - Bldg 124: Atlantic Aviation	Vending Machine	1	Non-Refrigerated
City Hall	Vending Machine	1	Refrigerated
City Hall	Vending Machine	1	Non-Refrigerated
Police Department	Vending Machine	2	Refrigerated
Police Department	Vending Machine	1	Non-Refrigerated
Airport - Bldg 255: Administration	Vending Machine	1	Refrigerated
Airport - Bldg 255: Administration	Vending Machine	1	Non-Refrigerated
Public Works - Central Stores Offices	Vending Machine	1	Refrigerated
Airport - Bldg 344: Offices & R&D	Vending Machine	1	Non-Refrigerated
Airport - Bldg 333: Offices & R&D	Vending Machine	1	Refrigerated
Airport - Bldg 333: Offices & R&D	Vending Machine	1	Non-Refrigerated
Cater WTP - Admin & Maintenance	Vending Machine	1	Non-Refrigerated
Municipal Tennis Center	Vending Machine	1	Refrigerated
Airport - Bldg 124: Atlantic Aviation	Vending Machine	1	Refrigerated

The energy savings and costs of the EEM were determined based on SCE work paper SCE13CS005 (Beverage Merchandise Controller).

Refer to Appendix C – Proposed Building Savings and Cost per EEM for a breakdown of energy savings and cost, per building.

5.13 EEM 13: Domestic Hot Water Heater Replacement

Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
3,167	0.00	3,075.29	$3,506	$26,862	7.7

Table 20: EEM 13 Savings and Cost

During the audit process, TRC created a full inventory of the DHW heaters. Over time, the efficiency of domestic hot water heaters degrades. In addition, the efficiency of available water heaters on the market has been steadily improving. It is TRC's recommendation that any water heater over 10 years old be replaced with a newer, more efficient model. TRC determined the savings for this measure by applying an age degradation factor to the spec sheet efficiencies of the existing equipment and then replacing them with efficiencies of equivalent ES certified domestic hot water heaters, as presented in Table 21. TRC identified a total of four electric and eleven natural gas domestic hot water heaters for replacement. All replacements are recommended to be like-for-like, meaning the fuel type, input capacities, and water capacity should all be relatively similar to what was previously installed.

Site Name - Building Name	Qty.	Fuel Type	Make	Model Number	Ex. Eff.	Prop. Eff.
Airport - Bldg 226: Offices	1	Natural Gas	Bradford White Co.	M430T6FBN5	69%	86%
Airport - Bldg 345: Offices	1	Electric	Rheem	PR0E40 M2 RH95	82%	95%
Central Library - Library	1	Natural Gas	American	CG32100T884 N	65%	97%
Police Station	1	Natural Gas	Rheem-Ruud Universal	G100-200	65%	97%
Fire Station 2	1	Natural Gas	American Water Heater Co	G62-75T75-4NOV	52%	70%
Fire Station 4	1	Natural Gas	American Water Heater Co	G62-75T75-4NOV	53%	70%
Fire Station 6	1	Natural Gas	American Water Heater Co	G122-75T75-4NV	50%	70%
Airport - Bldg 333: Offices & R&D	1	Natural Gas	General Electric	GE40T06AVG01	48%	70%
Airport - Bldg 311: Office	1	Electric	general electric	GE20P05SAG	76%	95%
Recreation Department - Administration Office	1	Natural Gas	Rheem	22V40F1	53%	70%

Site Name - Building Name	Qty.	Fuel Type	Make	Model Number	Ex. Eff.	Prop. Eff.
Cater WTP - Admin & Maintenance	1	Natural Gas	Rheem	22V50F1	52%	70%
Airport - Bldg 344: Offices & R&D	1	Electric	Rheem	81V30D D	78%	95%
Airport - Bldg 349: Paint	1	Electric	Bradford White Co.	M120U6SS-1NAL	71%	95%
Louise Lowry Davis Center - Rec Center	1	Natural Gas	Rheem	22V40F1	52%	70%
Ortega Park - Welcome House	1	Natural Gas	Energy Master	N 30 HMEV	40%	70%

Table 21: Existing DHW Heaters Proposed to be Replaced

Refer to Appendix C – Proposed Building Savings and Cost per EEM for a breakdown of energy savings and cost, per building, and to Appendix B – Existing Equipment Inventory for more detailed information on the existing DHW equipment of each building.

5.14 EEM 14: Advanced Package Unit Controllers

Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
234,241	13.29	360.05	$41,223	$452,177	11.0

Table 22: EEM 14 Savings and Cost

As previously mentioned, most of the facilities in the City's portfolio are not connected to the i-Vu system. As mentioned in the HVAC unit replacement EEM, as units are replaced, they should be tied into the i-Vu system. However, this EEM focuses on adding advanced controllers to package units that still have five years of remaining useful life and are, therefore, not proposed to be replaced. If possible, it is recommended that the package unit controllers be tied into the i-Vu system (if that unit/building is not already connected). The EEM will increase the remaining useful life of the units as well as help improve centralized HVAC control.

The controllers combine common energy savings measures with innovative fan control for retrofit of single zone packaged rooftop units. This measure proposes installing new networked advanced package unit controllers to provide advanced scheduling and programming. This measure applies to 88 (75 percent) of the 117 package units included in the project. Refer to for a list of the units included under this measure.

Site Name - Building Name	Inspected Unit Location	Equipment Type	Qty.	Make	Model Number	Age (yr.)
Airport - Bldg 114: Offices	Outdoor (Roof)	Package Unit AC- Gas Heating	3	Carrier	48LCL005A2A5A 0A0A0	11
Airport - Bldg 114: Offices	Outdoor (Roof)	Package Unit AC- Gas Heating	1	York	D3NP024N0360 6NXA	11
Airport - Bldg 114: Offices	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier	48LCL004A2A5A 0A0A0	11
Airport - Bldg 114: Offices	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier	48HCDD08A2A5 A0A0A0	11
Airport - Bldg 122: Flight School & Surf Air	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Arcoaire	PGD336060K00 1C1	5
Airport - Bldg 124: Atlantic Aviation	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier	48HJM004--- 541--	12
Airport - Bldg 124: Atlantic Aviation	Outdoor (Roof)	Package Unit AC- Gas Heating	2	Carrier	48HJL005---551- -	12
Airport - Bldg 124: Atlantic Aviation	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier	48HJL006---541- -	12
Airport - Bldg 252: Restaurant	Outdoor (Roof)	Package Unit AC- Gas Heating	4	Carrier	48KCLA05A2A3 A0A0A0	3
Airport - Bldg 255: Administration	Indoor	Package Unit AC- Gas Heating	1	Bryant	CNPVP6024ALA AAAA	5
Airport - Bldg 312 & 313: Flight School	Outdoor (Roof)	Package Unit HP	2	York	B2HZ030A46A	7
Airport - Bldg 312 & 313: Flight School	Outdoor (Roof)	Package Unit HP	1	Bryant	601AEX060000A AAG	12
Airport - Bldg 333: Offices & R&D	Outdoor (Roof)	Package Unit HP	3	York	B1HX024A06A	9
Airport - Bldg 333: Offices & R&D	Outdoor (Roof)	Package Unit HP	2	York	XP060C00N2AA A2A	9
Airport - Bldg 333: Offices & R&D	Outdoor (Roof)	Package Unit HP	5	York	XP036C00N2AA A1B	9
Airport - Bldg 333: Offices & R&D	Outdoor (Roof)	Package Unit HP	1	York	XP048C00N2AA A1B	9
Airport - Bldg 344: Offices & R&D	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Bryant	574DNWA24060 NA	8
Airport - Bldg 344: Offices & R&D	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Bryant	574BNW036060 NA	12

Site Name - Building Name	Inspected Unit Location	Equipment Type	Qty.	Make	Model Number	Age (yr.)
Airport - Bldg 344: Offices & R&D	Outdoor (Roof)	Package Unit AC- Gas Heating	2	Bryant	574BNW048090 NB	12
Airport - Bldg 344: Offices & R&D	Outdoor (Roof)	Package Unit HP	1	Bryant	604DNXA36000 AA	7
Airport - Bldg 344: Offices & R&D	Outdoor (Roof)	Package Unit HP	1	Tempstar	PHF060L000E	13
Cater WTP - Admin & Maintenance	Indoor	Package Unit AC- Gas Heating	1	Carrier	38AKS016-- C621--	15
Central Library - Library	Outdoor (Roof)	Package Unit AC- Gas Heating	3	Carrier	48HCDD12A2A6 A0B0A0	7
Central Library - Library	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier	48HCDA05A2A6 A0B0A0	8
Central Library - Library	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier	48HCDD28ABA6 A0D0A0	7
Central Library - Library	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Octagon	0AS-034T-11C-0350G-MZ	11
City Hall	Outdoor (Roof)	Package Unit AC- Gas Heating	1	York	D1NQ060N0900 6NXA	8
City Hall	Outdoor (Roof)	Package Unit AC- Gas Heating	1	York	D2NX036N0650 6NXA	8
City Hall	Outdoor (Roof)	Package Unit AC- Gas Heating	2	York	D2NX024N0360 6NXA	9
City Hall	Outdoor (Roof)	Package Unit AC- Gas Heating	1	York	D1NQ030N0360 6NXA	8
City Hall	Indoor	Package Unit HP	1	York	B1HX0248068	8
Comm Dev Center	Outdoor (Roof)	Package Unit AC- Gas Heating	2	Carrier	48PGLC06-D-50-A0	9
Comm Dev Center	Outdoor (Roof)	Package Unit AC- Gas Heating	4	Carrier	48PGLC08-D-50-A0	9
Comm Dev Center	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Bryant	574BPW060115 NB	12
Comm Dev Center	Outdoor (Roof)	Package Unit AC- Gas Heating	2	Bryant	574BPW060090 NB	13
Comm Dev Center	Outdoor (Roof)	Package Unit AC- Gas Heating	2	Carrier	48PGLC09-D-50-A0	9
Comm Dev Center	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Eaton	D6NZ030N0362 NXA	5
Eastside Library	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier	48HCDD12A2A5 A0A0A0	7
El Estero WWTP - Administration	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier	48TCDD12A2A6 AQA0A0	3
El Estero WWTP - Administration	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier	48TCDA07A2A6 A0A0A0	5
El Estero WWTP - Crews Quarter	Outdoor (Roof)	Package Unit HP	1	Carrier	50VT-C36---50--	2

Site Name - Building Name	Inspected Unit Location	Equipment Type	Qty.	Make	Model Number	Age (yr.)
El Estero WWTP - Maintenance	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier	48TCMA06A2A6 A0A0A0	2
El Estero WWTP - Sludge Handling	Indoor	Package Unit AC- Cooling Only	1	Fraser-Johnston	B6HQ030A06A	5
Fire Station 1	Indoor	Package Unit AC- Gas Heating	1	Carrier	48PGLM09-AB50-HX	10
Fire Station 1	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier	48PGLM12-AB50-BP	9
Franklin Center	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier	48VLNA2404030	7
Franklin Center	Outdoor (Roof)	Package Unit AC- Gas Heating	3	Carrier	48VLNA6009030	7
Franklin Center	Outdoor (Roof)	Package Unit AC- Gas Heating	2	Bryant	582APW060090 NAAG	13
Franklin Center	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Bryant	582APW036060 NBAF	13
Franklin Center	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Bryant	582APW048090 NBAG	14
Franklin Center	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier	48XPN042060511	11
Louise Lowry Davis Center - Rec Center	Outdoor (Roof)	Package Unit AC- Cooling Only	1	Carrier	CNPVP6024ATA ACAA	8
Parks Department - Administration Office	Outdoor (Roof)	Package Unit AC- Gas Heating	2	Carrier	48VLNA2404030	7
Parks Department - Administration Office	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier	48VLNA360050	7
Public Works - Central Stores Offices	Outdoor (Roof)	Package Unit AC- Cooling Only	1	Carrier	50HCA05A2A5A 0A0A0	5
Public Works - Central Stores Offices	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier	48VLNB2406030 TP	3
Public Works - Central Stores Offices	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Bryant	582APW836060 NBAF	14
Public Works - Central Stores Offices	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier	48VLNC2404030 TP	1
Recreation Department - Administration Office	Outdoor (Roof)	Package Unit AC- Gas Heating	2	Carrier	48VLNA3606030	7

Table 23: Existing Package Units Proposed to Include a New Advanced Package Unit Controller

The market has several available advanced package unit controller solutions including host equipment agnostic solutions such as Transformative Wave, or there are proprietary host equipment solutions such as the Trane SZVAV Retrofit solution.

Refer to Appendix C – Proposed Building Savings and Cost per EEM for a breakdown of energy savings and cost, per building, and to Appendix B – Existing Equipment Inventory for more detailed information on the existing HVAC equipment of each building.

Figure 17: Representative Proposed Package Unit Controller

The following control strategies could be implemented through the new advanced controllers:

5.14.1 Variable Air Volume Conversion by Adding Variable Frequency Drive on Existing Supply Fans

The existing package units have constant speed supply fans. During operation, fans run at 100 percent speed regardless of the zone temperature, which results in excess fan operation and higher energy usage. The package unit supply fan variable frequency drive would control the speed of the fans based on the zone temperature.

5.14.2 Enhanced Economizer Control and Outside Air Temperature Based Compressor Lockout

This sub measure proposes programming the package units so that they can provide effective economizing and utilize free cooling. Economizer operation would control the outside air intake during suitable outside air conditions, resulting in minimal compressor operation. In addition, this sub measure proposes implementation of a control sequence to lockout the compressor operation when outside air temperature is less than the economizer enabled setpoint. This ensures that the compressor is not operational when outside air inflow by itself can adequately cool the space (i.e. free cooling). While the economizer control would ensure the use of outside air during mild weather conditions, this measure would shut off the compressor completely when outside air is sufficient to cool the space.

5.14.3 Demand Control Ventilation

This sub measure proposes the addition of carbon dioxide (CO_2) sensors to the return ducts or zones and provide control of the minimum outside air flow based on new CO_2 setpoints. Package units serving spaces with variable or high occupancy patterns are good candidates for this measure. During unoccupied times, the system will be configured to operate at outside air ratios below the code minimum for occupied spaces. Reduced levels of outside air will result in reduced energy use to cool or heat the inside air respectively, especially during seasonal extremes. For the current effort, TRC modeled the package unit controllers in eQuest.

5.15 EEM 15: Replace Package Units, Split Systems, and Window Units

Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
72,161	53.80	12.37	$11,922	$266,678	22.4

Table 24: EEM 15 Savings and Cost

Some of the package units, split systems, and window units have reached the end of their useful life, which has been considered to be 15 years. This includes the 29 package units (25 percent of the package units), 16 split systems (19 percent of the split systems), and 6 window units (21 percent of the window units) presented in Table 25.

Site Name - Building Name	Cooling Output Capacity [kBtu/h]	Inspected Unit Location	Equipment Type	Qty.	Make	Model Number	Age (yr.)
Airport - Bldg 117: Office	24,000	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier	542EJ024	28
Airport - Bldg 226: Offices	18,000	Outdoor (Ground)	Split System AC	1	Sanyo	SAP181C	23
Airport - Bldg 226: Offices	9,000	Outdoor (Ground)	Split System HP	1	Sanyo	SAP90CH	23
Airport - Bldg 226: Offices	Unknown	Outdoor (Window)	Window AC	2	Westing.	Unknown	28
Airport - Bldg 226: Offices	Unknown	Outdoor (Window)	Window AC	1	Carrier	Unknown	28
Airport - Bldg 226: Offices	10,000	Outdoor (Window)	Window AC	3	Whirlpool	AKF-105-2	28
Airport - Bldg 227: Offices	36,000	Outdoor (Roof)	Package Unit HP	1	American Standard	4WCY5036A1000A	18
Airport - Bldg 252: Restaurant	87,000	Outdoor (Roof)	Package Unit AC- Gas Heating	1	York	DF090N10N2AAA3A	36
Airport - Bldg 255: Administration	36,000	Indoor	Package Unit HP	2	Carrier	50JX-036---301CU	16
Airport - Bldg 255: Administration	24,000	Outdoor (Roof)	Split System HP	1	Bryant	650AN024-D	16
Airport - Bldg 312 & 313: Flight School	59,000	Outdoor (Roof)	Package Unit HP	2	Bryant	602BEX060000AB	16
Airport - Bldg 315: Offices	48,000	Outdoor (Ground)	Split System AC	1	Bryant	561CP048-C	20
Animal Control	23,000	Outdoor (Roof)	Split System HP	1	Bryant	661BJ024-G	23
Carrillo Rec Center - Rec Center	90,000	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Bryant	580FPV090125AAGA	17
Central Library - Library	90,000	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Bryant	580FEV091125AAGA	15
City Hall	120,000	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Bryant	581BPV120180AJ	15
City Hall	42,000	Outdoor (Ground)	Split System HP	1	Bryant	662CJ042-B	20
City Hall	42,000	Outdoor (Ground)	Split System HP	1	Payne	691ANX042000AAAA	28
Comm Dev Center	24,000	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Bryant	582ANW0240403351-1	18
Comm Dev Center	24,000	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Bryant	582ANW0240403361-1	18
Comm Dev Center	30,000	Outdoor (Roof)	Split System AC	1	Bryant	650AN030-A	20
Eastside Library	48,000	Outdoor (Roof)	Package Unit AC- Gas Heating	2	Bryant	582APW048090AAAG	18
El Estero WWTP - Administration	36,000	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier	48HJE004--B631AN	20

Site Name - Building Name	Cooling Output Capacity [kBtu/h]	Inspected Unit Location	Equipment Type	Qty.	Make	Model Number	Age (yr.)
El Estero WWTP - Administration	48,000	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier	48HJD005--B631AN	20
El Estero WWTP - Administration	72,000	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier	48HJD007--B631AN	20
El Estero WWTP - Administration	60,000	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier	48HJD006--B631AN	20
El Estero WWTP - Administration	36,000	Outdoor (Roof)	Split System AC	1	Lennox	HS19-413V-3G	20
El Estero WWTP - Sludge Handling	24,000	Outdoor (Roof)	Package Unit HP	1	Carrier	50JX-24---301--	16
Fire Station 1	34,000	Outdoor (Roof)	Split System AC	1	Sanyo	C3682	15
Fire Station 2	60,000	Outdoor (Roof)	Package Unit AC- Gas Heating	2	York	04CG060N08225A	28
Fire Station 3	56,000	Outdoor (Roof)	Split System AC	1	Bryant	594DN060-F	15
Fire Station 4	42,000	Outdoor (Roof)	Split System AC	1	Bryant	594DNX042000AEAA	19
Fire Station 4	36,000	Outdoor (Roof)	Split System AC	1	Bryant	594DNX036000AEAA	19
Fire Station 4	n/a	Outdoor (Roof)	Package Unit AC- Gas Heating	2	Unknown	Unknown	28
Fire Station 5	36,000	Outdoor (Roof)	Split System AC	1	Bryant	594DN036-E	19
Fire Station 7	24,000	Outdoor (Ground)	Split System AC	1	Bryant	550AN024-E	16
Police Station	48,000	Outdoor (Ground)	Split System AC	1	Bryant	561CJ048-F	16
Public Works - Central Stores Offices	18,000	Indoor	Package Unit AC- Cooling Only	1	Carrier	FB4ANF018	18
Public Works - Central Stores Offices	36,000	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Bryant	583BPW036060NB	15
Public Works - Central Stores Offices	Unknown	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Reznor	Unknown	28
Public Works - Central Stores Offices	36,000	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Bryant	Unknown	16
Public Works - Central Stores Offices	36,000	Outdoor (Roof)	Package Unit HP	1	Trane	XE1600	19
Recreation Department - Administration Office	60,000	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Bryant	583BPH060090H3	15

Table 25: Existing HVAC units proposed to be replaced

Even though the units listed in Table 25 are still working, they should be considered for replacement because of their degraded efficiency. Moreover, the proposed high-energy efficiency units would considerably reduce energy consumption. The assumed efficiencies of the new units, which have been obtained from the PGE Workpapers PGECOHVC126 and PGECOHVC128 are presented below, in Table 26.

Equipment Type	Capacity (kBtu/h)	Proposed Efficiency
Package Unit AC	< 55	18 SEER/14 EER
Package Unit AC	55 to 65	18 SEER/14 EER
Package Unit AC	65 to 135	13 EER/15 IEER
Package Unit AC	135 to 240	12.5 EER/14 IEER
Package Unit AC	240 to 760	12.5 EER/15.5 IEER
Package Unit HP	< 55	18 SEER/14 EER
Package Unit HP	55 to 65	18 SEER/14 EER
Split System AC	< 55	18 SEER/14 EER
Split System AC	55 to 65	18 SEER/14 EER
Split System HP	< 55	18 SEER/14 EER
Split System HP	55 to 65	18 SEER/14 EER
Split System HP	65 to 135	13 EER/15 IEER

Table 26: Proposed HVAC units efficiency

As units are replaced, TRC recommends that buildings are tied into the Carrier i-Vu system that the City utilizes to centrally manage HVAC controls. The savings for this EEM were developed through the use of the representative building eQuest model.

Refer to Appendix C – Proposed Building Savings and Cost per EEM for a breakdown of energy savings and cost, per building, and to Appendix B – Existing Equipment Inventory for more detailed information on the existing HVAC equipment of each building.

Figure 18: Existing El Estero WWTP Package Unit Proposed to be Replaced

Figure 19: Existing Airport Building 252 (Restaurant) Package Unit Proposed to be Replaced

5.16 EEM 16: Duct Sealing

Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
335	0.70	31.05	$86	$26,750	> 30

Table 27: EEM 16 Savings and Cost

This measure involves testing the leakage of the duct system and, when necessary, sealing the ducts to prevent them from leaking conditioned air to unconditioned spaces, which wastes energy. In addition, leaky return ducts can bring in air from unconditioned spaces, which wastes energy by making the HVAC system work harder to cool the space. The ducts are sealed using a product called mastic—which is a sticky, thick, fibrous sealant—in combination with a fiberglass or foil tape. Mastic has a cure time in which it becomes extremely hard, which is why it is used.

The energy savings and costs of the EEM were determined based on San Diego Gas and Electric Company (SDG&E) work paper WPSDGEREHC1067 (Duct Seal and Test).

Refer to Appendix C – Proposed Building Savings and Cost per EEM for a breakdown of energy savings and cost, per building.

5.17 EEM 17: Replace Furnace with High Energy Efficiency Furnaces

Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
0	0.00	18.80	$17	$10,369	> 30

Table 28: EEM 17 Savings and Cost

Natural gas burning, forced-air furnaces provide heat to the conditioned space by passing indoor air through a heat exchanger. A blower fan pulls cool air from inside the dwelling through the return air ducts and forces it through the furnace heat exchanger, heating it by up to 50 degrees Fahrenheit. The combustion gases from the furnace are vented outside through the flue connected to the combustion unit near the heat exchanger. This measure accounts for the replacement of the five furnaces (21 percent of the furnaces) shown in Table 29 with new high energy-efficient furnaces. Just the furnaces that have been deemed to operate regularly with a capacity larger than 50,000 Btu/h have been proposed for replacement. Also, an Annual Fuel Utilization Efficiency (AFUE) rating of 97 percent has been assumed, as per the PGE workpaper PGECOHVC148.

Site Name - Building Name	Inspected Unit Location	Equipment Type	Qty.	Make	Model Number	Age
Carrillo Gym - Gym	Indoor	Heating Ventilation Unit	1	Utility	150-UHF	38
El Estero WWTP - Administration	Indoor	Heating Ventilation Unit	1	Bryant	355AAV042080FASA	11
Fire Station 3	Outdoor (Ground)	Heating Ventilation Unit	1	Bryant	311JAV066135AAJA	16
Louise Lowry Davis Center - Rec Center	Indoor	Heating Ventilation Unit	1	Carrier	58DLX155---12120	13
Los Banos Pool	Indoor	Heating Ventilation Unit	1	Reznor	HX125-8-S-2-E	20

Table 29: Existing Furnaces Proposed to Be Replaced

The units proposed to be replaced have heating output capacities between 75 and 125 kBtu/h. These units are considered for replacement because of their degraded efficiency. Even though the proposed high energy-efficient units would considerably reduce gas consumption, this measure should be implemented once the existing units stop working because of the poor economics presented. The savings and costs presented in Table 28 were determined based on PG&E work paper PGECOHVC146 (High Efficiency Gas Furnace 95 percent AFUE (1.04 HIR) – Nonresidential).

Figure 20: Existing Los Banos Pool Heater Proposed to be Replaced

Figure 21: Existing Fire Station 3 Furnace Proposed to be Replaced

Refer to Appendix C – Proposed Building Savings and Cost per EEM for a breakdown of energy savings and cost, per building, and to Appendix B – Existing Equipment Inventory for more detailed information on the existing HVAC equipment of each building.

5.18 Other analyzed EEM

The following measures were not included in the scope of the audit. The savings for these measures were estimated on a per-unit basis, as the total instances in which these measures would be applicable was not determined across the City-wide portfolio of facilities. These measures are provided for consideration to be implemented where applicable at the discretion of the City.

5.18.1 Window Retrofit

A potential measure that may be worth considering is retrofitting windows to double-pane, high-efficiency models. This measure is typically not as cost effective as other options due to the high costs of window replacement; however, it may be worth considering if any window replacement projects are already planned for the future. The more efficient dual-pane windows make it more difficult for heat to pass

through the glass, which helps keep the heat out in the summer and helps keep the heat in in the winter. This provides savings for both heating and cooling. Savings estimates for this measure are based on SCE workpaper SCE13HC051 Climate Zone 6, which uses a prescriptive window of U-0.32 and solar heat gain coefficient of 0.25 for the measure case. Single pane to double pane high efficiency results in 4.30 kWh/sq. ft. and 0.0033 kW/sq. ft. savings, while double pane to double pane high efficiency results in 2.15 kWh/sq. ft. and 0.0016 kW/sq. ft.

5.18.2 Window Film

A much cheaper alternative to a full window replacement is to simply apply window film to the windows. This provides some of the same benefits of a window retrofit without the increased material and labor costs. Savings for this measure were based on SCE workpaper SCE13HC002. The savings values for Climate Zone 6 are 4.27 kWh/sq. ft. and 0.00156 kW/sq. ft.

5.18.3 Faucet Aerators

TRC recommends replacing any standard flow faucets with faucet aerators. The Environmental Protection Agency (EPA) has a special classification for more efficient faucets known as WaterSense®. WaterSense labeled bathroom sink faucets and accessories that use a maximum of 1.5 gallons per minute (GPM) can reduce a sink's water flow by 30 percent or more from the standard flow of 2.2 GPM without sacrificing performance. In addition to saving water, there is also an energy savings associated with faucet aerators, as less water is required to be heated. Savings for this measure are per unit and based on SCE work paper SCE17WP004, which assumes a baseline case of 2.2 GPM and a proposed case of 1.7 GPM. The work paper claims that for climate zone 6, 1.54 kWh, 0.00016 kW, and 0.067 therms can be saved annually per unit installed. This is a conservative estimate, as WaterSense fixtures are 1.5 GPM and below. Faucet aerators range from $1 to $3 per unit and are easy to install.

5.18.4 Pool covers

Pool covers are protection and insulation products that slow heat loss and evaporation. This results in heating cost and water usage savings as less water is required to make up for evaporation losses. Currently, the pools being used in the City have pool covers. However, this measure has been included in case the pools not currently in use are refilled in the future. The savings for this measure (0.6125 therms/sq. ft. /year) are based on a Southern California Gas Company work paper, WPSCGNRWH150309A. The cost of implementing the measure would be of $2.45/sq. ft. This work paper assumes that the pools have a less efficient vinyl pool cover as the baseline, as pool covers are required by Title 24.

6 Renewable Energy

In calendar year 2017, the City purchased about 32.5 million kWh of electricity and 161,000 therms of natural gas in all their properties[7]. Figure 21 and Figure 22 present breakdowns of purchased electricity and natural gas, respectively, by department. Moreover, the City generated approximately 811 MWh of renewable energy from their existing solar PV systems.

Figure 21 shows how currently streetlighting is by far the largest load, with 35 percent of the City's electrical consumption. Figure 22 shows how the Parks and Recreation department is by far the largest consumer of natural gas, with 56 percent of the total consumption.

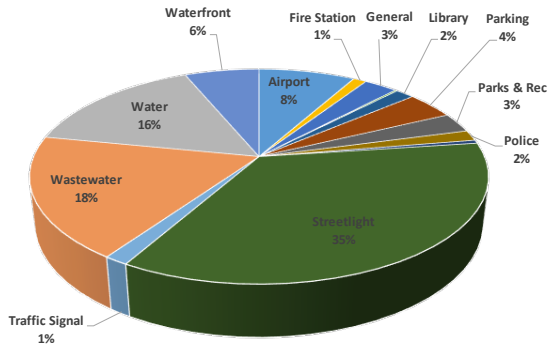


Figure 22: Electricity Consumption in 2017 in all the City of Santa Barbara Properties

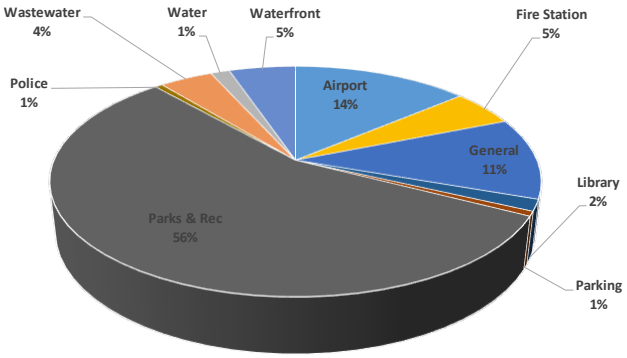


Figure 23: Natural Gas Consumption in 2017 in all the City of Santa Barbara Properties

TRC analyzed several renewable energy strategies to help the City achieve its energy goals. After determining the possible EEMs that could be implemented in the buildings visited (listed in Appendix D – Proposed EEM Savings and Cost per Building), several DER were analyzed. Because of the complexity and scale of the project, multiple DER were considered:

- Solar PV and BESS
- Solar Water Heaters
- Cogeneration (considered but not proposed)
- Wind Power (considered but not proposed)

Please refer to the subsections below for more details on each of the listed DER.

[7] These numbers account for both the facilities included in this project and the remaining properties that have not been included in the scope of the feasibility study. The City also generated and consumed 0.8 MWh of solar energy. For this reason, their overall electrical consumption was of 3.3 MWh approximately. Refer to Table 34 for more details.

6.1 Solar Photovoltaic and Battery Energy Storage Systems

Solar PV takes advantage of the abundant amount of sunshine available that would otherwise be wasted. It is one of the most effective strategies the City can take to achieve its ZNE goal. PV systems can reduce or even eliminate the utility energy consumed during the day, and excess electricity generated can be sold back to the grid through net-metering. This technology was proposed to be implemented in approximately 75 percent of the visited and analyzed buildings included in the project.

The size of the proposed solar PV systems was maximized using a tool developed for the project based on the available area, where feasible. TRC used 15-minute interval data, and the buildings were grouped by SCE service accounts to allow net-metering, as well. This is the reason why the report cards presented in Section 4 account for one or many buildings. It is important to note that the utility electric distribution diagrams were not analyzed in any of these cases. The distribution diagrams must be analyzed if the City decides to install additional solar PV at these sites.

In some of the audited sites, installing a BESS was proposed as well. Because the operation (peak shaving, load shifting, etc.) of the BESS could vary from site to site, TRC used HOMER Pro software to determine whether it made economic sense to include it or not. The HOMER Pro models created[8] allowed TRC to analyze the chronological dynamic dispatch of the DER to ensure its optimal functionality. TRC proposed a BESS in 70 percent of the audited sites that had been previously identified as good candidates for solar PV. Refer to Table 30 for more details on the PV and BESS system capacities proposed, per site and service account. These have been ordered from lowest to highest payback. For more details on the PV siting refer to Section 4 of this report.

Table 30: Solar PV Capacities of the Non-Audited Sites

Site Name	PV Capacity [kWdc]	BESS Capacity [kW]	BESS Capacity [kWh]	Energy Savings [kWh/yr]	Implem. Cost [$][9,10]	Cost Savings [$/yr]	Simple Payback [yr]
Building Maintenance and Public Works	529	75	175	807,796	$616,900	$88,001	7.0
Central Library (Faulkner Gallery and Library)	131	25	175	191,835	$315,500	$34,251	9.2
Carrillo (Gym and Rec Center)	32	25	25	49,433	$80,000	$8,166	9.8
Airport (Bldg. 114 Offices)	23	13	25	34,474	$57,000	$5,791	9.8
Airport (Bldg. 252 Restaurant)	52	0	0	78,930	$139,650	$13,776	10.1
Airport (Bldg. 227 Offices)	8	0	0	11,659	$15,150	$1,361	11.1

[8] A total of 7 HOMER Pro models were created, one for each of the following existing SCE electric rate types tied to the sites included in the present project: TOU-8-R, TOU-GS1A, TOU-GS1B, TOU-GS2A, TOU-GS2B, TOU-GS2R, TOU-PA2B.

[9] There are many available financial options such as solar Power Purchase Agreements (PPA) that could help finance these solar PV & BESS projects. A Solar PPA is a financial arrangement in which a third-party developer owns, operates, and maintains the photovoltaic (PV) system, and a host customer agrees to site the system on its property and purchases the system's electric output from the solar services provider for a predetermined period

[10] This table summarizes the existing and proposed solar PV systems of the multiple sites included in the scope of the project. For this reason, if new solar PV is not proposed to be installed in a site that already has solar PV panels, the implementation cost shown is of $0.

Site Name	PV Capacity [kWdc]	BESS Capacity [kW]	BESS Capacity [kWh]	Energy Savings [kWh/yr]	Implem. Cost [$][9,10]	Cost Savings [$/yr]	Simple Payback [yr]
Fire Station 7	9	0	0	13,991	$18,150	$1,470	12.3
Municipal Tennis Center	39	25	75	62,579	$130,300	$10,276	12.7
Westside Community Center	65	50	100	104,171	$175,950	$13,616	12.9
Fire Station 1	31	25	25	46,421	$78,500	$6,037	13.0
City Hall	56	0	0	84,827	$154,425	$11,678	13.2
Airport (Bldg. 267, 268, 303, 304, 307, 309, 333, 344, B345, 347, 351)	605	75	500	717,028	$1,364,150	$98,351	13.9
Airport (Bldg. 224 Offices)	31	25	50	49,684	$85,050	$6,127	13.9
Franklin Center	52	25	75	80,957	$172,450	$11,939	14.4
Airport (Bldg. 508 QTA)	360	0	0	573,575	$510,450	$35,284	14.5
Airport (Bldg. 312 & 313 Flight School)	35	25	50	53,066	$105,750	$7,024	15.1
Airport (Bldg. 317 Hangar 1)	61	13	50	85,946	$140,050	$9,072	15.4
Airport (Bldg. 370 Tire Shop)	15	0	0	22,906	$29,550	$1,813	16.3
Airport (Bldg. 363 Golf Shop)	21	13	50	31,818	$59,050	$3,577	16.5
Airport (Bldg. 223 Industrial Retail)	42	13	25	62,736	$94,800	$5,664	16.7
Airport (Bldg. 251 Storage)	20	13	13	29,480	$47,275	$2,803	16.9
Airport (Bldg. 274 Hangar)	12	0	0	17,691	$23,550	$1,359	17.3
Eastside Library	17	25	175	26,115	$87,500	$4,895	17.9
Los Banos Pool	26	25	50	39,919	$75,400	$4,133	18.2
Airport (Bldg. 261 Hangar 4)	64	25	50	95,977	$149,850	$8,206	18.3
Ortega Park (Pool, Restrooms and Welcome House)	8	13	13	11,042	$23,875	$1,277	18.7
Airport (Bldg. 116 Retail Arrow Camper)	52	25	75	78,861	$133,300	$7,100	18.8
Airport (Bldg. 306 Office)	85	25	75	126,638	$198,700	$10,534	18.9
Airport (Bldg. 314 Offices)	59	25	50	88,807	$140,250	$7,383	19.0
Cater WTP (Admin & Maintenance, Dewatering,	83	50	200	116,299	$236,950	$11,964	19.8

Site Name	PV Capacity [kWdc]	BESS Capacity [kW]	BESS Capacity [kWh]	Energy Savings [kWh/yr]	Implem. Cost [$][9,10]	Cost Savings [$/yr]	Simple Payback [yr]
Operations Annex, and Ozone)							
Airport (Bldg. 315 Offices)	52	13	25	78,271	$115,800	$5,692	20.3
Airport (Bldg. 305 Industrial)	13	0	0	19,506	$25,950	$1,239	20.9
Police Department	111	25	125	153,875	$354,900	$16,777	21.2
Airport (Bldg. 122 Flight School & Surf Air)	79	25	50	118,598	$179,850	$7,797	23.1
McKenzie Park (Lawn Bowling and Records Storage)	13	13	25	20,547	$50,100	$2,012	24.9
Fire Station 5	9	13	13	12,197	$35,275	$1,380	25.6
Airport (Bldg. 124 Atlantic Aviation)	14	0	0	20,413	$27,150	$1,023	26.5
McKenzie Park (Park Adult)	10	0	0	16,247	$20,550	$712	28.9
Fire Station 4	6	0	0	8,538	$19,050	$646	29.5
Community Dev Center	37	25	125	56,408	$115,800	$3,865	30.0
Airport (Bldg. 349 Paint)	39	25	75	53,248	$107,500	$3,485	30.8
Airport (Bldg. 255 Administration, 256 Security)	26	13	50	39,437	$69,850	$2,232	31.3
Fire Station 3	6	0	0	9,793	$19,050	$589	32.3
Fire Station 6	15	25	25	22,849	$45,800	$1,366	33.5
Fire Department Admin (Off)	26	0	0	40,573	$52,350	$1,274	41.1
Airport (Bldg. 258 Offices)	10	13	13	15,412	$28,675	$536	53.5
TOTAL	**3,210**	**888**	**2,775**	**4,667,510**	**$6,998,375**	**$511,173**	**13.7**

TRC did not include an additional 37 sites in the audits, but they were included in the overall ZNE analysis. Since these sites are also operated by the City, installing solar PV systems can help the City move closer to achieving ZNE. The proposed PV capacities on these sites are based on the available mounting area, as shown in Table 31. TRC did not propose BESS for these sites since an in-depth load analysis was not performed for them. In other words, the values presented in Table 31 are high-level estimates.

Table 311: High level Energy Savings and Financials for proposed PV assets.

Dept/Div	Site Address	PV Capacity [kWdc]	Energy Savings [kWh/yr]	Implem. Cost [$][11]	Cost Savings [$/yr][12]	Simple Payback [yr]
General	117 W Montecito Ped, Santa Barbara, CA	90	136,518	$158,359	$16,259	9.7
General	740 State St E, Santa Barbara, CA	10	14,514	$16,836	$1,729	9.7
Housing Authority	2525 De La Vina St, Santa Barbara, CA	14	21,677	$24,376	$2,582	9.4
Housing Authority	616 W Mission St, Santa Barbara, CA	7	11,228	$12,627	$1,337	9.4
Housing Authority	630 W Arrellaga St, Santa Barbara, CA	7	11,228	$12,627	$1,337	9.4
Library	500 N Fairview Ave, Goleta, CA	37	58,272	$64,185	$6,940	9.2
Parking	914 Chapala St, Santa Barbara, CA	194	296,540	$340,919	$35,318	9.7
Parking	1200 Chapala St, Santa Barbara, CA	156	237,506	$273,051	$28,287	9.7
Parking	1100 Chapala St, Santa Barbara, CA	152	231,557	$266,211	$27,578	9.7
Parking	30 E Canon Perdido St, Santa Barbara, CA	225	343,675	$395,108	$40,931	9.7
Parking	1221 Anacapa St, Santa Barbara, CA	164	250,320	$287,782	$29,813	9.7
Parking	1115 Anacapa St, Santa Barbara, CA	104	158,338	$182,034	$18,858	9.7
Parking	1021 Anacapa St, Santa Barbara, CA	31	47,593	$54,715	$5,668	9.7
Parking	916 State St, Santa Barbara, CA	179	273,659	$314,614	$32,592	9.7
Parking	641 Anacapa St, Santa Barbara, CA	161	245,286	$281,995	$29,213	9.7
Parking	23 W Montecito St, Santa Barbara, CA	58	87,864	$101,013	$10,464	9.7
Parking	Stearns Wharf, Santa Barbara, CA	273	416,437	$478,760	$49,597	9.7
Parking	Ortega & Chapala, Santa Barbara, CA	94	142,778	$164,146	$17,005	9.7
Parking	209 State St, Santa Barbara, CA	13	19,678	$22,623	$2,344	9.7
Parks & Rec	1046 Coast Village Rd, Santa Barbara, CA	33	49,317	$57,346	$5,874	9.8
Parks & Rec	1118 E Cabrillo Blvd, Santa Barbara, CA	419	631,168	$733,923	$75,171	9.8

[11] The implementation (material and labor) cost of the PV systems proposed in the non-audited sites has been determined using average calculation values from Table 30.

[12] The cost savings have been determined using the average blended utility rate of the City of Santa Barbara (obtained from the City's corporate view) and the SCE's Net Surplus Compensation Rate (NSCR) of $0.03/kWh used to determine the net-metered energy revenue. The percentage of net-metered renewable energy of Table 30 has been used, too.

Dept/Div	Site Address	PV Capacity [kWdc]	Energy Savings [kWh/yr]	Implem. Cost [$][11]	Cost Savings [$/yr][12]	Simple Payback [yr]
Parks & Rec	1235 Coast Village Rd, Santa Barbara, CA	18	27,599	$32,093	$3,287	9.8
Parks & Rec	219 W Micheltorena St, Santa Barbara, CA	6	9,501	$11,048	$1,132	9.8
Parks & Rec	3333 Mccaw Ave, Santa Barbara, CA	295	445,211	$517,692	$53,024	9.8
Parks & Rec	Las Ondas/Shoreline, Santa Barbara, CA	61	91,847	$106,800	$10,939	9.8
Parks & Rec	Pershing Park Field, Santa Barbara, CA	229	345,672	$401,948	$41,169	9.8
Parks & Rec	San Rafael/Shoreline, Santa Barbara, CA	47	71,035	$82,599	$8,460	9.8
Police	222 E Anapamu St, Santa Barbara, CA	20	30,288	$34,197	$3,607	9.5
Water	1512 Cliff Dr, Santa Barbara, CA	12	19,567	$21,570	$2,330	9.3
Waterfront	100 Harbor Way, Santa Barbara, CA	179	286,250	$314,614	$34,092	9.2
Waterfront	117 Harbor Way Ste C, Santa Barbara, CA	37	59,356	$65,238	$7,069	9.2
Waterfront	121 Harbor Way A, Santa Barbara, CA	12	19,626	$21,570	$2,337	9.2
Waterfront	208 State St, Santa Barbara, CA	12	18,668	$20,518	$2,223	9.2
Waterfront	217 Stearns Wharf, Santa Barbara, CA	11	18,190	$19,992	$2,166	9.2
Waterfront	230 Stearns Wharf, Santa Barbara, CA	7	11,010	$12,101	$1,311	9.2
Waterfront	301 W Cabrillo Blvd, Santa Barbara, CA	8	12,924	$14,205	$1,539	9.2
Waterfront	305 Cabrillo Blvd A, Santa Barbara, CA	7	10,531	$11,574	$1,254	9.2
TOTAL		**3,382**	**5,162,426**	**$5,931,008**	**$614,839**	**9.6**

6.2 Solar Thermal Hot Water

Solar thermal hot water is the most cost-effective and environmentally friendly solar energy technology. Solar thermal can supply hot water (and/or heating) needs while increasing the amount of clean renewable energy used. A solar system consists of the following components that are to be designed and selected to work together:

- Solar collectors
- Line sets
- Pump station (only on active systems)
- Storage tank
- Controller
- Backup heater

Solar collectors contain an absorber that heats up when exposed to sunlight. The absorber contains pipes that are filled with a fluid used to transport the solar heat to the tank where it can be stored for later use. When the fluid in the collectors is warmer than the bottom of the storage tank, the controller will turn on the pump to transport hot fluid from the collectors to the tank and replace it with cold fluid returning from the tank.

There are two types of solar water heating systems: active, which have forced circulating pumps and controls, and passive, which do not. Additionally, the active solar thermal systems have indirect or direct circulating systems. Nearly all solar water heating systems require a back-up system for cloudy days and times of increased demand. For the scope of this project, TRC considered these systems as an add-on to the existing water heaters and boilers. Please note that if a solar water system is to be installed to work in coordination with an existing gas water heater, a new storage tank will be required. The existing gas-fired water heaters and boilers will be used when the required load cannot be solely met by the solar collectors, as represented in Figure 23.

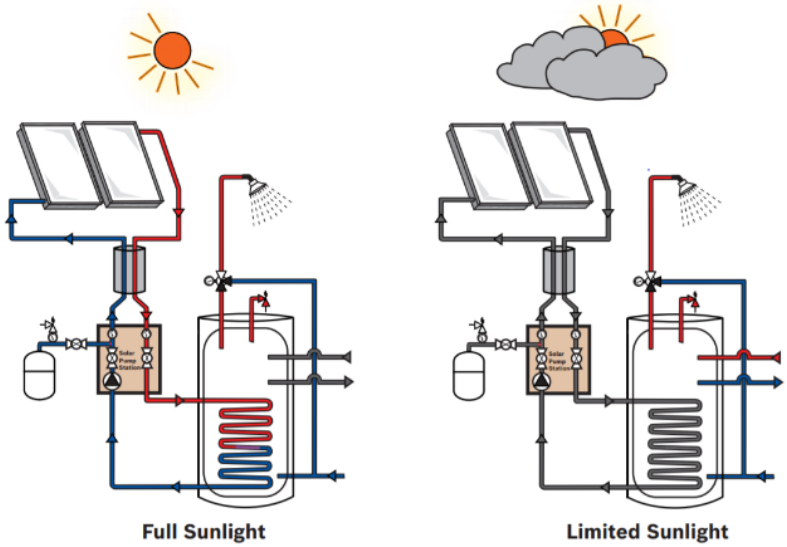


Figure 24: Function Diagram of Solar Domestic Hot Water Heating with Temperature Differential Control & Flat Plate Collectors. (Left) - with System Running; (Right) - Conventional Reheating if there is Insufficient Insolation. Source: Bosch.

6.2.1 Pool Heaters

TRC developed custom calculations to estimate the savings that could be obtained if this technology is to be installed to heat the water of Los Banos Pool.

Due to the complexity and number of inputs required to develop calculations for pools and spas, manufacturer online tools were utilized[13] [14] to estimate these savings. Refer to Table 32 for more details.

Site	Fuel Type	Baseline Consumption [therms]	Number of collectors	Proposed Consumption [therms]	Savings [therms]	Cost Savings [$/yr]	Implem. Cost [$]	Simple Payback [yr]
Los Banos Pool	Natural Gas	16,974	225	3,395	13,578.9	$12,221	$112,500	9.2

Table 32: Energy, Cost[15], and Savings Associated with Implementing Solar Water Heating at Los Banos Pool

6.2.2 Domestic Water Heaters

TRC also developed custom calculations to estimate the savings that could be obtained if this technology is to be installed in the buildings identified in Table 33.

To determine which buildings were good candidates both the aesthetic and the roof characteristics were analyzed, on a building basis. TRC only included the buildings that had a roof (or part of a roof) with enough area to install solar collectors and with a proper orientation (south, southeast, southwest, east, or west) in the analysis.

The values presented in Table 33 summarize the energy, cost, and GHG emissions reduction savings associated with implementing solar water heating some of the City's domestic hot water systems.

[13] Online tool used to determine number of collectors available at http://www.solardirect.com/pool_heaters/solar_pool_heating/calculator.htm

[14] Online tool used to determine Gas Savings available at http://noanderson.com/services/swimming-pool-energy-temperature-calculator/#

[15] A cost of $500 per installed collector replacing the pool heaters was used to determine the implementation cost. This cost was obtained from online manufacturers and estimate not only the cost of installing the collector, but also the average cost of installing the whole solar water system.

		Baseline			Proposed						
Site - Building	Fuel Type	Natural Gas [therms]	Electricity [kWh]	Number of collectors	Natural Gas [therms]	Electricity [kWh]	Savings [therms]	Savings [kWh]	Cost Savings [$/yr]	Implem. Cost [$]	Simple Payback [yr]
Airport - Bldg 225: Offices	Electric	0	5,046	1	0	1,091	0	3,955	$950	$2,000	2.1
Airport - Bldg 307: Hangar	Electric	0	4,730	1	0	775	0	3,955	$1,015	$2,000	2.0
Airport - Bldg 311: Office	Electric	0	5,046	1	0	1,091	0	3,955	$751	$2,000	2.7
Airport - Bldg 344: Offices & R&D	Electric	0	9,461	2	0	1,550	0	7,910	$2,029	$4,000	2.0
Airport - Bldg 345: Offices	Electric	0	4,730	1	0	775	0	3,955	$1,015	$2,000	2.0
Airport - Bldg 352: Office	Electric	0	5,046	1	0	1,091	0	3,955	$1,057	$2,000	1.9
Carrillo Gym - Gym	Natural Gas	999	0	6	189	0	810	0	$729	$12,000	16.5
Cater WTP - Admin & Maintenance	Natural Gas	396	0	2	n/a	0	270	0	$243	$4,000	16.5
Central Library - Library	Natural Gas	325	0	2	n/a	0	270	0	$243	$4,000	16.5
City Hall	Electric	0	4,730	1	0	775	0	3,955	$615	$2,000	3.3
El Estero WWTP - Administration	Natural Gas	244	0	1	n/a	0	135	0	$121	$2,000	16.5
Fire Station 1	Natural Gas	1,464	0	9	249	0	1,215	0	$1,093	$18,000	16.5
Fire Station 2	Natural Gas	169	0	1	34	0	135	0	$121	$2,000	16.5
Fire Station 5	Natural Gas	256	0	1	121	0	135	0	$121	$2,000	16.5
Franklin Center	Natural Gas	864	0	5	189	0	675	0	$607	$10,000	16.5
Louise Lowry Davis Center - Rec Center	Natural Gas	398	0	2	128	0	270	0	$243	$4,000	16.5
Ortega Park - Pool	Natural Gas	526	0	3	121	0	405	0	$364	$6,000	16.5
Ortega Park - Welcome House	Natural Gas	269	0	1	n/a	0	135	0	$121	$2,000	16.5
Police Department	Natural Gas	312	0	2	42	0	270	0	$243	$4,000	16.5
Public Works - Motor Pool & Eng Annex	Natural Gas	499	0	3	94	0	405	0	$364	$6,000	16.5
Recreation Department - Administration Office	Natural Gas	401	0	2	n/a	0	270	0	$243	$4,000	16.5
TOTAL		**7,123**	**38,789**	**48**	**1,168**	**7,148**	**5,400**	**31,642**	**$12,291**	**$96,000**	**7.8**

Table 33: Energy, Cost[16], and Savings Associated with Implementing Solar Water Heating

[16] A cost of $2,000 per installed collector replacing water heaters and a cost of $500 (for big systems) and $1,000 (for small systems) per installed collector replacing boilers were used to determine the implementation cost. These costs were obtained from online manufacturers and estimate not only the cost of installing the collector, but also the average cost of installing the whole solar water system.

6.3 Cogeneration

El Estero WWTP cogeneration facility, which was funded through a power purchase agreement with California Power Partners, generates electricity and hot water. The system currently provides most of the plant's power needs using renewable methane generated by the plant.

The facility converts grease to gas, utilizing the waste stream of selected fats, oils, and grease collected by Marborg Industries from area restaurants. Marborg, a locally owned and operated business, collects, screens, and delivers fats, oils, and grease in liquid form to the plant, thus reducing hauling and disposal costs. The collected materials are introduced to the wastewater treatment plant's digester units where biogas is produced. The resulting methane gas is a renewable energy source. Savings from electricity production and reduced hauling costs lower plant operational costs. Moreover, the cogeneration facility offers greater energy independence by moving a portion of the load off the grid.

TRC found the cogeneration plant to be operating properly. Based on the WWTP site visit findings, TRC proposes no additions to the existing infrastructure.

6.4 Other DER Considered but not Proposed: Wind Power

According to the most recent numbers compiled by the CEC, wind accounts for 36 percent of generation from renewable facilities (the most in the state, edging out solar)[17]; however, the HOMER Pro analysis results performed show that wind resources in the City are not sufficient enough for wind turbines. Moreover, most of the sites do not have the space required to install such a DER. Wind data from the National Renewable Energy Laboratory (NREL) built-in in HOMER Pro was used to analyze this scenario.

[17] CEC, "Renewable Energy – Overview," 2017. Available at: http://www.energy.ca.gov/renewables/tracking_progress/documents/renewable.pdf

7 ZNE Roadmap

7.1 ZNE Goal

The goal of the study was to identify the feasibility of achieving portfolio level ZNE for the city. Where, portfolio is a combination (aggregate) of all the city energy consuming end-users[18]. For purposes of this study, ZNE can be defined as the actual annual delivered (electricity and gas) energy is less than or equal to the on-site renewable exported energy. This study uses a site energy ZNE metric, no source energy considerations are made. The following can be used as a visual aide for understanding ZNE boundaries:

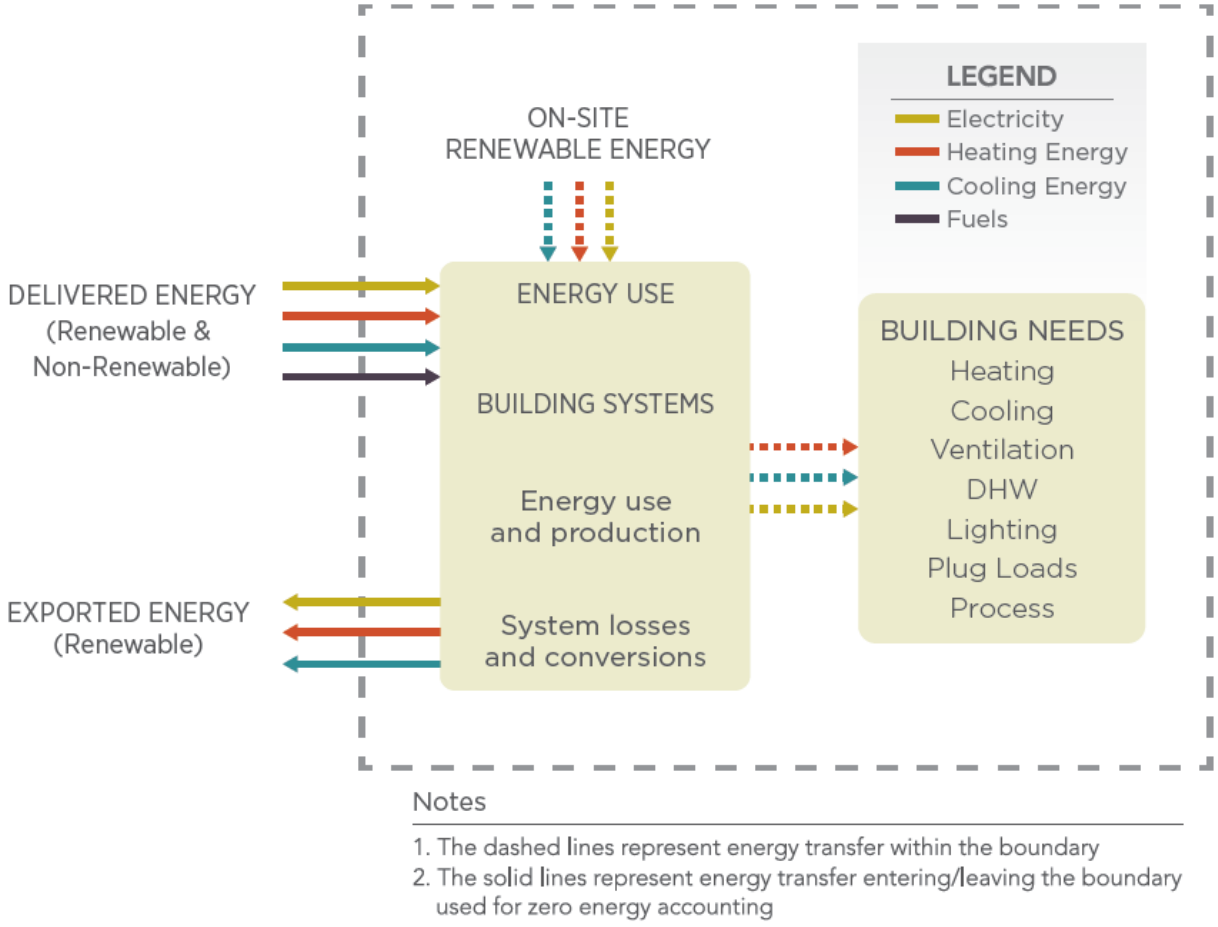


Figure 25: ZNE Boundaries[19]

7.2 Energy Savings and Portfolio ZNE Potential

TRC developed in-house customized tools, processes, and HOMER Pro models, and applied them to evaluate the impacts and capabilities for the ZNE effort. This section summarizes the overall energy savings that could be achieved if the EEMs and DER proposed in Sections 5 and 6 are implemented.

[18] Not including the desalination plant that became operational following this study and report.

[19] Picture obtained from U.S. Department of Energy Report, "A Common Definition for Zero Energy Buildings", September 2015

7.2.1 Annual Savings

	Energy saved through EEM		Renewable Energy Generated		Utility Energy Consumed		Total Consumed Energy [20]		Cost Savings[21]
	[MWh/yr]	[thm/yr]	[MWh/yr]	[thm/yr]	[MWh/yr]	[thm/yr]	[MWh/yr]	[thm/yr]	[$/yr]
Baseline	0	0	811	0	32,574	161,093	33,385	161,093	$0
Proposed	12,532	18,398	9,862	5,400	**10,991**	**137,295**	20,853	142,695	$3.56M

Table 34: EEM, Renewable, Utility, and Total Energy Consumed in Baseline and Proposed Cases

Table 34 summarizes the estimates for the City's annual savings and reductions in utility energy consumption as well as the increase in renewable energy generation. As presented in the Table 34, if the EEMs and the DERs proposed in Sections 5 and 6, respectively, and listed below are implemented, the City will reduce utility energy purchased by approximately 66 percent.

As presented in this study, the City would only achieve 67 percent and 15 percent of its electric and gas portfolio ZNE goals, respectively. These values were determined using the following formula.

$$\%\ of\ ZNE_{achieved} = \frac{\left(EEM_{saved} + Ren.En._{generated}\right)_{Proposed}}{(Total\ Consumed\ Energy)_{Baseline}}$$

The City would need to generate approximately 11GWh more renewable energy to entirely meet its electric portfolio ZNE goal. In other words, additional renewables need to be generated to entirely offset the proposed utility energy consumption, presented in Table 34. **This amount of energy could be generated with approximately 7 MW_{dc} of solar PV, which would approximately occupy 13 acres of land.** The costs associated with this required 7 MWdc of solar PV have not been estimated, additional details regarding location(s), proximity to utility infrastructure, and major other considerations will have to be made prior to cost estimating.

Unless the City decides to electrify most of their gas-fired equipment, it will be very challenging to meet their overall ZNE goal. It is not cost efficient to generate renewable natural gas in order to provide the amount of natural gas energy currently used by the City or to generate additional renewable electricity to offset the energy used by the City's gas-fired equipment. With that said, recent policy changes will allow for electrification rebates in the state of California. TRC recommends the City implement electrification as rebates and funding becomes available.

As presented in Table 35, the City will also reduce their GHG, SO_2, and NO_x emissions by more than 60 percent by implementing the EEMs and the DERs proposed in Sections 5 and 6.

[20] This accounts for all the energy consumed by the City of Santa Barbara. Refer to Figure 21 and Figure 22 for more details on the percentages of energy consumption, per department.

[21] The cost savings values presented include costs saved thanks to the EEM implementation, the renewable energy generated, and the reduction in utility energy purchased.

Scenario[22]		Greenhouse Gases		Air Quality	
		GHG Emissions ($MTCO_2e$)	Total GHG emissions ($MTCO_2e$)	Air emissions (MT of SO_2 & NO_x)	Total air emissions (MT of SO_2 & NO_x)
Baseline	Renewable Energy	0		0	
	Electricity Purchased	9,161	**10,019**	133	**138**
	Natural Gas Purchased	858		5	
Proposed	Renewable Energy	0		0	
	Electricity Purchased	3,091	**3,822**	45	**49**
	Natural Gas Purchased	731		4	
Savings (Baseline - Proposed)		**6,196**		**89**	
Percentage Reduction (Savings/Baseline)		**62%**		**64%**	

Table 35: Environmental Savings Summary

7.2.2 Lifetime Savings

It is estimated that the energy savings over the entire project lifetime[23] presented in Table 36 would contribute significantly toward the City's climate and energy goals, introduced in Section 3. The City would be an example to California for its commitment to helping achieve these environmental and energy goals.

Energy saved through EEM		Renewable Energy Generated		GHG savings	SO_2 & NO_x savings	Cost Savings
(GWh)	(MMBtu)	(GWh)	(MMBtu)	($MTCO_2e$)	($MTCO_2e$)	($)
188	27,597	247	13,499	154,911	2,220	$86.63M

Table 36: Santa Barbara ZNE Project Lifetime Savings

[22] All the emission reference values used have been obtained from the United States Environmental Protection Agency (US EPA)

[23] Project lifetime for building energy efficiency measures is assumed to be 15 years as recommended by the CEC guidelines for Codes and Standards Enhancement (CASE) proposals. It has been assumed a lifetime of 25 years for the DER proposed.

7.3 Benefits to Ratepayers

The ZNE effort would support California's legislative and regulatory goals to reduce GHG emissions, support energy reliability and resiliency, and facilitate higher levels of distributed generation. It also would provide multiple benefits to the City's ratepayers including energy, environmental, and cost savings; economic impacts; emergency response and recovery services; and direct and immediate support for the community.

7.4 Potential ZNE Buildings

As detailed above, portfolio ZNE is not achievable in the absence of a very large solar PV installation(s). However, several buildings within the City portfolio are good ZNE *building* candidates. As funding allows, TRC recommends that the following buildings be prioritized for EEM and DER deployment:

- Fire Stations 6, 3, 4, 5, 2
- Fire Department Admin
- Eastside Library
- Central Library
- McKenzie Park
- Building Maint, Pub Works, Park and Rec
- Westside Comm Center
- Franklin Center
- Municipal Tennis center
- Airport Buildings (a majority are good candidates)

Targeting these buildings will allow for "small wins" that can be used for ZNE progress recognition purposes. Declaring a building as ZNE can be used as a tactic to re-engage city officials and the general public.

ZNE verification can be performed in a number of ways, however, the TRC recommend approach can be summarized with the following graphic:

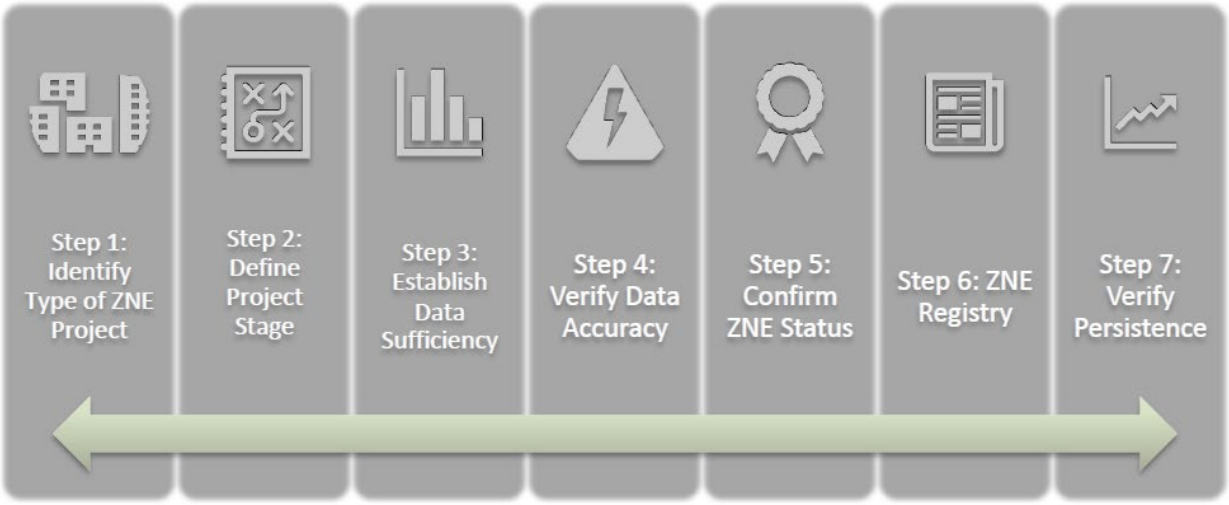


Figure 26: TRC's Recommended Approach

TRC can provide additional details on the ZNE verification progress as the City progresses towards its goals.

8 Economic Analysis

8.1 Project Cost

The full cost to implement the proposed DER is estimated as presented in Table 37.

Distributed Energy Resource (DER)	Annual Cost Savings	Implementation Cost	Simple Payback Period
	($)	($)	($)
Energy Efficiency	$2.43M	$20.83M	8.6
Solar PV & BESS	$1.13M	$12.93M	11.5
Solar Water Heating	$12,291	$96,000	7.8
TOTAL	**$3.56M**	**$33.86M**	**9.5**

Table 37: ZNE Project Implementation Costs and Savings

8.2 Benefit-Cost Analysis

TRC performed a financial analysis to calculate the revenue streams from the ZNE efforts as shown in Table 38. The analysis assumed City ownership of the listed DER, with net metering capabilities. The following have been considered to analyze the total benefit-cost of the project: energy efficiency savings, solar PV generation and BESS savings, and solar water savings. Please note that the BESS savings could be increased if these two DER had the capability to island the loads they serve from the main utility grid. The extra benefits could be obtained because of the reliability and resiliency they would provide to the loads they would serve.

Distributed Energy Resource (DER)	Annual Average Cost Savings	Project Lifetime (25 years) Total Cost Savings
	($)	($)
Energy Efficiency	$1.81M	$45.13M
Solar PV & BESS	$1.64M	$41.05M
Solar Water Heating	$17,925	$448,132
Total Net Income	**$3.47M**	**$86.63M**

Table 38: ZNE Project Lifetime Benefits

Overall, with the EEM and DER implemented, the benefits exceed the cost of the project over the project lifetime (25 years), as shown in Table 39.

IRR	Benefit Cost Ratio	Payback [years]	Net Present Value
12.1%	1.97	8.60	$32.76M

Table 39: City of Santa Barbara ZNE Project Economics

Further, the ZNE roadmap projects can be visualized through a cumulative cashflow plot as shown in Figure 27. 2018 sees the largest upfront cost, while the subsequent years tapper off in until the tipping point at year 2028 where project benefits become larger than project costs.

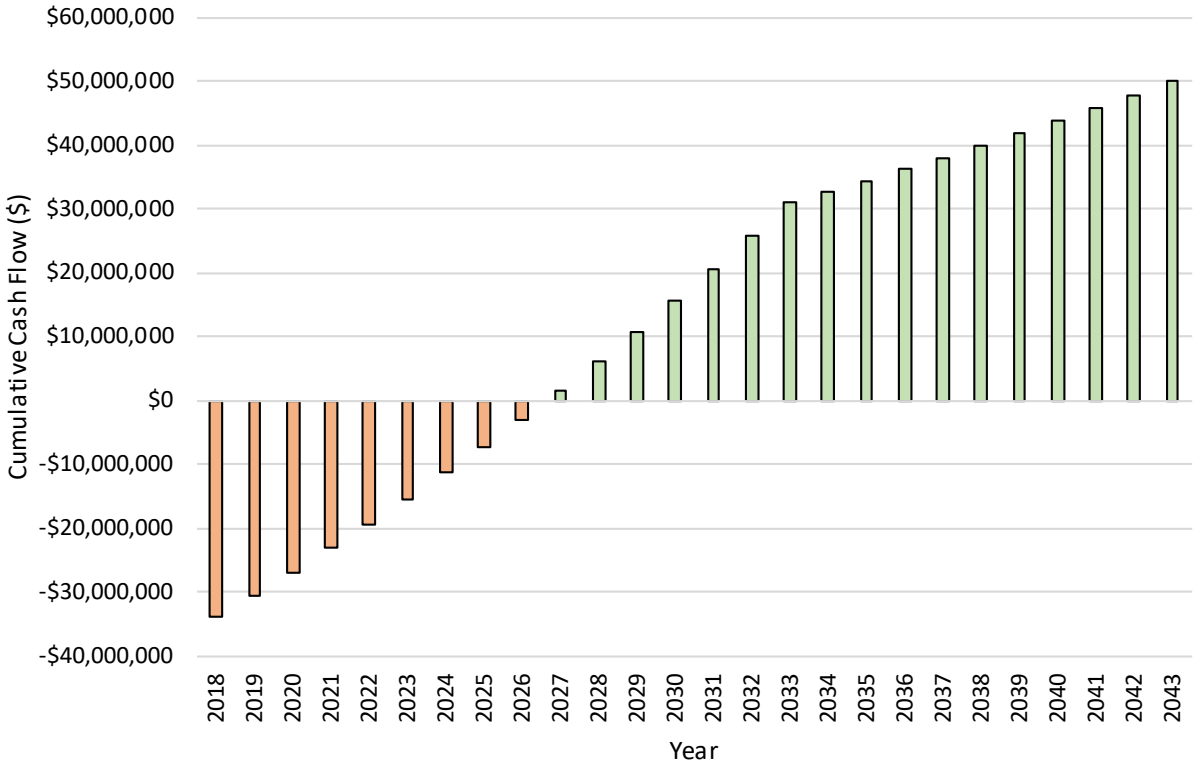


Figure 27: ZNE Cumulative Cashflow

Appendix A: Site General Descriptions

Animal Control

The Animal Control building, located at 415 E. Sola St. behind Fire Station 3, is a 2,329 sq. ft. site that functions as an office space for the local area's animal control unit.

Figure 28: Animal Control

Day of the week	Opens at	Closes at	Total Hours
Monday	9:00 AM	4:45 PM	7.75
Tuesday	9:00 AM	4:45 PM	7.75
Wednesday	9:00 AM	4:45 PM	7.75
Thursday	9:00 AM	4:45 PM	7.75
Friday	9:00 AM	4:45 PM	7.75
Saturday	10:00 AM	4:00 PM	6.00
Sunday	Closed	Closed	0.00
Annual	**Operating**	**Hours**	**2,333**

Table 40: Animal Control Operating Hours

Building Maintenance

The Building Maintenance site, located at 616 Laguna St, occupies an area of approximately 3,105 sq. ft. It includes an exterior parking lot and three one-story portable buildings: an office building, a garage building, and a shops building. Part of a 302 KW solar photovoltaic (PV) system is installed in the roof of this building. The remaining part of the solar PV system is installed in the Parks and Recreation building (located at 620 Laguna St) and the Public Works department building located across the street at 625 Laguna St.

Figure 29: Building Maintenance[24]

Day of the week	Opens at	Closes at	Total Hours
Monday	6:00 AM	6:00 PM	12.00
Tuesday	6:00 AM	6:00 PM	12.00
Wednesday	6:00 AM	6:00 PM	12.00
Thursday	6:00 AM	6:00 PM	12.00
Friday	6:00 AM	6:00 PM	12.00
Saturday	Closed	Closed	0.00
Sunday	Closed	Closed	0.00
Annual	**Operating**	**Hours**	**3,129**

Table 41: Building Maintenance Operating Hours

[24] Picture obtained from https://www.google.com/maps

Carrillo Gym

The Carrillo Gym, located at 102 East Carrillo St next to the Carrillo Recreational Center, is a two-story, 6,000 sq. ft. building. The gym, which was built in the 1920s, contains a basketball court, a gym, a reception area, and locker rooms.

Figure 30: Carrillo Gym

Day of the week	Opens at	Closes at	Total Hours
Monday	9:00 AM	5:00 PM	8.00
Tuesday	9:00 AM	5:00 PM	8.00
Wednesday	9:00 AM	5:00 PM	8.00
Thursday	9:00 AM	5:00 PM	8.00
Friday	9:00 AM	5:00 PM	8.00
Saturday	Closed	Closed	0.00
Sunday	Closed	Closed	0.00
Annual	**Operating**	**Hours**	**2,086**

Table 42: Carrillo Gym Operating Hours

Carrillo Recreation Center

The Carrillo Recreation Center, located at 100 East Carrillo Street, is a Santa Barbara historic landmark. The building has a main level with partial second floor and basement levels. It totals 24,400 square foot. The main floor contains a 4,000 square foot ballroom, a popular venue for special events, as well a dance studio, meeting rooms, and lobby. The second level contains two additional dance studios as well as private and open office space for staff, while the basement's primary use is storage.

Figure 31: Carrillo Recreational Center

Day of the week	Opens at	Closes at	Total Hours
Monday	9:00 AM	5:00 PM	8.00
Tuesday	9:00 AM	5:00 PM	8.00
Wednesday	9:00 AM	5:00 PM	8.00
Thursday	9:00 AM	5:00 PM	8.00
Friday	9:00 AM	5:00 PM	8.00
Saturday	Closed	Closed	0.00
Sunday	Closed	Closed	0.00
Annual	**Operating**	**Hours**	**2,086**

Table 43: Carrillo Recreational Center Operating Hours

Casa Las Palmas

Casa Las Palmas, located at 323 East Cabrillo Boulevard, is a 1,680 sq. ft. event venue comprised of a large open space, a kitchen, an office, and women's and men's restrooms. There is an adjacent building with another set of women's and men's restrooms.

Figure 32: Casa Las Palmas

Day of the week	Opens at	Closes at	Total Hours
Monday	11:00 AM	4:00 PM	5.00
Tuesday	11:00 AM	4:00 PM	5.00
Wednesday	11:00 AM	4:00 PM	5.00
Thursday	11:00 AM	4:00 PM	5.00
Friday	11:00 AM	4:00 PM	5.00
Saturday	11:00 AM	4:00 PM	5.00
Sunday	11:00 AM	4:00 PM	5.00
Annual	**Operating**	**Hours**	**1,825**

Table 44: Casa Las Palmas Operating Hours

Central Library

The Central Library, located at 40 East Anapamu Street, is a three-level, 53,500 sq. ft. facility. This designated historical landmark includes open reading spaces, meeting rooms, art exhibit and display areas, open lobby spaces, and offices for library staff.

Figure 33: Central Library[25]

Day of the week	Opens at	Closes at	Total Hours
Monday	10:00 AM	7:00 PM	9.00
Tuesday	10:00 AM	7:00 PM	9.00
Wednesday	10:00 AM	7:00 PM	9.00
Thursday	10:00 AM	7:00 PM	9.00
Friday	10:00 AM	5:30 PM	7.50
Saturday	10:00 AM	5:30 PM	7.50
Sunday	1:00 PM	5:00 PM	4.00
Annual	**Operating**	**Hours**	**2,868**

Table 45: Central Library Operating Hours

[25] Picture obtained from https://www.noozhawk.com

Chase Palm Park Carousel Building

The Carousel Building, also located at 236 East Cabrillo Blvd, is a 3,000 square foot event venue that previously housed a public carousel. It is serviced by adjacent restroom facilities, and a parks maintenance shop. The construction of the building, nearly all glass exterior walls, make it ideal for ceremonies.

Figure 34: Chase Palm Park Carousel Building

Day of the week	Opens at	Closes at	Total Hours
Monday	11:00 AM	4:00 PM	5.00
Tuesday	11:00 AM	4:00 PM	5.00
Wednesday	11:00 AM	4:00 PM	5.00
Thursday	11:00 AM	4:00 PM	5.00
Friday	11:00 AM	4:00 PM	5.00
Saturday	11:00 AM	4:00 PM	5.00
Sunday	11:00 AM	4:00 PM	5.00
Annual	**Operating**	**Hours**	**1,825**

Table 46: Chase Palm Park Carousel Building Operating Hours

Chase Palm Park Recreation Center

The Chase Palm Park Recreation Center, located at 236 East Cabrillo Blvd, is a 2,428 sq. ft. event venue. Behind the building is a park area equipped with a lake and a walkway, which connects the reaction center and the carousel building.

Figure 35: Chase Palm Park Recreation Center

Day of the week	Opens at	Closes at	Total Hours
Monday	11:00 AM	4:00 PM	5.00
Tuesday	11:00 AM	4:00 PM	5.00
Wednesday	11:00 AM	4:00 PM	5.00
Thursday	11:00 AM	4:00 PM	5.00
Friday	11:00 AM	4:00 PM	5.00
Saturday	11:00 AM	4:00 PM	5.00
Sunday	11:00 AM	4:00 PM	5.00
Annual	**Operating**	**Hours**	**1,825**

Table 47: Chase Palm Park Recreation Center Operating Hours

City Hall

Santa Barbara City Hall, located at 735 Anacapa St., is a three-floor, 28,200 sq. ft. facility. The building first opened its doors in 1925 and is currently home to several civic departments including the City Clerk's Office, the Mayor's Office, and City Council. City Hall is primarily composed of private and open office space.

Figure 36: City Hall[26]

Day of the week	Opens at	Closes at	Total Hours
Monday	7:30 AM	5:30 PM	10.00
Tuesday	7:30 AM	5:30 PM	10.00
Wednesday	7:30 AM	5:30 PM	10.00
Thursday	7:30 AM	5:30 PM	10.00
Friday	7:30 AM	5:30 PM	10.00
Saturday	Closed	Closed	0.00
Sunday	Closed	Closed	0.00
Annual	**Operating**	**Hours**	**2,607**

Table 48: City Hall Operating Hours

City Surveyor's Office

The City Surveyor's office building, located at 220 E. Ortega, is a small 500 square foot office building containing three offices. The building houses staff responsible for generating and maintaining subdivision maps, records of surveys, corner records, lot line adjustments, and other documents.

Figure 37: City Surveyor's Office

Day of the week	Opens at	Closes at	Total Hours
Monday	8:00 AM	6:30 PM	10.50
Tuesday	8:00 AM	6:30 PM	10.50
Wednesday	8:00 AM	6:30 PM	10.50
Thursday	8:00 AM	6:30 PM	10.50
Friday	8:00 AM	6:30 PM	10.50
Saturday	Closed	Closed	0.00
Sunday	Closed	Closed	0.00
Annual	**Operating**	**Hours**	**2,738**

Table 49: City Surveyor's Office Operating Hours

[26] Picture obtained from https://www.flickr.com

Community Development Center

The Community Development Center, building located at 630 Garden Street, is a two-story, 20,400 square foot building that is home to Building and Safety, Housing, Human Services, and other related administrative departments for the City. The building is primarily comprised of private and open office space, meeting rooms, and a large customer service lobby.

Figure 38: Community Development Center[27]

Day of the week	Opens at	Closes at	Total Hours
Monday	8:30 AM	4:30 PM	8.00
Tuesday	8:30 AM	4:30 PM	8.00
Wednesday	8:30 AM	4:30 PM	8.00
Thursday	8:30 AM	4:30 PM	8.00
Friday	10:30 AM	2:30 PM	4.00
Saturday	Closed	Closed	0.00
Sunday	Closed	Closed	0.00
Annual	**Operating**	**Hours**	**1,877**

Table 50: Community Dev. Center Operating Hours

Eastside Library

The Eastside Library, located at 1120 East Montecito Street, occupies a total of about 7,000 sq. ft. The Library has multiple open areas containing bookshelves, reading desks, and computer workstations. It has a large staff meeting room and a multipurpose room available for use to local organizations. The building's HVAC systems are connected to the City's Carrier i-Vu BMS.

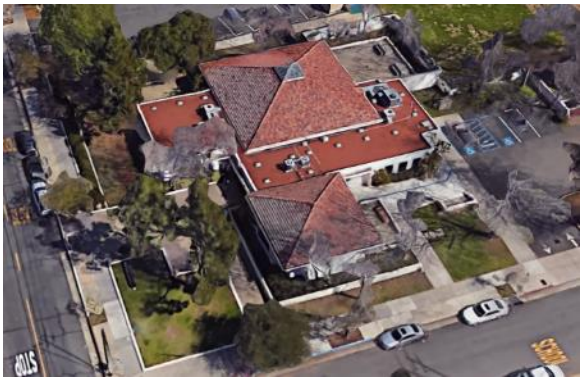


Figure 39: Eastside Library[28]

Day of the week	Opens at	Closes at	Total Hours
Monday	10:00 AM	7:00 PM	9.00
Tuesday	10:00 AM	7:00 PM	9.00
Wednesday	10:00 AM	5:30 PM	7.50
Thursday	10:00 AM	5:30 PM	7.50
Friday	10:00 AM	5:30 PM	7.50
Saturday	10:00 AM	4:00 PM	6.00
Sunday	10:00 AM	4:00 PM	6.00
Annual	**Operating**	**Hours**	**2,738**

Table 51: Eastside Library Operating Hours

[27] Picture obtained from https://www.google.com/maps
[28] Picture obtained from https://www.google.com/maps

El Estero Wastewater Treatment Plant

El Estero wastewater treatment plant (WWTP) is an eight million gallons-per-day secondary treatment facility equipped with a 4.3 million gallon per day tertiary treatment for recycled water. On average, each person in the City of Santa Barbara contributes 120 gallons of water per day (about five bathtubs full) to the wastewater system. Each house or business has a pipe that is connected to a network of underground pipes and pump stations, which carries the wastewater to the facility where it is cleaned using physical and biological processes.

El Estero WWTP is located at 520 E Yanonali St., and its total area is approximately 500,000 sq. ft. The following seven buildings, which total square footage is of 126,800 sq. ft., have been included in the present project:

- Administration
- Maintenance
- Crew's Quarter
- Digester Control
- Influent Pump Station
- Sludge Handling
- Primary and Secondary Process Tanks
- Thick Sludge Digester Control

The exterior areas of the WWTP have also been included in the analysis. The Administration building is an 8,600 sq. ft. edifice that consists of offices, laboratories, and restroom areas. The Crew's Quarter is a 1,400 sq. ft. building that operates as a lounge and quarter for operations staff. The maintenance building has a square footage of 3,600 and houses maintenance staff offices and equipment storage. The Influent Pump Station, which has an area of 9,000 sq. ft., pumps wastewater entering from the City's collection system to the beginning of the treatment process. The Primary and Secondary process area occupies 93,000 sq. ft. and performs the bulk of pumping, decontamination, and filtration of wastewater. It also houses the emergency generation for the plant. The El Estero Digester Control building is a 2,000 sq. ft. that houses two heat exchangers, which operate whenever the cogeneration plant is not working (as an emergency) in order to provide the required energy to heat the sludge. The 8,400 sq. ft. sludge handling building uses filtered waste to create dry fertilizer. And finally, the small 800 sq. ft. Thick Sludge Digester Control building manages sludge too thick for normal process.

Figure 40: El Estero Wastewater Treatment Plant[29]

Day of the week	Opens at	Closes at	Total Hours
Monday	7:30 AM	7:30 PM	12.00
Tuesday	7:30 AM	7:30 PM	12.00
Wednesday	7:30 AM	7:30 PM	12.00
Thursday	7:30 AM	7:30 PM	12.00
Friday	7:30 AM	7:30 PM	12.00
Saturday	7:30 AM	7:30 PM	12.00
Sunday	7:30 AM	7:30 PM	12.00
Annual Operating Hours			**4,380**

Table 52: El Estero WWTP Admin & Crew's Quarter Buildings Operating Hours

[29] Picture obtained from https://www.google.com/maps

Day of the week	Opens at	Closes at	Total Hours
Monday	7:30 AM	7:30 PM	12.00
Tuesday	7:30 AM	7:30 PM	12.00
Wednesday	7:30 AM	7:30 PM	12.00
Thursday	7:30 AM	7:30 PM	12.00
Friday	7:30 AM	7:30 PM	12.00
Saturday	7:30 AM	7:30 PM	12.00
Sunday	7:30 AM	7:30 PM	12.00
Annual Operating Hours			**4,380**

Table 53: El Estero WWTP Digester Control, Influent Pump Station, Maintenance, Primary & Secondary Process, Sludge Digester Control, and Sludge Handling Buildings Operating Hours

Estero Garage/Park

The Estero Garage/Park site is located across from, and serves, the Estero Wastewater Treatment Plant at 520 E. Yanonali. Most of the 84,000 square foot site is parking, but there are also several storage structures and a garage. The garage has no windows and no air conditioning, and its roof should be considered for solar panel installation.

Figure 41: Estero Garage

Day of the week	Opens at	Closes at	Total Hours
Monday	11:00 AM	4:00 PM	5.00
Tuesday	11:00 AM	4:00 PM	5.00
Wednesday	11:00 AM	4:00 PM	5.00
Thursday	11:00 AM	4:00 PM	5.00
Friday	11:00 AM	4:00 PM	5.00
Saturday	11:00 AM	4:00 PM	5.00
Sunday	11:00 AM	4:00 PM	5.00
Annual	**Operating**	**Hours**	**1,825**

Table 54: Estero Garage/Park Operating Hours

Fire Department Administrative Office Building

The Fire Department Administrative Office Building (AOB), located at 925 Chapala Street, is 9,000 sq. ft. and is the administrative headquarters for the City of Santa Barbara Fire Department. The facility is primarily comprised of private offices and a large garage situated at the rear of the building.

Figure 42: Fire Department AOB[30]

Day of the week	Opens at	Closes at	Total Hours
Monday	8:00 AM	5:00 PM	9.00
Tuesday	8:00 AM	5:00 PM	9.00
Wednesday	8:00 AM	5:00 PM	9.00
Thursday	8:00 AM	5:00 PM	9.00
Friday	10:30 AM	2:30 PM	4.00
Saturday	Closed	Closed	0.00
Sunday	Closed	Closed	0.00
Annual	**Operating**	**Hours**	**2,086**

Table 55: Fire Department AOB Operating Hours

Fire Station 1

Fire Station 1, located at 121 West Carrillo Street, is a two-story, 19,700 sq. ft. facility, and it is considered the City of Santa Barbara Fire Department Headquarters. The first-floor layout consists of office space and meeting rooms, with a large garage that houses numerous fire department trucks and vehicles. The second floor consists of dorm rooms, kitchen, gym room, and a large living room that functions as living space for on-shift fire department personnel.

Figure 43: Fire Station 1[31]

Day of the week	Opens at	Closes at	Total Hours
Monday	12:00 AM	12:00 AM	24.00
Tuesday	12:00 AM	12:00 AM	24.00
Wednesday	12:00 AM	12:00 AM	24.00
Thursday	12:00 AM	12:00 AM	24.00
Friday	12:00 AM	12:00 AM	24.00
Saturday	12:00 AM	12:00 AM	24.00
Sunday	12:00 AM	12:00 AM	24.00
Annual	**Operating**	**Hours**	**8,760**

Table 56: Fire Station 1 Operating Hours

[30] Picture obtained from https://www.google.com/maps
[31] Picture obtained from https://www.google.com/maps

Fire Station 2

Fire Station 2, located at 819 Cacique Street, is a 5,700 sq. ft. building that functions as a living space, office space, and garage for local fire department personnel.

Figure 44: Fire Station 2[32]

Day of the week	Opens at	Closes at	Total Hours
Monday	12:00 AM	12:00 AM	24.00
Tuesday	12:00 AM	12:00 AM	24.00
Wednesday	12:00 AM	12:00 AM	24.00
Thursday	12:00 AM	12:00 AM	24.00
Friday	12:00 AM	12:00 AM	24.00
Saturday	12:00 AM	12:00 AM	24.00
Sunday	12:00 AM	12:00 AM	24.00
Annual	**Operating**	**Hours**	**8,760**

Table 57: Fire Station 2 Operating Hours

Fire Station 3

Fire Station 3, located at 415 E. Sola St., is a 4,261 sq. ft. property built in 1929 that functions as a living space, office space, and garage for local fire department personnel.

Figure 45: Fire Station 3

Day of the week	Opens at	Closes at	Total Hours
Monday	12:00 AM	12:00 AM	24.00
Tuesday	12:00 AM	12:00 AM	24.00
Wednesday	12:00 AM	12:00 AM	24.00
Thursday	12:00 AM	12:00 AM	24.00
Friday	12:00 AM	12:00 AM	24.00
Saturday	12:00 AM	12:00 AM	24.00
Sunday	12:00 AM	12:00 AM	24.00
Annual	**Operating**	**Hours**	**8,760**

Table 58: Fire Station 3 Operating Hours

[32] Picture obtained from https://www.google.com/maps

Fire Station 4

Fire Station 4, located at 19 North Ontare, is a 5,313 sq. ft. property built in 1985 that functions as a living space, office space, and garage for local fire department personnel.

Figure 46: Fire Station 4[33]

Day of the week	Opens at	Closes at	Total Hours
Monday	12:00 AM	12:00 AM	24.00
Tuesday	12:00 AM	12:00 AM	24.00
Wednesday	12:00 AM	12:00 AM	24.00
Thursday	12:00 AM	12:00 AM	24.00
Friday	12:00 AM	12:00 AM	24.00
Saturday	12:00 AM	12:00 AM	24.00
Sunday	12:00 AM	12:00 AM	24.00
Annual	Operating	Hours	8,760

Table 59: Fire Station 4 Operating Hours

Fire Station 5

Fire Station 5 and its workshop, located at 2505 Modoc Rd., compose a 3,400 sq. ft. property that was built in 1966. The station functions as a living space, office space, and garage for local fire department personnel.

Figure 47: Fire Station 5[34]

Day of the week	Opens at	Closes at	Total Hours
Monday	12:00 AM	12:00 AM	24.00
Tuesday	12:00 AM	12:00 AM	24.00
Wednesday	12:00 AM	12:00 AM	24.00
Thursday	12:00 AM	12:00 AM	24.00
Friday	12:00 AM	12:00 AM	24.00
Saturday	12:00 AM	12:00 AM	24.00
Sunday	12:00 AM	12:00 AM	24.00
Annual	Operating	Hours	8,760

Table 60: Fire Station 5 Operating Hours

[33] Picture obtained from http://www.iaff525.org
[34] Picture obtained from http://www.iaff525.org

Fire Station 6

Fire Station 6, located at 1802 Cliff Dr., is a 2,770 sq. ft. property that functions as a living space, office space, and garage for local fire department personnel.

Figure 48: Fire Station 6[35]

Day of the week	Opens at	Closes at	Total Hours
Monday	12:00 AM	12:00 AM	24.00
Tuesday	12:00 AM	12:00 AM	24.00
Wednesday	12:00 AM	12:00 AM	24.00
Thursday	12:00 AM	12:00 AM	24.00
Friday	12:00 AM	12:00 AM	24.00
Saturday	12:00 AM	12:00 AM	24.00
Sunday	12:00 AM	12:00 AM	24.00
Annual	**Operating**	**Hours**	**8,760**

Table 61: Fire Station 6 Operating Hours

Fire Station 7

Fire Station 6, located at 2411 Stanwood, is a 2,340 sq. ft. property built in the 1950s that functions as a living space, office space, and garage for local fire department personnel. The property is composed of the main station (this building has single-pane windows) as well as a separate gym building nearby.

Figure 49: Fire Station 7[36]

Day of the week	Opens at	Closes at	Total Hours
Monday	12:00 AM	12:00 AM	24.00
Tuesday	12:00 AM	12:00 AM	24.00
Wednesday	12:00 AM	12:00 AM	24.00
Thursday	12:00 AM	12:00 AM	24.00
Friday	12:00 AM	12:00 AM	24.00
Saturday	12:00 AM	12:00 AM	24.00
Sunday	12:00 AM	12:00 AM	24.00
Annual	**Operating**	**Hours**	**8,760**

Table 62: Fire Station 7 Operating Hours

[35] Picture obtained from http://www.iaff525.org
[36] Picture obtained from http://www.iaff525.org

Franklin Center

The Franklin Center, located at 1136 East Montecito Street, occupies 10,900 sq. ft. and is split almost evenly into two areas: the Franklin Health Care Center and the Franklin Neighborhood Center. The Health Care Center provides medical services to Santa Barbara residents and consists of examination rooms, labs, and doctor's offices, and patient waiting areas. The Neighborhood Center has multipurpose rooms and a teen center that are rented out for private events such as wedding receptions, corporate events, and teen-attended events.

Figure 50: Franklin Center[37]

Day of the week	Opens at	Closes at	Total Hours
Monday	8:00 AM	5:00 PM	9.00
Tuesday	8:00 AM	5:00 PM	9.00
Wednesday	8:00 AM	5:00 PM	9.00
Thursday	8:00 AM	5:00 PM	9.00
Friday	8:00 AM	5:00 PM	9.00
Saturday	Closed	Closed	0.00
Sunday	Closed	Closed	0.00
Annual	**Operating**	**Hours**	**2,346**

Table 63: Franklin Center Operating Hours

Las Positas Tennis Center

Las Positas Tennis Center, located at 2002 Las Positas Road, is comprised of six tennis courts, one handball court, a small office building, and one men's and one women's restroom. The operating hours of the lighting fixtures are 4,198 hours per year.

Figure 51: Las Positas Tennis Center[38]

Day of the week	Opens at	Closes at	Total Hours
Monday	7:30 AM	7:00 PM	11.50
Tuesday	7:30 AM	7:00 PM	11.50
Wednesday	7:30 AM	7:00 PM	11.50
Thursday	7:30 AM	7:00 PM	11.50
Friday	7:30 AM	7:00 PM	11.50
Saturday	7:30 AM	7:00 PM	11.50
Sunday	7:30 AM	7:00 PM	11.50
Annual Operating Hours			**4,198**

Table 64: Las Positas Tennis Center Operating Hours

[37] Picture obtained from https://www.santabarbaraca.gov
[38] Picture obtained from https://www.google.com

Los Banos Del Mar Pool

Los Banos Del Mar Pool, located at 401 W. Cabrillo Blvd, is an 18,087 sq. ft. aquatics fitness center that opened in 1939 as a bathhouse. The building has a small office space, locker rooms, a weight room, a mechanical room, and a 365,000 gallons outdoor pool. Another smaller pool is attached to the facility, but it has remained drained and unused for over five years.

Figure 52: Los Banos del Mar Pool

Day of the week	Opens at	Closes at	Total Hours
Monday	7:30 AM	11:00 AM	3.50
Tuesday	7:30 AM	11:00 AM	3.50
Wednesday	7:30 AM	11:00 AM	3.50
Thursday	7:30 AM	11:00 AM	3.50
Friday	7:30 AM	11:00 AM	3.50
Saturday	12:00 PM	2:00 PM	2.00
Sunday	12:00 PM	2:00 PM	2.00
Annual	**Operating**	**Hours**	**1,121**

Table 65: Los Banos del Mar Operating Hours

Louise Lowry Davis Center

The Louise Lowry Davis Center, located at 1232 De La Vina Street, is a 3,649 sq. ft. recreational center that mainly consists of offices, meeting rooms, a small kitchen, and a multipurpose room. The building serves local events such as weddings, fundraisers, birthday parties, and regular club meetings.

Figure 53: Louis Lowry Davis Center

Day of the week	Opens at	Closes at	Total Hours
Monday	11:00 AM	4:00 PM	5.00
Tuesday	11:00 AM	4:00 PM	5.00
Wednesday	11:00 AM	4:00 PM	5.00
Thursday	11:00 AM	4:00 PM	5.00
Friday	11:00 AM	4:00 PM	5.00
Saturday	11:00 AM	4:00 PM	5.00
Sunday	11:00 AM	4:00 PM	5.00
Annual	**Operating**	**Hours**	**1,825**

Table 66: Louis Lowry Davis Center Operating Hours

Mckenzie Park

Mckenzie Park, located at 3111 State St., is a 230,000 sq. ft. public park space that contains two parking lots, two baseball fields, two lawn bowling fields, an adult building equipped with a reception area and a kitchen, a lawn bowling club building, and a records storage building.

Figure 54: Mckenzie Park

Day of the week	Opens at	Closes at	Total Hours
Monday	3:00 PM	8:00 PM	5.00
Tuesday	3:00 PM	8:00 PM	5.00
Wednesday	3:00 PM	8:00 PM	5.00
Thursday	3:00 PM	8:00 PM	5.00
Friday	3:00 PM	8:00 PM	5.00
Saturday	10:00 AM	10:00 PM	12.00
Sunday	10:00 AM	10:00 PM	12.00
Annual	**Operating**	**Hours**	**2,555**

Table 67: Mckenzie Park Adult Building Operating Hours

Day of the week	Opens at	Closes at	Total Hours
Monday	9:00 AM	3:00 PM	6.00
Tuesday	12:30 PM	5:30 PM	5.00
Wednesday	9:00 AM	3:00 PM	6.00
Thursday	Closed	Closed	0.00
Friday	9:00 AM	3:00 PM	6.00
Saturday	12:30 PM	2:30 PM	2.00
Sunday	9:30 AM	11:00 AM	1.50
Annual	**Operating**	**Hours**	**1,382**

Table 68: Mckenzie Park Lawn Bowling Operating Hours

Day of the week	Opens at	Closes at	Total Hours
Monday	12:00 AM	12:00 AM	24.00
Tuesday	12:00 AM	12:00 AM	24.00
Wednesday	12:00 AM	12:00 AM	24.00
Thursday	12:00 AM	12:00 AM	24.00
Friday	12:00 AM	12:00 AM	24.00
Saturday	12:00 AM	12:00 AM	24.00
Sunday	12:00 AM	12:00 AM	24.00
Annual	**Operating**	**Hours**	**8,760**

Table 69: Mckenzie Park Restroom Operating Hours

Municipal Tennis Center

The Municipal Tennis Center, located at 1414 Park Place, has three handball courts, eleven regular tennis courts, one stadium tennis court, and an operations building.

Figure 55: Municipal Tennis Center[39]

Day of the week	Opens at	Closes at	Total Hours
Monday	8:30 AM	9:00 PM	12.50
Tuesday	8:30 AM	9:00 PM	12.50
Wednesday	8:30 AM	9:00 PM	12.50
Thursday	8:30 AM	9:00 PM	12.50
Friday	8:30 AM	9:00 PM	12.50
Saturday	8:30 AM	9:00 PM	12.50
Sunday	8:30 AM	9:00 PM	12.50
Annual Operating Hours			**4,563**

Table 70: Municipal Tennis Center Operating Hours

Oak Park

Oak Park, located at 2323 Oak Park Lane, is a 400,000 square foot public park. While most of the park is field and trees, it also gives the public access to a pool (currently drained), a children's playground, tennis courts, and two restroom facilities.

Figure 56: Oak Park[40]

Day of the week	Opens at	Closes at	Total Hours
Monday	11:00 AM	4:00 PM	5.00
Tuesday	11:00 AM	4:00 PM	5.00
Wednesday	11:00 AM	4:00 PM	5.00
Thursday	11:00 AM	4:00 PM	5.00
Friday	11:00 AM	4:00 PM	5.00
Saturday	11:00 AM	4:00 PM	5.00
Sunday	11:00 AM	4:00 PM	5.00
Annual	**Operating**	**Hours**	**1,825**

Table 71: Oak Park Operating Hours

[39] Picture obtained from https://www.google.com/maps
[40] Picture obtained from https://www.google.com/maps

Ortega Park

Ortega Park, located on the corner of Ortega and Salsipuedes, is a 220,000 sq. ft. public park that contains a restroom, pool building, and a meeting center named "Welcome House". The exterior areas include two basketball courts, a baseball field, and a kid's playground, among other areas.

Figure 57: Ortega Park[41]

Day of the week	Opens at	Closes at	Total Hours
Monday	8:00 AM	10:00 PM	14.00
Tuesday	8:00 AM	10:00 PM	14.00
Wednesday	8:00 AM	10:00 PM	14.00
Thursday	8:00 AM	10:00 PM	14.00
Friday	8:00 AM	10:00 PM	14.00
Saturday	8:00 AM	10:00 PM	14.00
Sunday	8:00 AM	10:00 PM	14.00
Annual	**Operating**	**Hours**	**5,110**

Table 72: Ortega Park Welcome House Operating Hours

Day of the week	Opens at	Closes at	Total Hours
Monday	12:00 AM	12:00 AM	24.00
Tuesday	12:00 AM	12:00 AM	24.00
Wednesday	12:00 AM	12:00 AM	24.00
Thursday	12:00 AM	12:00 AM	24.00
Friday	12:00 AM	12:00 AM	24.00
Saturday	12:00 AM	12:00 AM	24.00
Sunday	12:00 AM	12:00 AM	24.00
Annual	**Operating**	**Hours**	**8,760**

Table 73: Ortega Park Restroom Operating Hours

Day of the week	Opens at	Closes at	Total Hours
Monday	1:00 PM	3:00 PM	2.00
Tuesday	1:00 PM	3:00 PM	2.00
Wednesday	1:00 PM	3:00 PM	2.00
Thursday	1:00 PM	3:00 PM	2.00
Friday	1:00 PM	3:00 PM	2.00
Saturday	Closed	Closed	0.00
Sunday	Closed	Closed	0.00
Annual	**Operating**	**Hours**	**521**

Table 74: Ortega Park Pool Operating Hours

[41] Picture obtained from https://www.google.com/maps

Parks Department Administration Office

The Parks Department Administration Office, located at 420 East Ortega Street, is a 3,437 sq. ft. building that primarily consists of open and private office spaces and meeting rooms, which are used for the Park Department's administrative duties. The site also includes two vehicle port areas and a small shop area.

Figure 58: Parks Department Admin Office

Day of the week	Opens at	Closes at	Total Hours
Monday	8:00 AM	6:30 PM	10.50
Tuesday	8:00 AM	6:30 PM	10.50
Wednesday	8:00 AM	6:30 PM	10.50
Thursday	8:00 AM	6:30 PM	10.50
Friday	8:00 AM	6:30 PM	10.50
Saturday	Closed	Closed	0.00
Sunday	Closed	Closed	0.00
Annual	**Operating**	**Hours**	**2,738**

Table 75: Parks Department Admin Office Operating Hours

Police Station

The Santa Barbara Police Station, located at 215 East Figueroa, is a three-floor, 27,500 sq. ft. facility mainly comprised of private and open office spaces, conference and interview rooms, equipment and property storage spaces, locker rooms, a weight training room, and a firing range.

Figure 59: Police Station[42]

Day of the week	Opens at	Closes at	Total Hours
Monday	12:00 AM	12:00 AM	24.00
Tuesday	12:00 AM	12:00 AM	24.00
Wednesday	12:00 AM	12:00 AM	24.00
Thursday	12:00 AM	12:00 AM	24.00
Friday	12:00 AM	12:00 AM	24.00
Saturday	12:00 AM	12:00 AM	24.00
Sunday	12:00 AM	12:00 AM	24.00
Annual	**Operating**	**Hours**	**8,760**

Table 76: Police Station Operating Hours

[42] Picture obtained from https://www.noozhawk.com

Public Works Department

The City of Santa Barbara Public Works facility, located at 625 and 635 Laguna Street, is approximately 122,000 square feet and is home to various City Public Works department offices and vehicle and equipment storage areas.

The Water Distribution & Collection, Motor Pool & Engineering Annex, and Motor Pool Vehicle Bay areas are located at 625 Laguna Street. The first area consists of a large metal-type building with an adjoining enclosed storage facility. The main building is broken down into offices and storage areas for the Water Distribution and Collections Department, Streets Division, and the Public Works Inspectors. The second area, also a metal-type structure, houses the Fleet Management Offices, the vehicle parts warehouse, and tire shop. Multiple top-covered, side-open storage bays are connected to the building where large City vehicles are stored. The third area, also a metal-type structure, houses the Engineering Annex offices, multiple enclosed vehicle repair bays, and storage areas. The building is served by a single split-system AC unit serving the Engineering Annex offices and has an extensive solar PV array that covers approximately 50 percent of the roof. This array is also part of the 302 KW solar PV system installed on the roof of the building maintenance the Parks and Recreation buildings (located at 616 & 620 Laguna St).

635 Laguna Street is the designated address for the Central Stores and Purchasing building. The building is comprised of offices spaces and a warehouse that comprises approximately 70 percent of the building. The building also contains part of the solar PV array described above. This array covers approximately 35 percent of the roof of the building.

Figure 60: Public Works Department[43]

Day of the week	Opens at	Closes at	Total Hours
Monday	6:00 AM	6:00 PM	12.00
Tuesday	6:00 AM	6:00 PM	12.00
Wednesday	6:00 AM	6:00 PM	12.00
Thursday	6:00 AM	6:00 PM	12.00
Friday	6:00 AM	6:00 PM	12.00
Saturday	Closed	Closed	0.00
Sunday	Closed	Closed	0.00
Annual	**Operating**	**Hours**	**3,129**

Table 77: Public Works Department Operating Hours

[43] Picture obtained from https://www.google.com/maps

Recreation Department Administration Office

The Recreation Department Administration office, located at 620 Laguna Street, is a 4,365 sq. ft. building that primarily consists of open and private offices and meeting rooms, all used to carry out administrative tasks for the Recreation Department.

Figure 61: Rec. Department Admin. Office

Day of the week	Opens at	Closes at	Total Hours
Monday	8:00 AM	6:30 PM	10.50
Tuesday	8:00 AM	6:30 PM	10.50
Wednesday	8:00 AM	6:30 PM	10.50
Thursday	8:00 AM	6:30 PM	10.50
Friday	8:00 AM	6:30 PM	10.50
Saturday	Closed	Closed	0.00
Sunday	Closed	Closed	0.00
Annual	**Operating**	**Hours**	**2,738**

Table 78: Rec. Department Admin. Office Operating Hours

Santa Barbara Airport and Tenants

The Santa Barbara airport is a 950-acre site located seven miles west of the city's downtown. The airport serves a number of commercial airlines, delivery spaces, storage warehouses, and airplane hangars. Exceptions include restaurants, flight schools, services, small businesses, and private customers, who lease the land and operate independently from the airport. Buildings within the site are mostly office mechanic shops operated by tenants, and the airport's main terminal. The majority of the airport's buildings are over 50 years old and many are thick-walled and not equipped with HVAC systems. Similarly, many are equipped with single-pane windows with no film. In addition, a number of the oldest buildings are slated for demolition. The majority of the buildings' lights were recently upgraded with LED tubes, although many of the high bay fixtures in warehouses and hangars are still fluorescent. In total, 45 of the airport's buildings, detailed in the table below, were considered viable for energy retrofits.

Figure 62: Santa Barbara Airport[44]

[44] Photograph by D Ramey Logan

Site Information			Operating Hours							
Building Name	Address	Sq. Ft.	Mon Avg. hrs	Tue Avg. hrs	Wed Avg. hrs	Thu Avg. hrs	Fri Avg. hrs	Sat Avg. hrs	Sun Avg. hrs	Annual Operating Hours
Bldg 114: Offices	**100 Frederick Lopez Rd**	10,880	9.00	9.00	9.00	9.00	9.00	0.00	0.00	**2,346**
Bldg 116: Retail Arrow Camper	**6190-A Hollister Ave**	6,240	8.00	8.00	8.00	8.00	8.00	3.00	0.00	**2,242**
Bldg 117: Office	**Unknown**	N/A	10.50	10.50	10.50	10.50	10.50	0.00	0.00	**2,738**
Bldg 121: Hangar 5	**Unknown**	N/A	9.00	9.00	9.00	9.00	9.00	0.00	0.00	**2,346**
Bldg 122: Flight School & Surf Air	**302 Wm Moffett Pl**	6,400	19.00	19.00	19.00	19.00	19.00	19.00	19.00	**6,935**
Bldg 124: Atlantic Aviation	**404 Wm Moffett Pl**	4,700	24.00	24.00	24.00	24.00	24.00	24.00	24.00	**8,760**
Bldg 210: Maintenance Hangar	**101 Cyril Hartley Pl**	6,522	9.00	9.00	9.00	9.00	9.00	0.00	0.00	**2,346**
Bldg 223: Industrial Retail	**94 B&C Frederick Lopez Rd**	6,400	9.00	9.00	9.00	9.00	9.00	0.00	0.00	**2,346**
Bldg 224: Offices	**6100-A Francis Botello Rd**	6,400	9.50	9.50	9.50	9.50	9.50	0.00	0.00	**2,477**
Bldg 225: Offices	**Unknown**	N/A	9.00	9.00	9.00	9.00	9.00	0.00	0.00	**2,346**
Bldg 226: Offices	**Unknown**	N/A	9.00	9.00	9.00	9.00	9.00	0.00	0.00	**2,346**
Bldg 227: Offices	**Unknown**	N/A	9.00	9.00	9.00	9.00	9.00	0.00	0.00	**2,346**
Bldg 251: Storage	**400-A Robt. Marxmiller Pl**	6,240	3.00	3.00	3.00	3.00	3.00	0.00	0.00	**782**
Bldg 252: Restaurant	**521 Norman Firestone Rd**	8,695	11.00	11.00	11.00	11.00	12.00	12.00	11.00	**4,119**
Bldg 255: Administration	**601 Firestone Rd**	12,192	11.00	11.00	11.00	11.00	11.00	11.00	11.00	**4,015**
Bldg 256: Security	**Unknown**	N/A	24.00	24.00	24.00	24.00	24.00	24.00	24.00	**8,760**
Bldg 258: Offices	**629-F Firestone Rd**	3,816	9.00	9.00	9.00	9.00	9.00	0.00	0.00	**2,346**
Bldg 261: Hangar 4	**515 Robt. Marxmiller Pl**	9,760	24.00	24.00	24.00	24.00	24.00	24.00	24.00	**8,760**
Bldg 267: Hangar 3	**303 John Donaldson Pl**	9,760	9.00	9.00	9.00	9.00	9.00	0.00	0.00	**2,346**
Bldg 268: Storage	**301 John Donaldson Pl**	6,240	9.00	9.00	9.00	9.00	9.00	0.00	0.00	**2,346**
Bldg 274: Hangar	**Unknown**	N/A	3.00	3.00	3.00	3.00	3.00	0.00	0.00	**782**
Bldg 303: Industrial	**51 Gerald Cass Pl**	6,240	9.00	9.00	9.00	9.00	9.00	0.00	0.00	**2,346**
Bldg 304: Offices	**53-A Gerald Cass Pl**	3,960	9.00	9.00	9.00	9.00	9.00	0.00	0.00	**2,346**
Bldg 305: Industrial	**20 Dean Arnold Pl**	3,960	12.00	12.00	12.00	12.00	12.00	12.00	12.00	**4,380**
Bldg 306: Office	**Unknown**	N/A	10.50	10.50	10.50	10.50	10.50	0.00	0.00	**2,738**
Bldg 307: Hangar	**Unknown**	N/A	9.00	9.00	9.00	9.00	9.00	0.00	0.00	**2,346**
Bldg 308: Infield Lighting Generator	**Unknown**	N/A	1.00	1.00	1.00	1.00	1.00	1.00	1.00	**365**
Bldg 309: Hangar 2	**Unknown**	N/A	9.00	9.00	9.00	9.00	9.00	0.00	0.00	**2,346**
Bldg 311: Office	**1407 Firestone Rd**	1,160	10.50	10.50	10.50	10.50	10.50	0.00	0.00	**2,738**
Bldg 312 & 313: Flight School	**1503 & 1523 Cecil Cook Pl**	7,764	9.00	9.00	9.00	9.00	9.00	7.00	0.00	**2,711**
Bldg 314: Offices	**101-A Dean Arnold Pl**	6,240	8.50	8.50	8.50	8.50	8.50	0.00	0.00	**2,216**
Bldg 315: Offices	**90-A Dean Arnold Pl**	6,240	11.00	11.00	11.00	11.00	11.00	0.00	0.00	**2,868**
Bldg 317: Hangar 1	**Unknown**	N/A	12.00	12.00	12.00	12.00	12.00	0.00	0.00	**3,129**
Bldg 319: Lift Station	**1605 Cecil Cook Pl**	6,600	1.00	1.00	1.00	1.00	1.00	1.00	1.00	**365**
Bldg 333: Offices & R&D	**1522 Cecil Cook Pl**	16,030	9.00	9.00	9.00	9.00	9.00	0.00	0.00	**2,346**
Bldg 344: Offices & R&D	**1440 Cecil Cook Pl**	11,408	9.00	9.00	9.00	9.00	9.00	0.00	0.00	**2,346**
Bldg 345: Offices	**100-A Clyde Adams Rd**	6,400	9.00	9.00	9.00	9.00	9.00	0.00	0.00	**2,346**
Bldg 347: Offices	**1699 Firestone Rd**	18,304	9.00	9.00	9.00	9.00	9.00	0.00	0.00	**2,346**
Bldg 349: Paint	**1699 Firestone Rd**	8,300	9.00	9.00	9.00	9.00	9.00	0.00	0.00	**2,346**
Bldg 351: Maint. School	**1409-A Firestone Rd**	1,172	9.00	9.00	9.00	9.00	9.00	0.00	0.00	**2,346**
Bldg 352: Office	**1411 Firestone Rd**	720	9.00	9.00	9.00	9.00	9.00	0.00	0.00	**2,346**
Bldg 363: Golf Shop	**6034 Hollister Ave**	1,597	11.25	11.25	11.25	11.25	11.25	11.25	11.25	**4,106**
Bldg 370: Tire Shop	**6010 Hollister Ave**	4,484	10.50	10.50	10.50	10.50	10.50	9.00	7.00	**3,572**
Bldg 508: QTA	**25 David Love Pl**	10,000	18.00	18.00	18.00	18.00	18.00	18.00	18.00	**6,570**
Infield Lighting	**Unknown**	N/A	24.00	24.00	24.00	24.00	24.00	24.00	24.00	**8,760**

Table 79: Santa Barbara Airport Operating Hours

Spencer Adams Lawn Bowling

The Spencer Adams Lawn Bowling Center, located at 1216 De La Vina St., consists of an outdoor bowling facility and a 1,457 square foot clubhouse. The building contains locker rooms, a common area used for hosing events, and a small kitchen.

Figure 63: Spencer Adams Lawn Bowling

Day of the week	Opens at	Closes at	Total Hours
Monday	11:00 AM	4:00 PM	5.00
Tuesday	11:00 AM	4:00 PM	5.00
Wednesday	11:00 AM	4:00 PM	5.00
Thursday	11:00 AM	4:00 PM	5.00
Friday	11:00 AM	4:00 PM	5.00
Saturday	11:00 AM	4:00 PM	5.00
Sunday	11:00 AM	4:00 PM	5.00
Annual	**Operating**	**Hours**	**1,825**

Table 80: Spencer Adams Lawn Bowling Operating Hours

Westside Community Center

Westside Community Center, located at 423 W. Victoria St., is a 16,000 sq. ft. building containing offices, reception areas, classrooms, and an exterior parking lot. The space is used for corporate meetings, events, fundraisers, and adult classes.

Figure 64: Westside Community Center

Day of the week	Opens at	Closes at	Total Hours
Monday	8:00 AM	5:00 PM	9.00
Tuesday	8:00 AM	5:00 PM	9.00
Wednesday	8:00 AM	5:00 PM	9.00
Thursday	8:00 AM	5:00 PM	9.00
Friday	8:00 AM	5:00 PM	9.00
Saturday	Closed	Closed	0.00
Sunday	Closed	Closed	0.00
Annual	**Operating**	**Hours**	**2,346**

Table 81: Westside Community Center Operating Hours

William B. Cater Water Treatment Plant

The William B. Cater water treatment plant (WTP), located at 1150 San Roque Rd, treats raw water received from Lakes Gibraltar and Cachuma to drinking water standards, producing more treated water than any other source within the South Coast water system. It provides the city of Santa Barbara with most of its drinking water, while also supplying treated water to the Montecito, Carpinteria Valley, Goleta, and La Cumbre water districts. The plant employs a conventional treatment process of coagulation, flocculation, sedimentation, and filtration to treat up to 37 million gallons of water per day. The plant occupies an area of approximately 400,000 sq. ft.

The following five buildings have been included in the present project: Administration and Maintenance building, Ozone building, Annex building, and Dewatering building. The two-story Administration and Maintenance building consists of a 20,000 sq. ft. area that houses administration offices, laboratory space, document storage, and an operations staff changing space. The building's HVAC systems are connected to the City's Carrier i-Vu BMS. The Ozone building is a new, one-story, 4,200 sq. ft. building that injects ozone into treated water for disinfection purposes. The dewatering building is a one-story, 3,300 sq. ft. facility used to separate sludge into liquid and solid parts. Finally, the Operations annex is a 7,200 sq. ft. building that houses process equipment, the plant's electrical room, and the site's emergency generator.

Figure 65: William B. Cater Water Treatment Plant[45]

Day of the week	Opens at	Closes at	Total Hours
Monday	12:00 AM	12:00 AM	24.00
Tuesday	12:00 AM	12:00 AM	24.00
Wednesday	12:00 AM	12:00 AM	24.00
Thursday	12:00 AM	12:00 AM	24.00
Friday	12:00 AM	12:00 AM	24.00
Saturday	12:00 AM	12:00 AM	24.00
Sunday	12:00 AM	12:00 AM	24.00
Annual	**Operating**	**Hours**	**8,760**

Table 82: William B. Cater WTP Operating Hours

[45] Picture obtained from https://www.google.com/maps

Appendix B: Existing Equipment Inventory

Existing HVAC equipment inventory

The table below summarizes all the HVAC equipment currently used to condition each of the buildings. Please note that the buildings that are part of the current effort but not listed below are the ones deemed as unconditioned.

The rated efficiency of each of the units listed has been adjusted based on their age according to the formula below obtained from an efficiency degradation study[46] carried out by the NREL. The Maintenance factor, also determined from the referenced document, has been varied between 5-10%, depending on the equipment type analyzed.

$$\text{Adjusted}_{\text{Efficiency}} = \text{Rated}_{\text{Efficiency}} * (1 - \text{Maintenance Factor})^{(\text{Equipment age})}$$

					Cooling			Heating			
Site Name - Building Name	Inspected Unit Location	Equipment Type	Qty	Make & Model Number (Year)	Cooling Fuel Used	Cooling Output Capacity [Ton/Unit]	Adjusted Cooling Efficiency [EER]	Heating Fuel Used	Heating Output Capacity [(Btu/h)/Unit]	Adjusted Heating Electric Efficiency [COP]	Adjusted Heating Thermal Efficiency [%]
Airport - Bldg 114: Offices	Outdoor (Roof)	Package Unit AC- Gas Heating	3	Carrier 48LCL005A2A5A0A0A0 (2007)	Electricity	48,000	11.3	Natural Gas	56,000	n/a	78%
Airport - Bldg 114: Offices	Outdoor (Roof)	Package Unit AC- Gas Heating	1	York D3NP024N03606NXA (2007)	Electricity	24,000	9.8	Natural Gas	36,000	n/a	76%
Airport - Bldg 114: Offices	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier 48LCL004A2A5A0A0A0 (2007)	Electricity	36,000	10.7	Natural Gas	56,000	n/a	78%
Airport - Bldg 114: Offices	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier 48HCDD08A2A5A0A0A0 (2007)	Electricity	90,000	10.7	Natural Gas	103,000	n/a	78%
Airport - Bldg 114: Offices	Indoor	Heating Ventilation Unit	1	Reznor Unknown (1990)	n/a	n/a	n/a	Natural Gas	Unknown	6	n/a
Airport - Bldg 117: Office	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier 542EJ024 (1990)	Electricity	24,000	5.1	Natural Gas	27,000	n/a	70%

[46] "Building America Performance Analysis Procedures for Existing Homes", Robert Hendron; May 2006; NREL/TP-550-38238

					Cooling			Heating			
Site Name - Building Name	Inspected Unit Location	Equipment Type	Qty	Make & Model Number (Year)	Cooling Fuel Used	Cooling Output Capacity [Ton/Unit]	Adjusted Cooling Efficiency [EER]	Heating Fuel Used	Heating Output Capacity [(Btu/h)/Unit]	Adjusted Heating Electric Efficiency [COP]	Adjusted Heating Thermal Efficiency [%]
Airport - Bldg 121: Hangar 5	Outdoor (Window)	Window AC	1	Unknown (1990)	Electricity	Unknown	6.4	n/a	n/a	n/a	n/a
Airport - Bldg 122: Flight School & Surf Air	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Arcoaire PGD336060K001C1 (2013)	Electricity	36,000	10.6	Natural Gas	48,000	n/a	78%
Airport - Bldg 122: Flight School & Surf Air	Outdoor (Ground)	Split System AC	1	Payne PA10JA048-H (2005)	Electricity	45,500	7.9	n/a	n/a	n/a	n/a
Airport - Bldg 122: Flight School & Surf Air	Indoor	Split System HP	1	York YHJF36S41S4A (2015)	Electricity	36,000	11.6	Electricity	34,400	4	n/a
Airport - Bldg 124: Atlantic Aviation	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier 48HJM004---541-- (2006)	Electricity	36,000	9.9	Natural Gas	49,000	n/a	75%
Airport - Bldg 124: Atlantic Aviation	Outdoor (Roof)	Package Unit AC- Gas Heating	2	Carrier 48HJL005---551-- (2006)	Electricity	48,000	9.8	Natural Gas	49,000	n/a	75%
Airport - Bldg 124: Atlantic Aviation	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier 48HJL006---541-- (2006)	Electricity	60,000	9.8	Natural Gas	49,000	n/a	75%
Airport - Bldg 210: Maintenance Hangar	Indoor	Heating Ventilation Unit	1	Unknown (2010)	n/a	n/a	n/a	Electricity	Unknown	8	n/a
Airport - Bldg 223: Industrial Retail	Indoor	Heating Ventilation Unit	1	Reznor Unknown (1990)	n/a	n/a	n/a	Electricity	Unknown	6	n/a
Airport - Bldg 224: Offices	Indoor	Heating Ventilation Unit	1	Reznor Unknown (1990)	n/a	n/a	n/a	Electricity	Unknown	6	n/a
Airport - Bldg 224: Offices	Outdoor (Window)	Window AC	1	Emerson 12HT13 (2004)	Electricity	12,000	7.4	n/a	n/a	n/a	n/a
Airport - Bldg 224: Offices	Outdoor (Window)	Window HP	1	Frigidaire FFTH0822R1 (2010)	Electricity	8,000	7.8	Electricity	4,200	8	n/a
Airport - Bldg 226: Offices	Indoor	Heating Ventilation Unit	1	Unknown (1990)	n/a	n/a	n/a	Electricity	Unknown	6	n/a

					Cooling			Heating			
Site Name - Building Name	Inspected Unit Location	Equipment Type	Qty	Make & Model Number (Year)	Cooling Fuel Used	Cooling Output Capacity [Ton/Unit]	Adjusted Cooling Efficiency [EER]	Heating Fuel Used	Heating Output Capacity [(Btu/h)/Unit]	Adjusted Heating Electric Efficiency [COP]	Adjusted Heating Thermal Efficiency [%]
Airport - Bldg 226: Offices	Outdoor (Ground)	Split System AC	1	Sanyo SAP181C (1995)	Electricity	18,000	6.5	n/a	n/a	n/a	n/a
Airport - Bldg 226: Offices	Outdoor (Ground)	Split System HP	1	Sanyo SAP90CH (1995)	Electricity	9,000	7.9	Electricity	10,800	3	n/a
Airport - Bldg 226: Offices	Outdoor (Ground)	Split System HP	1	Fujitsu AOU18RLB (2010)	Electricity	19,000	11.5	Electricity	20,000	4	n/a
Airport - Bldg 226: Offices	Outdoor (Ground)	Split System HP	1	Mitsubishi MUH09TW (2010)	Electricity	8,800	9.1	Electricity	10,500	3	n/a
Airport - Bldg 226: Offices	Outdoor (Window)	Window AC	2	White-Westinghouse Unknown (1990)	Electricity	Unknown	6.4	n/a	n/a	n/a	n/a
Airport - Bldg 226: Offices	Outdoor (Window)	Window AC	1	Carrier Unknown (1990)	Electricity	Unknown	6.4	n/a	n/a	n/a	n/a
Airport - Bldg 226: Offices	Outdoor (Window)	Window AC	3	Whirlpool AKF-105-2 (1990)	Electricity	10,000	6.6	n/a	n/a	n/a	n/a
Airport - Bldg 226: Offices	Outdoor (Window)	Window AC	1	Kenmore 253.70151 (2010)	Electricity	15,100	9.9	n/a	n/a	n/a	n/a
Airport - Bldg 227: Offices	Outdoor (Roof)	Package Unit HP	1	American Standard 4WCY5036A1000A (2000)	Electricity	36,000	10.0	Electricity	32,600	3	n/a
Airport - Bldg 227: Offices	Outdoor (Ground)	Split System HP	1	Mitsubishi MUZ-FE18NA (2008)	Electricity	18,000	12.8	Electricity	21,600	4	n/a
Airport - Bldg 252: Restaurant	Outdoor (Roof)	Package Unit AC- Gas Heating	4	Carrier 48KCLA05A2A3A0A0A0 (2015)	Electricity	48,000	11.4	Natural Gas	49,000	n/a	80%
Airport - Bldg 252: Restaurant	Outdoor (Roof)	Package Unit AC- Gas Heating	1	York DF090N10N2AAA3A (1982)	Electricity	87,000	7.3	Natural Gas	96,000	n/a	67%
Airport - Bldg 252: Restaurant	Outdoor (Roof)	Refrigeration Unit	4	Heatcraft CHT005X6BFM (2015)	Electricity	1,272	10.5	n/a	n/a	n/a	n/a
Airport - Bldg 252: Restaurant	Outdoor (Roof)	Refrigeration Unit	1	Heatcraft CHT011L6B (2015)	Electricity	2,544	10.5	n/a	n/a	n/a	n/a

					Cooling			Heating			
Site Name - Building Name	Inspected Unit Location	Equipment Type	Qty	Make & Model Number (Year)	Cooling Fuel Used	Cooling Output Capacity [Ton/Unit]	Adjusted Cooling Efficiency [EER]	Heating Fuel Used	Heating Output Capacity [(Btu/h)/Unit]	Adjusted Heating Electric Efficiency [COP]	Adjusted Heating Thermal Efficiency [%]
Airport - Bldg 252: Restaurant	Outdoor (Roof)	Refrigeration Unit	1	Champion - Essick 3000DD/N31D (2015)	Electricity	848	10.5	n/a	n/a	n/a	n/a
Airport - Bldg 252: Restaurant	Outdoor (Roof)	Refrigeration Unit	1	Champion - Essick 75/85DD (2015)	Electricity	2,544	10.5	n/a	n/a	n/a	n/a
Airport - Bldg 252: Restaurant	Outdoor (Roof)	Refrigeration Unit	1	Copeland F3AH-A100-CAV-001 (2015)	Electricity	2,544	10.5	n/a	n/a	n/a	n/a
Airport - Bldg 252: Restaurant	Outdoor (Roof)	Refrigeration Unit	1	Russell RLH201H22 (2015)	Electricity	5,089	10.5	n/a	n/a	n/a	n/a
Airport - Bldg 252: Restaurant	Outdoor (Roof)	Refrigeration Unit	1	Copeland FJAL-A225-CFV (2015)	Electricity	5,725	10.5	n/a	n/a	n/a	n/a
Airport - Bldg 255: Administration	Outdoor (Roof)	Heating Ventilation Unit	2	Unknown (1990)	n/a	n/a	n/a	Natural Gas	Unknown	n/a	n/a
Airport - Bldg 255: Administration	Indoor	Package Unit AC- Gas Heating	1	Bryant CNPVP6024ALAAAAA (2013)	Electricity	60,000	10.2	Natural Gas	66,000	n/a	78%
Airport - Bldg 255: Administration	Indoor	Package Unit HP	2	Carrier 50JX-036---301CU (2002)	Electricity	36,000	9.0	Electricity	34,000	3	n/a
Airport - Bldg 255: Administration	Outdoor (Roof)	Split System AC	1	Carrier 24ABB360W320 (2013)	Electricity	36,000	10.5	n/a	n/a	n/a	n/a
Airport - Bldg 255: Administration	Outdoor (Roof)	Split System HP	1	Bryant 650AN024-D (2002)	Electricity	24,000	10.2	n/a	n/a	n/a	n/a
Airport - Bldg 255: Administration	Outdoor (Roof)	Split System HP	1	Carrier FB4BNF024 (2005)	Electricity	22,600	7.9	Electricity	22,800	3	n/a
Airport - Bldg 255: Administration	Outdoor (Window)	Window AC	1	Frigidaire FFRS0822S1 (2015)	Electricity	8,000	10.5	n/a	n/a	n/a	n/a
Airport - Bldg 255: Administration	Outdoor (Window)	Window AC	1	Frigidaire FFRS1022R10 (2016)	Electricity	10,000	9.3	n/a	n/a	n/a	n/a
Airport - Bldg 255: Administration	Outdoor (Window)	Window AC	1	Frigidaire FRA156MT1 (2015)	Electricity	15,100	10.4	n/a	n/a	n/a	n/a
Airport - Bldg 255: Administration	Outdoor (Window)	Window AC	6	Frigidaire FFRE0633S10 (2015)	Electricity	6,000	11.7	n/a	n/a	n/a	n/a

					Cooling			Heating			
Site Name - Building Name	Inspected Unit Location	Equipment Type	Qty	Make & Model Number (Year)	Cooling Fuel Used	Cooling Output Capacity [Ton/Unit]	Adjusted Cooling Efficiency [EER]	Heating Fuel Used	Heating Output Capacity [(Btu/h)/Unit]	Adjusted Heating Electric Efficiency [COP]	Adjusted Heating Thermal Efficiency [%]
Airport - Bldg 255: Administration	Outdoor (Window)	Window AC	1	Frigidaire FAM155R1A (2008)	Electricity	15,100	9.7	n/a	n/a	n/a	n/a
Airport - Bldg 255: Administration	Outdoor (Window)	Window AC	1	Friedrich CP12E10 (2010)	Electricity	12,000	10.0	n/a	n/a	n/a	n/a
Airport - Bldg 255: Administration	Outdoor (Window)	Window AC	1	Frigidaire KCA010101P (2015)	Electricity	10,000	10.5	n/a	n/a	n/a	n/a
Airport - Bldg 255: Administration	Outdoor (Window)	Window AC	1	Comfort Air RAD-123J (2013)	Electricity	12,000	9.3	n/a	n/a	n/a	n/a
Airport - Bldg 261: Hangar 4	Outdoor (Ground)	Split System HP	1	York YHJF42S41S5A (2015)	Electricity	40,000	12.1	Electricity	39,000	4	n/a
Airport - Bldg 261: Hangar 4	Outdoor (Ground)	Split System AC	1	Bryant 561CJX036000AFAA (2005)	Electricity	36,000	8.1	n/a	n/a	n/a	n/a
Airport - Bldg 268: Storage	Indoor	Heating Ventilation Unit	1	Dayton 3C366A (1990)	n/a	n/a	n/a	Natural Gas	23,400	n/a	68%
Airport - Bldg 303: Industrial	Outdoor (Ground)	Split System AC	1	Trane 2TTA3036A3000AA (2008)	Electricity	36,000	10.1	n/a	n/a	n/a	n/a
Airport - Bldg 303: Industrial	Outdoor (Ground)	Split System HP	1	Mitsubishi MUZ-FE18NA (2008)	Electricity	18,000	12.8	Electricity	21,600	4	n/a
Airport - Bldg 303: Industrial	Indoor	Heating Ventilation Unit	1	Arcoaire Unknown (1990)	n/a	n/a	n/a	Natural Gas	Unknown	6	n/a
Airport - Bldg 305: Industrial	Outdoor (Ground)	Split System HP	2	Bryant 661AJ030-B (2008)	Electricity	28,000	9.0	Electricity	29,000	3	n/a
Airport - Bldg 305: Industrial	Outdoor (Ground)	Split System HP	1	Carrier 25HBB336C310 (2013)	Electricity	34,200	11.4	Electricity	34,800	3	n/a
Airport - Bldg 309: Hangar 2	Outdoor (Window)	Window AC	1	LG LWHD1006R (2013)	Electricity	10,000	9.3	n/a	n/a	n/a	n/a
Airport - Bldg 309: Hangar 2	Outdoor (Window)	Window AC	1	Kenmore 580.751845 (2013)	Electricity	18,000	9.2	n/a	n/a	n/a	n/a

					Cooling			Heating			
Site Name - Building Name	Inspected Unit Location	Equipment Type	Qty	Make & Model Number (Year)	Cooling Fuel Used	Cooling Output Capacity [Ton/Unit]	Adjusted Cooling Efficiency [EER]	Heating Fuel Used	Heating Output Capacity [(Btu/h)/Unit]	Adjusted Heating Electric Efficiency [COP]	Adjusted Heating Thermal Efficiency [%]
Airport - Bldg 312 & 313: Flight School	Outdoor (Roof)	Package Unit HP	2	York B2HZ030A46A (2011)	Electricity	29,700	10.5	Electricity	27,800	3	n/a
Airport - Bldg 312 & 313: Flight School	Outdoor (Roof)	Package Unit HP	2	Bryant 602BEX060000AB (2002)	Electricity	59,000	9.0	Electricity	55,000	3	n/a
Airport - Bldg 312 & 313: Flight School	Outdoor (Roof)	Package Unit HP	1	Bryant 601AEX060000AAAG (2006)	Electricity	57,500	8.2	Electricity	57,000	3	n/a
Airport - Bldg 315: Offices	Indoor	Heating Ventilation Unit	1	Unknown (1998)	n/a	n/a	n/a	Electricity	Unknown	7	n/a
Airport - Bldg 315: Offices	Outdoor (Ground)	Split System AC	1	Bryant 561CP048-C (1998)	Electricity	48,000	7.5	n/a	n/a	n/a	n/a
Airport - Bldg 333: Offices & R&D	Outdoor (Roof)	Package Unit HP	3	York B1HX024A06A (2009)	Electricity	24,000	10.4	Electricity	22,200	3	n/a
Airport - Bldg 333: Offices & R&D	Outdoor (Roof)	Package Unit HP	2	York XP060C00N2AAA2A (2009)	Electricity	60,000	9.7	Electricity	56,500	3	n/a
Airport - Bldg 333: Offices & R&D	Outdoor (Roof)	Package Unit HP	5	York XP036C00N2AAA1B (2009)	Electricity	36,000	10.0	Electricity	34,800	3	n/a
Airport - Bldg 333: Offices & R&D	Outdoor (Roof)	Package Unit HP	1	York XP048C00N2AAA1B (2009)	Electricity	48,000	9.9	Electricity	45,000	3	n/a
Airport - Bldg 333: Offices & R&D	Outdoor (Roof)	Split System AC	1	York Unknown (2009)	Electricity	Unknown	9.9	n/a	n/a	n/a	n/a
Airport - Bldg 344: Offices & R&D	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Bryant 574DNWA24060NA (2010)	Electricity	24,000	10.3	Natural Gas	47,000	n/a	75%
Airport - Bldg 344: Offices & R&D	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Bryant 574BNW036060NA (2006)	Electricity	36,000	9.8	Natural Gas	46,000	n/a	74%
Airport - Bldg 344: Offices & R&D	Outdoor (Roof)	Package Unit AC- Gas Heating	2	Bryant 574BNW048090NB (2006)	Electricity	48,000	9.8	Natural Gas	70,000	n/a	74%

					Cooling			Heating			
Site Name - Building Name	Inspected Unit Location	Equipment Type	Qty	Make & Model Number (Year)	Cooling Fuel Used	Cooling Output Capacity [Ton/Unit]	Adjusted Cooling Efficiency [EER]	Heating Fuel Used	Heating Output Capacity [(Btu/h)/Unit]	Adjusted Heating Electric Efficiency [COP]	Adjusted Heating Thermal Efficiency [%]
Airport - Bldg 344: Offices & R&D	Outdoor (Roof)	Package Unit HP	1	Bryant 604DNXA36000AA (2011)	Electricity	36,000	10.7	Electricity	35,400	3	n/a
Airport - Bldg 344: Offices & R&D	Outdoor (Roof)	Split System HP	1	York YHE36B21HA (2017)	Electricity	36,000	12.6	Electricity	34,000	4	n/a
Airport - Bldg 344: Offices & R&D	Outdoor (Roof)	Package Unit HP	1	Tempstar PHF060L000E (2005)	Electricity	60,000	8.1	Electricity	33,500	3	n/a
Airport - Bldg 345: Offices	Indoor	Heating Ventilation Unit	2	Unknown (1990)	n/a	n/a	n/a	Electricity	Unknown	6	n/a
Airport - Bldg 508: QTA	Outdoor (Ground)	Split System HP	5	Carrier 25HNA924300 (2009)	Electricity	24,000	12.8	Electricity	14,000	3	n/a
Airport - Bldg 508: QTA	Outdoor (Ground)	Split System HP	1	Carrier 25HNA936A310 (2009)	Electricity	36,000	12.8	Electricity	21,000	3	n/a
Animal Control	Outdoor (Roof)	Split System HP	1	Bryant 661BJ024-G (1995)	Electricity	23,000	7.3	Electricity	22,800	3	n/a
Carrillo Gym - Gym	Indoor	Heating Ventilation Unit	1	Utility 150-UHF (1980)	n/a	n/a	n/a	Natural Gas	120,000	n/a	66%
Carrillo Rec Center - Rec Center	Indoor	Heating Ventilation Unit	2	Reznor CAUA (2005)	n/a	n/a	n/a	Natural Gas	150,000	n/a	75%
Carrillo Rec Center - Rec Center	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Bryant 580FPV090125AAGA (2001)	Electricity	90,000	7.5	Natural Gas	100,000	n/a	73%
Carrillo Rec Center - Rec Center	Outdoor (Ground)	Split System AC	1	York CZH06011B (2009)	Electricity	60,000	11.0	n/a	n/a	n/a	n/a
Carrillo Rec Center - Rec Center	Outdoor (Ground)	Split System AC	1	York CZH02411B (2009)	Electricity	24,000	12.3	n/a	n/a	n/a	n/a
Carrillo Rec Center - Rec Center	Outdoor (Roof)	Split System AC	6	York CZH06011B (2009)	Electricity	60,000	11.0	n/a	n/a	n/a	n/a
Carrillo Rec Center - Rec Center	Indoor	Split System HP	1	York MC62D3XH1 (2009)	Electricity	55,000	10.0	Electricity	57,000	3	n/a

					Cooling			Heating			
Site Name - Building Name	Inspected Unit Location	Equipment Type	Qty	Make & Model Number (Year)	Cooling Fuel Used	Cooling Output Capacity [Ton/Unit]	Adjusted Cooling Efficiency [EER]	Heating Fuel Used	Heating Output Capacity [(Btu/h)/Unit]	Adjusted Heating Electric Efficiency [COP]	Adjusted Heating Thermal Efficiency [%]
Casa Las Palmas - Rec Center	Outdoor (Ground)	Split System AC	1	Carrier 24AAA560A300 (2017)	Electricity	60,000	12.2	n/a	n/a	n/a	n/a
Cater WTP - Admin & Maintenance	Indoor	Heating Ventilation Unit	2	Reznor Unknown (1990)	n/a	n/a	n/a	Electricity	Unknown	6	n/a
Cater WTP - Admin & Maintenance	Indoor	Package Unit AC- Gas Heating	1	Carrier 38AKS016--C621-- (2003)	Electricity	180,000	10.3	Natural Gas	200,000	n/a	74%
Cater WTP - Admin & Maintenance	Outdoor (Ground)	Split System AC	2	Mitsubishi MUY-A15NA (2006)	Electricity	15,000	11.3	n/a	n/a	n/a	n/a
Central Library - Library	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Bryant 580FEV091125AAGA (2003)	Electricity	90,000	7.7	Natural Gas	100,000	n/a	74%
Central Library - Library	Outdoor (Roof)	Package Unit AC- Gas Heating	3	Carrier 48HCDD12A2A6A0B0A0 (2011)	Electricity	115,000	10.7	Natural Gas	148,000	n/a	79%
Central Library - Library	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier 48HCDA05A2A6A0B0A0 (2010)	Electricity	48,000	12.0	Natural Gas	59,000	n/a	79%
Central Library - Library	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier 48HCDD28ABA6A0D0A0 (2011)	Electricity	300,000	9.8	Natural Gas	178,000	n/a	78%
Central Library - Library	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Octagon 0AS-034T-11C-0350G-MZ (2007)	Electricity	314,000	10.3	Natural Gas	280,000	n/a	76%
City Hall	Outdoor (Roof)	Package Unit AC- Gas Heating	1	York D1NQ060N09006NXA (2010)	Electricity	60,000	11.1	Natural Gas	87,000	n/a	77%
City Hall	Outdoor (Roof)	Package Unit AC- Gas Heating	1	York D2NX036N06506NXA (2010)	Electricity	36,000	11.3	Natural Gas	64,000	n/a	77%
City Hall	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Bryant 581BPV120180AJ (2003)	Electricity	120,000	8.9	Natural Gas	147,600	n/a	76%
City Hall	Outdoor (Roof)	Package Unit AC- Gas Heating	2	York D2NX024N03606NXA (2009)	Electricity	24,000	10.5	Natural Gas	36,000	n/a	76%

					Cooling			Heating			
Site Name - Building Name	Inspected Unit Location	Equipment Type	Qty	Make & Model Number (Year)	Cooling Fuel Used	Cooling Output Capacity [Ton/Unit]	Adjusted Cooling Efficiency [EER]	Heating Fuel Used	Heating Output Capacity [(Btu/h)/Unit]	Adjusted Heating Electric Efficiency [COP]	Adjusted Heating Thermal Efficiency [%]
City Hall	Outdoor (Roof)	Package Unit AC- Gas Heating	1	York D1NQ030N03606NXA (2010)	Electricity	36,000	11.1	Natural Gas	36,000	n/a	77%
City Hall	Indoor	Package Unit HP	1	York B1HX0248068 (2010)	Electricity	24,000	10.5	Electricity	22,200	3	n/a
City Hall	Outdoor (Ground)	Split System AC	2	York H1RD060S25B (2008)	Electricity	60,000	9.9	n/a	n/a	n/a	n/a
City Hall	Outdoor (Ground)	Split System HP	1	Bryant 662CJ042-B (1998)	Electricity	42,000	8.6	Electricity	42,000	3	n/a
City Hall	Outdoor (Ground)	Split System HP	1	Mitsubishi MUZ-A24NA (2009)	Electricity	22,000	11.7	Electricity	23,200	3	n/a
City Hall	Outdoor (Roof)	Split System HP	1	York YZEJ2411B (2008)	Electricity	24,000	10.9	Electricity	24,000	3	n/a
City Hall	Outdoor (Roof)	Split System HP	2	York YZE02411CA (2009)	Electricity	24,000	11.0	Electricity	24,000	3	n/a
City Hall	Outdoor (Roof)	Split System HP	1	York YHJD30S41S48 (2010)	Electricity	30,000	11.1	Electricity	27,000	3	n/a
City Hall	Outdoor (Roof)	Split System HP	2	York YZE03611CA (2009)	Electricity	36,000	11.0	Electricity	33,000	3	n/a
City Hall	Outdoor (Roof)	Split System HP	1	York YZE03611D (2009)	Electricity	36,000	11.0	Electricity	33,000	3	n/a
City Hall	Outdoor (Roof)	Split System HP	1	York YZE02411C (2009)	Electricity	24,000	11.0	Electricity	24,000	3	n/a
City Hall	Outdoor (Roof)	Split System HP	1	Mitsubishi PUZ-A18NHA6 (2009)	Electricity	18,000	7.7	Electricity	19,000	3	n/a
City Hall	Outdoor (Ground)	Split System HP	1	Carrier 38QRR036-501 (2007)	Electricity	35,800	12.1	Electricity	33,600	4	n/a
City Hall	Outdoor (Ground)	Split System HP	1	Payne 691ANX042000AAAA (1990)	Electricity	42,000	7.5	Electricity	44,000	2	n/a

					Cooling			Heating			
Site Name - Building Name	Inspected Unit Location	Equipment Type	Qty	Make & Model Number (Year)	Cooling Fuel Used	Cooling Output Capacity [Ton/Unit]	Adjusted Cooling Efficiency [EER]	Heating Fuel Used	Heating Output Capacity [(Btu/h)/Unit]	Adjusted Heating Electric Efficiency [COP]	Adjusted Heating Thermal Efficiency [%]
Comm Dev Center	Outdoor (Roof)	Package Unit AC- Gas Heating	2	Carrier 48PGLC06-D-50-A0 (2009)	Electricity	60,000	11.0	Natural Gas	60,800	n/a	77%
Comm Dev Center	Outdoor (Roof)	Package Unit AC- Gas Heating	4	Carrier 48PGLC08-D-50-A0 (2009)	Electricity	90,000	11.4	Natural Gas	111,500	n/a	78%
Comm Dev Center	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Bryant 574BPW060115NB (2006)	Electricity	60,000	9.8	Natural Gas	92,000	n/a	76%
Comm Dev Center	Outdoor (Roof)	Package Unit AC- Gas Heating	2	Bryant 574BPW060090NB (2005)	Electricity	60,000	9.7	Natural Gas	70,000	n/a	74%
Comm Dev Center	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Bryant 582ANW0240403351-1 (2000)	Electricity	24,000	7.7	Natural Gas	31,000	n/a	73%
Comm Dev Center	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Bryant 582ANW0240403361-1 (2000)	Electricity	24,000	7.7	Natural Gas	31,000	n/a	73%
Comm Dev Center	Outdoor (Roof)	Package Unit AC- Gas Heating	2	Carrier 48PGLC09-D-50-A0 (2009)	Electricity	102,000	11.1	Natural Gas	111,500	n/a	78%
Comm Dev Center	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Eaton D6NZ030N0362NXA (2013)	Electricity	30,000	10.9	Natural Gas	36,000	n/a	78%
Comm Dev Center	Outdoor (Roof)	Split System AC	1	Bryant 650AN030-A (1998)	Electricity	30,000	9.1	n/a	n/a	n/a	n/a
Eastside Library	Outdoor (Roof)	Package Unit AC- Gas Heating	2	Bryant 582APW048090AAAG (2000)	Electricity	48,000	7.7	Natural Gas	70,000	n/a	72%
Eastside Library	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier 48HCDD12A2A5A0A0A0 (2011)	Electricity	115,000	10.7	Natural Gas	148,000	n/a	79%
Eastside Library	Outdoor (Roof)	Split System AC	2	Carrier 24ABC642A300 (2011)	Electricity	42,000	12.1	n/a	n/a	n/a	n/a
El Estero WWTP - Administration	Indoor	Heating Ventilation Unit	1	Bryant 355AAV042080FASA (2007)	n/a	n/a	n/a	Natural Gas	75,000	n/a	89%

					Cooling			Heating			
Site Name - Building Name	Inspected Unit Location	Equipment Type	Qty	Make & Model Number (Year)	Cooling Fuel Used	Cooling Output Capacity [Ton/Unit]	Adjusted Cooling Efficiency [EER]	Heating Fuel Used	Heating Output Capacity [(Btu/h)/Unit]	Adjusted Heating Electric Efficiency [COP]	Adjusted Heating Thermal Efficiency [%]
El Estero WWTP - Administration	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier 48TCDD12A2A6AQA0A0 (2015)	Electricity	114,000	10.8	Natural Gas	148,000	n/a	81%
El Estero WWTP - Administration	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier 48TCDA07A2A6A0A0A0 (2013)	Electricity	70,000	10.5	Natural Gas	59,000	n/a	80%
El Estero WWTP - Administration	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier 48HJE004--B631AN (1998)	Electricity	36,000	9.2	Natural Gas	59,040	n/a	74%
El Estero WWTP - Administration	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier 48HJD005--B631AN (1998)	Electricity	48,000	9.0	Natural Gas	59,040	n/a	74%
El Estero WWTP - Administration	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier 48HJD007--B631AN (1998)	Electricity	72,000	9.0	Natural Gas	59,040	n/a	74%
El Estero WWTP - Administration	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier 48HJD006--B631AN (1998)	Electricity	60,000	9.0	Natural Gas	59,040	n/a	74%
El Estero WWTP - Administration	Outdoor (Roof)	Split System AC	1	Lennox HS19-413V-3G (1998)	Electricity	36,000	8.3	n/a	n/a	n/a	n/a
El Estero WWTP - Administration	Outdoor (Roof)	Split System HP	1	Mitsubishi PUY-A36NHA (2007)	Electricity	8,800	8.9	Electricity	10,500	3	n/a
El Estero WWTP - Crews Quarter	Outdoor (Roof)	Package Unit HP	1	Carrier 50VT-C36---50--(2016)	Electricity	34,200	11.8	Electricity	34,800	3	n/a
El Estero WWTP - Maintenance	Indoor	Heating Ventilation Unit	1	Hastings Unknown (1986)	n/a	n/a	n/a	Natural Gas	40,000	n/a	68%
El Estero WWTP - Maintenance	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier 48TCMA06A2A6A0A0A0 (2016)	Electricity	59,000	10.5	Natural Gas	72,000	n/a	79%
El Estero WWTP - Sludge Handling	Indoor	Package Unit AC- Cooling Only	1	Fraser-Johnston B6HQ030A06A (2013)	Electricity	30,000	11.4	n/a	n/a	n/a	n/a
El Estero WWTP - Sludge Handling	Outdoor (Roof)	Package Unit HP	1	Carrier 50JX-24---301--(2002)	Electricity	24,000	9.0	Electricity	23,000	3	n/a

					Cooling			Heating			
Site Name - Building Name	Inspected Unit Location	Equipment Type	Qty	Make & Model Number (Year)	Cooling Fuel Used	Cooling Output Capacity [Ton/Unit]	Adjusted Cooling Efficiency [EER]	Heating Fuel Used	Heating Output Capacity [(Btu/h)/Unit]	Adjusted Heating Electric Efficiency [COP]	Adjusted Heating Thermal Efficiency [%]
Fire Department Admin - Office	Outdoor (Ground)	Split System HP	1	Mitsubishi PURY-P96TJMU-A-BS (2011)	Electricity	96,000	11.5	Electricity	108,000	3	n/a
Fire Department Admin - Office	Outdoor (Ground)	Split System HP	1	Mitsubishi PURY-P72TJMU-A-BS (2011)	Electricity	72,000	12.0	Electricity	80,000	4	n/a
Fire Station 1	Indoor	Package Unit AC- Gas Heating	1	Carrier 48PGLM09-AB50-HX (2008)	Electricity	102,000	11.0	Natural Gas	111,500	n/a	78%
Fire Station 1	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier 48PGLM12-AB50-BP (2009)	Electricity	120,000	11.0	Natural Gas	148,400	n/a	78%
Fire Station 1	Outdoor (Roof)	Split System AC	1	Sanyo C3682 (2003)	Electricity	34,000	11.0	n/a	n/a	n/a	n/a
Fire Station 1	Outdoor (Roof)	Split System HP	1	Mitsubishi PURY-P108TGMU-A-BS (2008)	Electricity	108,000	10.0	Electricity	120,000	3	n/a
Fire Station 2	Outdoor (Roof)	Package Unit AC- Gas Heating	2	York 04CG060N08225A (1990)	Electricity	60,000	7.5	Natural Gas	82,000	n/a	70%
Fire Station 3	Outdoor (Ground)	Heating Ventilation Unit	1	Bryant 311JAV066135AAJA (2002)	n/a	n/a	n/a	Natural Gas	107,000	n/a	74%
Fire Station 3	Outdoor (Roof)	Split System AC	1	Bryant 594DN060-F (2003)	Electricity	56,000	8.8	n/a	n/a	n/a	n/a
Fire Station 4	Outdoor (Roof)	Split System AC	1	Bryant 594DNX042000AEAA (1999)	Electricity	42,000	9.1	n/a	n/a	n/a	n/a
Fire Station 4	Outdoor (Roof)	Split System AC	1	Bryant 594DNX036000AEAA (1999)	Electricity	36,000	9.1	n/a	n/a	n/a	n/a
Fire Station 4	Indoor	Heating Ventilation Unit	1	Unknown (1990)	n/a	n/a	n/a	Natural Gas	Unknown	6	n/a
Fire Station 4	Outdoor (Roof)	Package Unit AC- Gas Heating	2	Unknown (1990)	n/a	n/a	6.9	Natural Gas	Unknown	6	n/a
Fire Station 5	Outdoor (Roof)	Split System AC	1	Bryant 594DN036-E (1999)	Electricity	36,000	9.1	n/a	n/a	n/a	n/a

					Cooling			Heating			
Site Name - Building Name	Inspected Unit Location	Equipment Type	Qty	Make & Model Number (Year)	Cooling Fuel Used	Cooling Output Capacity [Ton/Unit]	Adjusted Cooling Efficiency [EER]	Heating Fuel Used	Heating Output Capacity [(Btu/h)/Unit]	Adjusted Heating Electric Efficiency [COP]	Adjusted Heating Thermal Efficiency [%]
Fire Station 5	Indoor	Heating Ventilation Unit	1	Carrier 58PAV045-08 (1999)	n/a	n/a	n/a	Natural Gas	35,000	n/a	72%
Fire Station 6	Outdoor (Window)	Window AC	4	Danby DAC060EUB7GDB (2016)	Electricity	6,000	12.0	n/a	n/a	n/a	n/a
Fire Station 7	Indoor	Split System AC	1	Thermal Zone 242-1005-E (2013)	Electricity	23,000	10.6	n/a	n/a	n/a	n/a
Fire Station 7	Outdoor (Ground)	Split System AC	1	Bryant 550AN024-E (2002)	Electricity	24,000	10.2	n/a	n/a	n/a	n/a
Franklin Center	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier 48VLNA2404030 (2011)	Electricity	24,000	11.2	Natural Gas	32,000	n/a	77%
Franklin Center	Outdoor (Roof)	Package Unit AC- Gas Heating	3	Carrier 48VLNA6009030 (2011)	Electricity	60,000	11.2	Natural Gas	73,000	n/a	78%
Franklin Center	Outdoor (Roof)	Package Unit AC- Gas Heating	2	Bryant 582APW060090NAAG (2005)	Electricity	60,000	8.1	Natural Gas	70,000	n/a	74%
Franklin Center	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Bryant 582APW036060NBAF (2005)	Electricity	36,000	8.1	Natural Gas	46,000	n/a	74%
Franklin Center	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Bryant 582APW048090NBAG (2004)	Electricity	48,000	8.0	Natural Gas	70,000	n/a	73%
Franklin Center	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier 48XPN042060511 (2007)	Electricity	42,000	9.8	Natural Gas	47,000	n/a	74%
Louise Lowry Davis Center - Rec Center	Indoor	Heating Ventilation Unit	1	Carrier 58DLX155---12120 (2005)	n/a	n/a	n/a	Natural Gas	125,000	n/a	75%
Louise Lowry Davis Center - Rec Center	Outdoor (Roof)	Package Unit AC- Cooling Only	1	Carrier CNPVP6024ATAACAA (2010)	Electricity	60,000	11.1	n/a	n/a	n/a	n/a
Louise Lowry Davis Center - Rec Center	Outdoor (Window)	Split System AC	1	Carrier 24ACC660A300 (2010)	Electricity	60,000	11.8	n/a	n/a	n/a	n/a

					Cooling			Heating			
Site Name - Building Name	Inspected Unit Location	Equipment Type	Qty	Make & Model Number (Year)	Cooling Fuel Used	Cooling Output Capacity [Ton/Unit]	Adjusted Cooling Efficiency [EER]	Heating Fuel Used	Heating Output Capacity [(Btu/h)/Unit]	Adjusted Heating Electric Efficiency [COP]	Adjusted Heating Thermal Efficiency [%]
Los Banos Pool	Indoor	Heating Ventilation Unit	1	Reznor HX125-8-S-2-E (1998)	n/a	n/a	n/a	Natural Gas	100,000	n/a	72%
Parks Department - Administration Office	Outdoor (Roof)	Package Unit AC- Gas Heating	2	Carrier 48VLNA2404030 (2011)	Electricity	24,000	11.2	Natural Gas	33,000	n/a	78%
Parks Department - Administration Office	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier 48VLNA360050 (2011)	Electricity	36,000	11.2	Natural Gas	48,000	n/a	78%
Police Station	Indoor	Refrigeration Unit	1	Heatcraft MOH025L63CF (2017)	Electricity	15,550	11.9	n/a	n/a	n/a	n/a
Police Station	Outdoor (Ground)	Split System AC	1	Carrier 38HDR060—5 (2008)	Electricity	60,000	9.9	n/a	n/a	n/a	n/a
Police Station	Outdoor (Ground)	Split System AC	1	Bryant 561CJ048-F (2002)	Electricity	48,000	7.8	n/a	n/a	n/a	n/a
Police Station	Outdoor (Roof)	Split System HP	5	Mitsubishi PURY-P96YKMU-A-BS (2013)	Electricity	96,000	12.9	Electricity	108,000	4	n/a
Police Station	Outdoor (Roof)	Split System HP	1	Mitsubishi PURY-P120YKMU-A-BS (2014)	Electricity	120,000	11.7	Electricity	135,000	3	n/a
Police Station	Outdoor (Roof)	Split System HP	2	Mitsubishi PURY-P72YKMU-A-BS (2013)	Electricity	72,000	12.4	Electricity	80,000	3	n/a
Public Works - Central Stores Offices	Indoor	Package Unit AC- Cooling Only	1	Carrier FB4ANF018 (2000)	Electricity	18,000	10.0	n/a	n/a	n/a	n/a
Public Works - Central Stores Offices	Outdoor (Roof)	Split System AC	1	York TCHD60S41S3A (2014)	Electricity	60,000	11.0	n/a	n/a	n/a	n/a
Public Works - Central Stores Offices	Outdoor (Roof)	Split System HP	2	Mitsubishi MUZ-GE09NA2 (2004)	Electricity	9,000	11.8	Electricity	6,600	4	n/a
Public Works - Central Stores Offices	Outdoor (Roof)	Package Unit AC- Cooling Only	1	Carrier 50HCA05A2A5A0A0A0 (2013)	Electricity	48,000	12.4	n/a	n/a	n/a	n/a
Public Works - Central Stores Offices	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Bryant 583BPW036060NB (2003)	Electricity	36,000	9.1	Natural Gas	46,000	n/a	73%

					Cooling			Heating			
Site Name - Building Name	Inspected Unit Location	Equipment Type	Qty	Make & Model Number (Year)	Cooling Fuel Used	Cooling Output Capacity [Ton/Unit]	Adjusted Cooling Efficiency [EER]	Heating Fuel Used	Heating Output Capacity [(Btu/h)/Unit]	Adjusted Heating Electric Efficiency [COP]	Adjusted Heating Thermal Efficiency [%]
Public Works - Central Stores Offices	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Reznor Unknown (1990)	Electricity	Unknown	6.9	Natural Gas	Unknown	n/a	0%
Public Works - Central Stores Offices	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier 48VLNB2406030TP (2015)	Electricity	24,000	11.6	Natural Gas	33,000	n/a	80%
Public Works - Central Stores Offices	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Bryant 582APW836060NBAF (2004)	Electricity	60,000	8.0	Natural Gas	46,000	n/a	73%
Public Works - Central Stores Offices	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Carrier 48VLNC2404030TP (2017)	Electricity	24,000	11.4	Natural Gas	33,000	n/a	81%
Public Works - Central Stores Offices	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Bryant Unknow (2002)	Electricity	36,000	7.8	Natural Gas	48,000	n/a	74%
Public Works - Central Stores Offices	Outdoor (Roof)	Package Unit HP	1	Trane XE1600 (1999)	Electricity	36,000	10.6	Electricity	36,000	3	n/a
Public Works - Central Stores Offices	Outdoor (Roof)	Split System AC	1	Fujitsu AOU30CLX1 (2005)	Electricity	30,800	8.3	n/a	n/a	n/a	n/a
Recreation Department - Administration Office	Outdoor (Roof)	Package Unit AC- Gas Heating	2	Carrier 48VLNA3606030 (2011)	Electricity	36,000	11.2	Natural Gas	48,000	n/a	78%
Recreation Department - Administration Office	Outdoor (Roof)	Package Unit AC- Gas Heating	1	Bryant 583BPH060090H3 (2003)	Electricity	60,000	10.3	Natural Gas	70,000	n/a	74%

Table 83: Existing HVAC Equipment Inventory

Existing lighting equipment inventory

Existing fixture description	Qty.
(3) Linear Fluorescent 4x1 Pendant, 32W	14
Compact Fluorescent Bay, 130W	8
Compact Fluorescent Jelly Jar, 26W	1
Compact Fluorescent Surface Can, 26W	11
Compact Fluorescent Surface Can, 32W	8
Compact Fluorescent Surface Can, 42W	3
Halogen Area Light, 150W	5
Halogen Area Light, 200W	6
Halogen Flood, 150W	1
Halogen Flood, 80W	1
High Pressure Sodium Area Light, 150W	11
High Pressure Sodium Area Light, 250W	39
High Pressure Sodium Bay, 120W	20
High Pressure Sodium Bay, 150W	5
High Pressure Sodium Bay, 250W	3
High Pressure Sodium Flood, 100W	5
High Pressure Sodium Flood, 150W	24
High Pressure Sodium Flood, 200W	18
High Pressure Sodium Flood, 250W	4
High Pressure Sodium Flood, 400W	16
High Pressure Sodium Flood, 50W	1
High Pressure Sodium Flood, 70W	16
High Pressure Sodium Shoebox, 150W	2
High Pressure Sodium Shoebox, 250W	36
High Pressure Sodium Shoebox, 400W	7
High Pressure Sodium Wall Pack, 100W	32
High Pressure Sodium Wall Pack, 150W	8
High Pressure Sodium Wall Pack, 200W	9
High Pressure Sodium Wall Pack, 250W	2
High Pressure Sodium Wall Pack, 400W	11
High Pressure Sodium Wall Pack, 70W	3
Incandescent Decorative, 60W	34
Incandescent High Bay, 400W	3
Incandescent Lamp, 40W	2
Incandescent Lamp, 60W	2
Incandescent Lamp, 70W	10
Incandescent Surface Can, 40W	3
Incandescent Shoebox, 60W	6
Induction Shoebox, 100W	36
Induction Shoebox, 250W	21
LED Area Light, 50W	40
LED Bay, 75W	30
LED Cobra Head, 50W	5

Existing fixture description	Qty.
LED Cobra Head, 53W	1
LED Decorative, 10W	25
LED Decorative, 20W	2
LED Flood, 50W	14
LED Flood, 75W	21
LED High Bay, 75W	25
LED Jelly Jar, 15W	52
LED Lamp, 10W	12
LED Pendant, 10W	24
LED Pendant, 11W	13
LED Pendant, 30W	2
LED Recessed Can, 10W	151
LED Recessed Can, 32W	177
LED Recessed Troffer, 11W	3
LED Shoebox, 75W	37
LED Spotlight, 10W	43
LED Surface Can, 10W	10
LED Surface Can, 11W	24
LED Surface Can, 32W	18
LED Surface Can, 75W	10
LED Surface Mount, 11W	15
LED Track Light, 10W	13
LED Track Light, 11W	2
LED Uplight, 40W	1
LED Wall Pack, 100W	3
LED Wall Pack, 110W	10
LED Wall Pack, 40W	8
LED Wall Pack, 50W	2
LED Wall Pack, 60W	8
LED 4x1 Recessed Troffer, 11W	26
LED 4x1 Surface Mount, 11W	59
LED 4x2 Vapor Tight, 11W	2
LED 4x2 Wrap, 11W	111
Linear Fluorescent 2x1 Wrap, 32W	5
Mercury Vapor Jelly Jar, 70W	4
Mercury Vapor Tight Jelly Jar, 50W	1
Metal Halide Area Light, 150W	7
Metal Halide Flood, 100W	5
Metal Halide Flood, 150W	4
Metal Halide Flood, 250W	2
Metal Halide Flood, 400W	13
Metal Halide Flood, 70W	21
Metal Halide High Bay, 250W	6

Existing fixture description	Qty.
Metal Halide Pendant, 250W	2
Metal Halide Shoebox, 1000W	60
Metal Halide Shoebox, 250W	10
Metal Halide Shoebox, 70W	8
Metal Halide Wall Pack, 100W	2
Metal Halide Wall Pack, 150W	8
Metal Halide Wall Pack, 50W	2
MR Track Light, 20W	8
PAR Flood, 80W	4
PAR Lamp, 40W	1
PAR Recessed Can, 40W	108
PAR Recessed Can, 45W	36
PAR Recessed Can, 60W	29
PAR Recessed Can, 75W	4
PAR Track Light, 20W	8
PAR Track Light, 30W	58
Track Light Track Light, 50W	11
(1) LED Surface Mount, 11W	1
(1) LED 4x1 Pendant, 11W	29
(1) LED 4x1 Recessed Troffer, 11W	4
(1) LED 4x1 Surface Mount, 11W	6
(1) LED 4x2 Recessed Troffer, 11W	4
(1) Linear Fluorescent 2x1 Surface Mount, 32W	2
(1) Linear Fluorescent 2x2 Uplight, 32W	4
(1) Linear Fluorescent 3x1 Surface Mount, 32W	1
(1) Linear Fluorescent 4x0.5 Surface Mount, 32W	24
(1) Linear Fluorescent 4x1 Cove, 32W	4
(1) Linear Fluorescent 4x1 Pendant, 32W	20
(1) Linear Fluorescent 4x1 Surface Mount, 32W	45
(1) Linear Fluorescent 8x1 Surface Mount, 32W	6
(1) Linear Fluorescent T5 4x1 Surface Mount, 32W	4
(1) Linear Fluorescent T5 4x1 Uplight, 32W	5
(1) Linear Fluorescent T5 4x1 Vapor Tight, 32W	4
(1) Linear Fluorescent T5 4x1 Wrap, 32W	30
(1) U Fluorescent 2x2 Recessed Troffer, 32W	42
(11) Linear Fluorescent 4x2 High Bay, 32W	12
(2) Compact Fluorescent Decorative, 26W	19
(2) Compact Fluorescent Recessed Can, 32W	60
(2) Compact Fluorescent Surface Can, 32W	16
(2) Compact Fluorescent Wall Pack, 32W	14
(2) High Pressure Sodium Wall Pack, 100W	10

Existing fixture description	Qty.
(2) LED Pendant, 11W	12
(2) LED Recessed Troffer, 11W	181
(2) LED Surface Mount, 11W	13
(2) LED Wrap, 11W	19
(2) LED 4x0.5 Recessed Troffer, 11W	39
(2) LED 4x1 Pendant, 11W	129
(2) LED 4x1 Recessed Troffer, 11W	65
(2) LED 4x1 Surface Mount, 11W	611
(2) LED 4x1 Vapor Tight, 11W	9
(2) LED 4x2 Decorative, 11W	2
(2) LED 4x2 Pendant, 11W	46
(2) LED 4x2 Recessed Troffer, 11W	500
(2) LED 4x2 Surface Mount, 11W	128
(2) LED Area Lights, 100W	1
(2) LED Decorative, 10W	27
(2) LED PAR Recessed Can, 10W	3
(2) Linear Fluorescent 2x2 Recessed Troffer, 32W	113
(2) Linear Fluorescent 2x2 Surface Mount, 32W	22
(2) Linear Fluorescent 2x2 T12 Recessed Troffer, 32W	2
(2) Linear Fluorescent 2x2 Vapor Tight, 32W	4
(2) Linear Fluorescent 3x0.5 Surface Mount, 32W	1
(2) Linear Fluorescent 3x2 Recessed Troffer, 32W	43
(2) Linear Fluorescent 4x0.5 Surface Mount, 32W	23
(2) Linear Fluorescent 4x1 Pendant, 32W	282
(2) Linear Fluorescent 4x1 Recessed Troffer, 32W	28
(2) Linear Fluorescent 4x1 Strip, 32W	4
(2) Linear Fluorescent 4x1 Surface Mount, 32W	332
(2) Linear Fluorescent 4x1 Vapor Tight, 32W	94
(2) Linear Fluorescent 4x2 Low Bay, 32W	15
(2) Linear Fluorescent 4x2 Recessed Troffer, 32W	485
(2) Linear Fluorescent 4x2 Surface Mount Vaportight, 32W	6
(2) Linear Fluorescent 4x2 Surface Mount, 32W	82
(2) Linear Fluorescent 4x2 Wrap, 32W	322
(2) Linear Fluorescent 5x1 Pendant, 32W	62
(2) Linear Fluorescent 8x1 Pendant, 32W	126
(2) Linear Fluorescent 8x1 Surface Mount, 32W	30
(2) Linear Fluorescent T12 4x1 Surface Mount, 32W	26

Existing fixture description	Qty.
(2) Linear Fluorescent T12 8x1 Strip, 32W	4
(2) Linear Fluorescent T12 8x1 Surface Mount, 32W	1
(2) Linear Fluorescent T5 2x1 Strip, 32W	12
(2) Linear Fluorescent T5 4x2 Pendant, 32W	22
(2) Linear Fluorescent T5 4x2 Recessed Troffer, 32W	5
(2) Linear Fluorescent T5 4x2 Surface Mount, 32W	6
(2) PAR Lamp, 32W	5
(2) PAR Recessed Can, 72W	32
(2) PAR Track Fixture, 30W	9
(2) U Fluorescent 2x2 Surface Mount, 32W	18
(2) U Fluorescent 2x2 Recessed Troffer, 32W	512
(3) Compact Fluorescent Decorative, 32W	1
(3) Compact Fluorescent Recessed Can, 32W	2
(3) Compact Fluorescent Recessed Can, 40W	1
(3) LED 4x1 Pendant, 11W	16
(3) LED 4x2 Recessed Troffer, 11W	185
(3) LED 4x2 Surface Mount, 11W	17
(3) Linear Fluorescent 4x2 Recessed Troffer, 32W	114
(3) Linear Fluorescent 4x2 Surface Mount, 32W	26
(4) Compact Fluorescent Surface Can, 26W	2
(4) LED Pendant, 11W	67
(4) LED Surface Mount, 11W	28
(4) LED 4x1 Pendant, 11W	55
(4) LED 4x1 Surface Mount, 11W	6
(4) LED 4x2 Recessed Troffer, 11W	171
(4) LED 4x2 Surface Mount, 11W	33
(4) Linear Fluorescent 4x1 Pendant, 32W	3
(4) Linear Fluorescent 4x1 Surface Mount, 32W	22
(4) Linear Fluorescent 4x2 Recessed Troffer, 32W	361
(4) Linear Fluorescent 4x2 Surface Mount, 32W	37
(4) Linear Fluorescent 5x2 Surface Mount, 32W	121
(4) Linear Fluorescent 8x1 Pendant, 32W	27
(4) Linear Fluorescent 8x1 Surface Mount, 32W	1
(4) Linear Fluorescent 8x2 Surface Mount, 32W	1
(4) Linear Fluorescent T12 4x2 Recessed Troffer, 32W	27
(4) Linear Fluorescent T12 8x1 Pendant, 32W	48
(4) Linear Fluorescent T5 8x1 Surface Mount, 32W	6
(6) Compact Fluorescent High Bay, 26W	25
(6) LED 4x1 Pendant, 11W	10
(6) LED 4x2 High Bay, 11W	14
(6) LED 4x2 Pendant, 11W	30
(6) LED 4x2 Surface Mount, 11W	33
(6) Linear Fluorescent 4x2 High Bay, 32W	18
(7) Linear Fluorescent 4x2 High Bay, 32W	26
(8) LED 4x4 Recessed Troffer, 11W	6
CFL Canopy, 32W	65
Christmas Light, 0.5W	150
Circuline Fluorescent Decorative, 60W	88
Circuline Fluorescent Surface Can, 26W	13
Circuline Fluorescent Surface Can, 32W	12
Compact Fluorescent Decorative, 32W	78
Compact Fluorescent Pendant, 32W	72
Compact Fluorescent Pendant, 42W	18
Compact Fluorescent Recessed Can, 26W	35
Compact Fluorescent Recessed Can, 32W	436
Compact Fluorescent Recessed Can, 36W	1
Compact Fluorescent Recessed Square, 32W	1
Compact Fluorescent Red, 32W	6
Compact Fluorescent Step Light, 32W	13
Compact Fluorescent Surface Can, 20W	2
Compact Fluorescent Surface Can, 32W	50
Compact Fluorescent Surface Vapor Tight, 32W	1
Compact Fluorescent Track Light, 32W	8
Compact Fluorescent Wall Pack, 32W	2
Compact Fluorescent Wall Pack, 42W	44
Compact Fluorescent, 32W	7
TOTAL Number of fixtures & lamps	**9,399**

Table 84: Existing Lighting Equipment Inventory

Existing domestic hot water (DHW) heaters inventory

Site Name - Building Name	Qty.	Make & Model Number (Year)	Fuel Type	Input Capacity [kBtu/h]	Capacity [gal]
Airport - Bldg 210: Maintenance Hangar	1	Unknown (Unknown)	Unknown	Unknown	20
Airport - Bldg 225: Offices	4	Chronomite SR-20L/208 (Unknown)	Electric	5	Instantaneous
Airport - Bldg 226: Offices	1	Bradford White Co. M430T6FBN5 (2004)	Natural Gas	n/a	30
Airport - Bldg 307: Hangar	1	Rheem PR0E40 M2 RH95 (2016)	Electric	5	40
Airport - Bldg 345: Offices	1	Rheem PR0E40 M2 RH95 (2005)	Electric	5	40
Carrillo Gym - Gym	1	Bradford White Co. M2XR75S6BN (2012)	Natural Gas	n/a	75
Central Library - Library	1	American CG32100T884N (1998)	Natural Gas	n/a	100
Fire Station 1	1	HTP PH199-119 (2013)	Natural Gas	n/a	119
Police Station	1	RhEEM Ruud Universal G100-200 (1998)	Natural Gas	n/a	100
Public Works - Motor Pool & Eng Annex	1	Rheem PROG40-38U RH62 EC1 (2016)	Natural Gas	n/a	40
City Hall	1	Bradford White Co. RE340S6-1NCWW (2017)	Electric	5	40
Fire Station 2	1	American Water Heater Co G62-75T75-4NOV (2004)	Natural Gas	n/a	74
Fire Department Admin - Office	1	AO Smith EJC 10 200 (2010)	Electric	2	10
Fire Station 3	1	Rheem 42V60F (2011)	Natural Gas	n/a	60
Fire Station 4	1	American Water Heater Co G62-75T75-4NOV (2006)	Natural Gas	n/a	74
Fire Station 5	1	Rheem 42V60F (2011)	Natural Gas	n/a	60
Fire Station 6	1	American Water Heater Co G122-75T75-4NV (2000)	Natural Gas	n/a	75
Airport - Bldg 255: Administration	1	Chronomite SR-20L/208 (Unknown)	Electric	4	Instantaneous
Airport - Bldg 304: Offices	1	Rheem XG29T06EN30UD (2017)	Natural Gas	n/a	29
Airport - Bldg 114: Offices	1	Bradford White Co. D100L199E3N (2011)	Natural Gas	n/a	100
Airport - Bldg 333: Offices & R&D	1	General Electric GE40T06AVG01 (2002)	Natural Gas	n/a	40
Airport - Bldg 351: Maint. School	1	Bradford White Co. U430T6FRN (2014)	Natural Gas	n/a	30
Airport - Bldg 311: Office	1	general electric GE20P05SAG (2007)	Electric	2	20
Airport - Bldg 311: Office	1	Chronomite SR-20L/240 (Unknown)	Electric	5	Instantaneous
Airport - Bldg 352: Office	1	Chronomite SR-20L/240 (Unknown)	Electric	5	Instantaneous
Recreation Department - Administration Office	1	Rheem 22V40F1 (2007)	Natural Gas	n/a	40
Cater WTP - Admin & Maintenance	1	Rheem 22V50F1 (2007)	Natural Gas	n/a	50
Public Works - Motor Pool & Eng Annex	1	Thermo-Pak GWA 516 N (2009)	Natural Gas	n/a	n/a
Airport - Bldg 344: Offices & R&D	1	Rheem 81V30D D (2005)	Electric	9	30
Airport - Bldg 347: Offices	1	Rheem 42V75F (2013)	Natural Gas	n/a	75

Site Name - Building Name	Qty.	Make & Model Number (Year)	Fuel Type	Input Capacity [kBtu/h]	Capacity [gal]
Airport - Bldg 349: Paint	1	Bradford White Co. M120U6SS-1NAL (2000)	Electric	2	19
Airport - Bldg 303: Industrial	1	Bradford White Co. EFT-0500 (Unknown)	Electric	N/A	Instantaneous
Airport - Bldg 258: Offices	1	EEMAX EMT6 (2018)	Electric	2	6
705 A Firestone	1	Bradford White Co. EFT-0500 (Unknown)	Electric	N/A	Instantaneous
Casa Las Palmas - Rec Center	Unknown	Unknown (Unknown)	Unknown	Unknown	Unknown
Chase Palm Park - Club House	Unknown	Unknown (Unknown)	Unknown	Unknown	Unknown
Louise Lowry Davis Center - Rec Center	1	Rheem 22V40F1 (2006)	Natural Gas	N/A	40
Municipal Tennis Center	1	Rheem G65-65N (2012)	Natural Gas	N/A	63
Los Banos Pool	1	John Wood CST-119 (2018)	Unknown	Unknown	119
Ortega Park - Welcome House	1	Energy Master N 30 HMEV (1987)	Natural Gas	N/A	30
El Estero WWTP - Administration	1	American CG32100T774NOV (2013)	Natural Gas	N/A	94
Airport - Bldg 252: Restaurant	MISSING	MISSING (Unknown)	MISSING	MISSING	MISSING
Franklin Center	1	American CG32-75T75-4NOV 300 (2014)	Natural Gas	N/A	71
Fire Station 7	1	Bradford White Co. URG250T6N (2015)	Natural Gas	N/A	50

Table 85: Existing Domestic Hot Water (DHW) Heaters Inventory

Electrical generation inventory

Existing renewable energy generation systems

Some buildings currently have solar PV panels installed on their roofs, as presented in Table 86. None of these buildings however has the capability to store any of the renewable energy generated. For this reason, all the renewable energy that is not used at the time of generation, is sold back to the grid thanks to the interconnection agreements the City has with the Electric utility, Southern California Edison (SCE).

Site – Building Name	Capacity [KW]	Type of array	Energy Storage on-site?
Public Works Department	302	Rooftop	No
Building Maintenance			
Recreation Department			
Airport - Bldg 508: QTA	190	Rooftop & Carport	No
Fire Station 1	10	Rooftop	No
Fire Station 2	15	Rooftop	No

Table 86: Existing Solar PV Arrays

Existing emergency diesel generators

Just the buildings shown in Table 87 have the capability to stay on when the grid goes down. These buildings do so thanks to the use of diesel generators.

Site – Building Name	Serves	Make	Model	Capacity [KW]
Cater WTP - Admin & Maintenance	Critical Loads	Caterpillar	3508	1,000
Fire Station 3	Critical Loads	Pryco	Unknown	20
Fire Station 4	Critical Loads	Stamford	Cummins	20
Fire Station 5	Critical Loads	Olympian	D20P2S	20
Fire Station 6	Critical Loads	Onan	20DL4 L33820F	20
Airport - Infield Lighting	Infield Lighting	Onan	Kohler	260
Police Station	Critical Loads	Onan	55.OEN-15R/1786B	55
Airport - Bldg 255: Administration	Critical Loads	Pow'r Gard	TS75	60
Airport - Bldg 319: Lift Station	Critical Loads	Pow'r Gard	TS75	60

Table 87: Existing Emergency Diesel Generators

Appendix C: Proposed Building Savings and Cost per EEM

Energy Efficiency Measure (EEM)	Site Name - Building Name	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	Airport - Bldg 114: Offices	11,623	3.11	-23.49	$2,715	$25,355	9.3
	Airport - Bldg 121: Hangar 5	3,123	1.19	-1.07	$925	$8,740	9.5
	Airport - Bldg 122: Flight School & Surf Air	75,075	12.75	-57.47	$16,267	$66,006	4.1
	Airport - Bldg 210: Maintenance Hangar	5,316	2.78	0.00	$1,894	$30,878	16.3
	Airport - Bldg 223: Industrial Retail	6,297	2.51	-9.89	$1,799	$30,140	16.8
	Airport - Bldg 224: Offices	4,007	1.05	0.00	$919	$7,891	8.6
	Airport - Bldg 225: Offices	512	0.15	-0.40	$163	$2,007	12.3
	Airport - Bldg 226: Offices	9,886	4.73	0.00	$2,828	$47,472	16.8
	Airport - Bldg 227: Offices	2,020	0.91	0.00	$522	$6,932	13.3
	Airport - Bldg 252: Restaurant	2,456	0.36	-15.50	$506	$4,073	8.1
	Airport - Bldg 267: Hangar 3	1,372	0.71	0.00	$519	$8,325	16.1
	Airport - Bldg 268: Storage	1,792	0.80	-0.46	$667	$10,380	15.6
	Airport - Bldg 303: Industrial	13,927	1.74	-77.86	$4,051	$23,885	5.9
	Airport - Bldg 305: Industrial	7,571	0.63	0.00	$1,772	$16,699	9.4
	Airport - Bldg 306: Office	3,734	1.45	0.00	$954	$12,239	12.8
	Airport - Bldg 307: Hangar	7,081	2.38	-2.15	$2,148	$16,588	7.7
	Airport - Bldg 308: Infield Lighting Generator	107	0.35	0.00	$113	$4,073	> 30
	Airport - Bldg 309: Hangar 2	8,815	3.52	0.00	$2,693	$21,563	8.0
	Airport - Bldg 311: Office	801	0.35	0.00	$233	$4,037	17.3
	Airport - Bldg 312 & 313: Flight School	13,212	5.07	0.00	$3,003	$24,619	8.2
	Airport - Bldg 314: Offices	2,429	0.67	0.00	$998	$13,250	13.3
	Airport - Bldg 315: Offices	4,938	1.33	-3.84	$1,193	$12,725	10.7
	Airport - Bldg 317: Hangar 1	9,636	2.96	0.00	$2,015	$9,201	4.6
	Airport - Bldg 344: Offices & R&D	28,512	7.52	-22.25	$8,294	$48,967	5.9
	Airport - Bldg 345: Offices	2,224	0.70	-1.73	$759	$9,417	12.4

Energy Efficiency Measure (EEM)	Site Name - Building Name	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	Airport - Bldg 351: Maint. School	591	0.19	-0.46	$215	$3,153	14.7
	Airport - Bldg 352: Office	395	0.13	0.00	$146	$2,018	13.8
	Airport - Bldg 363: Golf Shop	1,951	0.49	0.00	$504	$6,684	13.3
	Airport - Bldg 370: Tire Shop	1,149	0.17	0.00	$298	$3,979	13.4
	Airport - Bldg 508: QTA	13,004	1.58	0.00	$2,796	$16,256	5.8
	Building Maintenance - Garage	39,666	10.67	-79.06	$5,953	$179,382	> 30
	Carrillo Gym - Gym	1,384	0.70	-5.76	$452	$8,129	18.0
	Carrillo Rec Center - Rec Center	1,342	0.91	-11.18	$644	$18,132	28.2
	Casa Las Palmas - Rec Center	2,046	0.48	0.00	$508	$10,343	20.4
	Cater WTP - Admin & Maintenance	32,765	3.25	-189.48	$5,592	$43,892	7.9
	Central Library - Library	6,013	2.18	-21.70	$1,735	$30,841	17.8
	Chase Palm Park - Club House	1,073	0.21	0.00	$328	$8,502	25.9
	City Hall	2,919	0.77	-7.00	$596	$6,852	11.5
	Comm Dev Center	4,701	1.46	-19.68	$1,097	$31,528	28.7
	El Estero WWTP - Administration	34,607	6.28	-77.45	$5,654	$61,024	10.8
	El Estero WWTP - Crews Quarter	1,950	0.07	-6.28	$316	$3,293	10.4
	El Estero WWTP - Digester Control	7,857	0.67	-16.50	$1,205	$9,931	8.2
	El Estero WWTP - Influent Pump Station	8,138	0.80	-17.09	$1,322	$13,993	10.6
	El Estero WWTP - Maintenance	19,971	2.03	-37.24	$3,205	$32,322	10.1
	El Estero WWTP - Parking	175	0.13	0.00	$54	$1,558	29.1
	El Estero WWTP - Prim&Second Process	6,140	0.58	-12.67	$1,007	$11,019	10.9
	El Estero WWTP - Sludge Handling	5,286	0.51	-11.10	$804	$6,338	7.9
	Fire Department Admin - Office	1,154	1.57	-1.04	$796	$27,751	> 30
	Fire Station 1	9,606	0.23	-30.92	$1,684	$17,420	10.4
	Fire Station 2	3,515	0.72	0.00	$417	$8,912	21.4
	Fire Station 5	-20	0.00	0.12	$15	$920	> 30
	Franklin Center	12,881	4.27	-46.46	$3,932	$72,300	18.4

Energy Efficiency Measure (EEM)	Site Name - Building Name	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	Las Positas Tennis Center	550	0.17	0.00	$142	$1,859	13.1
	Los Banos Pool	777	0.66	-1.46	$270	$8,849	> 30
	Municipal Tennis Center	276	0.06	0.00	$185	$920	5.0
	Oak Park - Field	304	0.10	0.00	$123	$2,478	20.2
	Ortega Park - Pool	70	0.22	-0.23	$75	$3,158	> 30
	Parks Department - Administration Office	9,900	2.45	-7.06	$3,015	$53,625	17.8
	Police Department	41,276	3.29	-94.12	$6,144	$39,067	6.4
	Public Works - Central Stores & Purchasing	12,536	1.95	-31.03	$3,150	$34,494	11.0
	Recreation Department - Administration Office	12,535	2.89	-9.58	$3,586	$56,309	15.7
	Westside Comm Center	2,686	1.30	0.00	$796	$14,706	18.5
	TOTAL	**527,635**	**113.83**	**-950.54**	**$116,709**	**$1,317,404**	**11.3**
EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	Airport - Bldg 114: Offices	11,371	2.95	-26.08	$2,516	$17,794	7.1
	Airport - Bldg 116: Retail Arrow Camper	2,288	0.87	0.00	$538	$5,160	9.6
	Airport - Bldg 117: Office	413	0.06	-0.32	$104	$752	7.2
	Airport - Bldg 121: Hangar 5	6,200	1.79	-3.11	$1,712	$11,133	6.5
	Airport - Bldg 122: Flight School & Surf Air	4,785	0.71	-3.51	$1,054	$5,076	4.8
	Airport - Bldg 124: Atlantic Aviation	30,536	1.93	-22.22	$6,181	$18,952	3.1
	Airport - Bldg 210: Maintenance Hangar	1,220	0.41	0.00	$367	$3,703	10.1
	Airport - Bldg 223: Industrial Retail	3,188	0.86	-5.02	$780	$8,695	11.2
	Airport - Bldg 224: Offices	856	0.15	0.00	$205	$2,122	10.4
	Airport - Bldg 225: Offices	4,375	1.08	-2.80	$1,167	$5,827	5.0
	Airport - Bldg 226: Offices	4,056	1.53	0.00	$952	$9,049	9.5
	Airport - Bldg 227: Offices	4,001	1.41	0.00	$1,029	$13,452	13.1
	Airport - Bldg 251: Storage	539	0.28	0.00	$396	$1,637	4.1
	Airport - Bldg 252: Restaurant	13,088	2.63	-17.80	$2,569	$15,322	6.0
	Airport - Bldg 256: Security	20,782	1.12	-16.42	$4,225	$13,814	3.3
	Airport - Bldg 258: Offices	702	0.25	0.00	$159	$1,559	9.8

Energy Efficiency Measure (EEM)	Site Name - Building Name	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	Airport - Bldg 261: Hangar 4	12,313	1.24	0.00	$2,457	$5,886	2.4
	Airport - Bldg 267: Hangar 3	3,920	1.40	0.00	$1,139	$6,676	5.9
	Airport - Bldg 268: Storage	634	0.25	0.00	$186	$1,166	6.3
	Airport - Bldg 274: Hangar	1,190	1.49	0.00	$355	$6,437	18.1
	Airport - Bldg 303: Industrial	1,056	0.12	-5.90	$296	$1,246	4.2
	Airport - Bldg 304: Offices	2,341	0.58	-1.04	$677	$3,821	5.7
	Airport - Bldg 305: Industrial	1,034	0.10	0.00	$212	$799	3.8
	Airport - Bldg 306: Office	5,583	1.56	0.00	$1,280	$10,964	8.6
	Airport - Bldg 307: Hangar	477	0.15	0.00	$141	$923	6.6
	Airport - Bldg 311: Office	227	0.08	0.00	$52	$462	8.8
	Airport - Bldg 312 & 313: Flight School	4,984	1.58	0.00	$1,188	$12,080	10.2
	Airport - Bldg 314: Offices	1,794	0.37	0.00	$596	$2,750	4.6
	Airport - Bldg 315: Offices	3,778	0.70	-2.76	$895	$8,874	9.9
	Airport - Bldg 317: Hangar 1	8,367	2.39	0.00	$1,814	$11,210	6.2
	Airport - Bldg 344: Offices & R&D	8,070	1.94	-6.29	$2,358	$14,385	6.1
	Airport - Bldg 345: Offices	1,341	0.30	-0.89	$421	$3,856	9.2
	Airport - Bldg 351: Maint. School	62	0.01	-0.05	$17	$37	2.2
	Airport - Bldg 352: Office	71	0.01	0.00	$22	$179	8.0
	Airport - Bldg 363: Golf Shop	355	0.08	0.00	$74	$332	4.5
	Airport - Bldg 370: Tire Shop	4,883	0.45	0.00	$1,017	$4,483	4.4
	Airport - Bldg 508: QTA	12,219	1.17	0.00	$2,639	$15,880	6.0
	Building Maintenance - Garage	1,475	0.18	-3.03	$141	$2,641	18.8
	Carrillo Gym - Gym	1,664	0.46	-13.92	$413	$3,224	7.8
	Carrillo Rec Center - Rec Center	16,603	5.53	-136.04	$3,917	$22,031	5.6
	Casa Las Palmas - Rec Center	48	0.01	0.00	$14	$364	25.4
	Cater WTP - Admin & Maintenance	37,008	2.39	-215.57	$5,837	$25,613	4.4
	Central Library - Library	49	0.01	-0.18	$11	$89	8.2

Energy Efficiency Measure (EEM)	Site Name - Building Name	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	Chase Palm Park - Club House	6,363	0.85	0.00	$1,360	$21,236	15.6
	City Hall	7,666	1.21	-17.84	$1,538	$16,617	10.8
	City Surveyor's Office - Office	273	0.08	0.00	$87	$1,388	16.0
	Comm Dev Center	3,846	0.46	-17.18	$993	$30,536	> 30
	Eastside Library	4,273	0.76	-15.43	$1,247	$11,492	9.2
	El Estero WWTP - Influent Pump Station	14,506	1.00	-30.47	$2,167	$15,461	7.1
	El Estero WWTP - Parking	700	0.36	0.00	$117	$1,368	11.7
	El Estero WWTP - Prim&Second Process	4,228	0.22	-8.87	$597	$2,758	4.6
	El Estero WWTP - Sludge Handling	585	0.05	-0.47	$100	$1,275	12.7
	Fire Department Admin - Office	1,095	0.59	-2.60	$393	$8,254	21.0
	Fire Station 1	31,013	0.51	-79.02	$4,719	$20,382	4.3
	Fire Station 2	13,177	0.22	-40.89	$1,112	$10,787	9.7
	Fire Station 3	5,862	0.10	-13.17	$1,097	$3,171	2.9
	Fire Station 4	10,346	0.18	-41.73	$1,889	$6,323	3.4
	Fire Station 5	7,065	0.19	-28.32	$1,292	$4,467	3.5
	Fire Station 6	6,866	0.14	-18.17	$1,259	$4,751	3.8
	Franklin Center	1,230	0.22	-4.54	$318	$4,044	12.7
	Las Positas Tennis Center	101	0.03	0.00	$23	$166	7.4
	Los Banos Pool	411	0.13	-1.45	$122	$3,636	29.9
	Louise Lowry Davis Center - Rec Center	1,010	0.13	-4.99	$261	$4,197	16.1
	Municipal Tennis Center	164	0.04	0.00	$103	$222	2.2
	Oak Park - Field	184	0.02	0.00	$51	$328	6.5
	Ortega Park - Pool	122	0.25	-0.45	$119	$4,877	> 30
	Police Department	58,034	5.05	-48.28	$8,055	$25,737	3.2
	Public Works - Central Stores & Purchasing	11,651	1.96	-23.17	$2,660	$18,705	7.0
	Spencer Adams Lawn Bowling - Club House	271	0.13	0.00	$114	$1,081	9.5
	Westside Comm Center	2,553	0.67	0.00	$716	$11,937	16.7

Energy Efficiency Measure (EEM)	Site Name - Building Name	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	TOTAL	**433,539**	**58.14**	**-879.99**	**$84,634**	**$535,649**	**6.3**
EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	Airport - Bldg 114: Offices	1,665	0.00	0.00	$373	$2,811	7.6
	Airport - Bldg 121: Hangar 5	13,275	0.00	0.00	$3,314	$6,291	1.9
	Airport - Bldg 122: Flight School & Surf Air	35,594	0.00	0.00	$7,630	$27,165	3.6
	Airport - Bldg 124: Atlantic Aviation	3,870	0.00	0.00	$848	$5,648	6.7
	Airport - Bldg 225: Offices	10,391	0.00	0.00	$2,632	$6,806	2.6
	Airport - Bldg 255: Administration	16,974	0.00	0.00	$2,780	$17,729	6.4
	Airport - Bldg 256: Security	11,500	0.00	0.00	$2,405	$10,989	4.6
	Airport - Bldg 258: Offices	3,696	0.00	0.00	$751	$3,932	5.2
	Airport - Bldg 261: Hangar 4	7,231	0.00	0.00	$1,445	$3,536	2.5
	Airport - Bldg 267: Hangar 3	5,785	0.00	0.00	$1,541	$2,829	1.8
	Airport - Bldg 268: Storage	1,959	0.00	0.00	$526	$1,167	2.2
	Airport - Bldg 306: Office	3,785	0.00	0.00	$801	$4,085	5.1
	Airport - Bldg 307: Hangar	2,950	0.00	0.00	$785	$1,398	1.8
	Airport - Bldg 308: Infield Lighting Generator	131	0.00	0.00	$55	$852	15.4
	Airport - Bldg 309: Hangar 2	2,893	0.00	0.00	$770	$1,414	1.8
	Airport - Bldg 312 & 313: Flight School	8,350	0.00	0.00	$1,686	$4,973	3.0
	Airport - Bldg 315: Offices	2,471	0.00	0.00	$496	$1,342	2.7
	Airport - Bldg 317: Hangar 1	1,475	0.00	0.00	$294	$699	2.4
	Airport - Bldg 363: Golf Shop	32,120	0.00	0.00	$7,372	$63,444	8.6
	Airport - Bldg 370: Tire Shop	2,139	0.00	0.00	$438	$1,601	3.7
	Airport - Bldg 508: QTA	16,301	0.00	0.00	$3,395	$14,898	4.4
	Building Maintenance - Garage	5,605	0.00	0.00	$603	$13,419	22.3
	Carrillo Rec Center - Rec Center	3,426	0.00	0.00	$795	$3,902	4.9
	Cater WTP - Admin & Maintenance	809	0.00	0.00	$142	$1,302	9.1
	Chase Palm Park - Club House	1,147	0.00	0.00	$226	$2,854	12.6
	City Hall	5,291	0.00	0.00	$936	$5,186	5.5

Energy Efficiency Measure (EEM)	Site Name - Building Name	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	City Surveyor's Office - Office	1,690	0.00	0.00	$399	$1,627	4.1
	Eastside Library	5,571	0.00	0.00	$1,487	$8,084	5.4
	El Estero WWTP - Administration	8,978	0.00	0.00	$1,447	$14,870	10.3
	El Estero WWTP - Crews Quarter	2,351	0.00	0.00	$390	$4,466	11.4
	El Estero WWTP - Digester Control	6,938	0.00	0.00	$1,010	$6,073	6.0
	El Estero WWTP - Influent Pump Station	5,403	0.00	0.00	$863	$8,559	9.9
	El Estero WWTP - Maintenance	2,793	0.00	0.00	$405	$2,352	5.8
	El Estero WWTP - Parking	11,311	0.00	0.00	$1,632	$9,180	5.6
	El Estero WWTP - Prim&Second Process	36,576	0.00	0.00	$5,606	$46,040	8.2
	El Estero WWTP - Sludge Handling	16,272	0.00	0.00	$2,287	$10,138	4.4
	Fire Department Admin - Office	812	0.00	0.00	$203	$1,682	8.3
	Fire Station 1	1,836	0.00	0.00	$313	$2,889	9.2
	Fire Station 2	5,532	0.00	0.00	$480	$5,211	10.9
	Fire Station 3	591	0.00	0.00	$118	$696	5.9
	Fire Station 4	737	0.00	0.00	$140	$700	5.0
	Fire Station 5	238	0.00	0.00	$43	$121	2.8
	Fire Station 6	557	0.00	0.00	$141	$2,329	16.5
	Franklin Center	12,116	0.00	0.00	$2,776	$21,857	7.9
	Las Positas Tennis Center	5,994	0.00	0.00	$1,167	$1,421	1.2
	Los Banos Pool	1,728	0.00	0.00	$267	$3,056	11.4
	Louise Lowry Davis Center - Rec Center	4,754	0.00	0.00	$962	$6,306	6.6
	Municipal Tennis Center	115	0.00	0.00	$85	$780	9.2
	Oak Park - Field	3,452	0.00	0.00	$917	$4,441	4.8
	Ortega Park - Pool	2,451	0.00	0.00	$581	$7,925	13.7
	Parks Department - Administration Office	66	0.00	0.00	$21	$426	19.8
	Police Department	6,378	0.00	0.00	$969	$7,037	7.3
	Public Works - Central Stores & Purchasing	3,220	0.00	0.00	$707	$3,776	5.3

Energy Efficiency Measure (EEM)	Site Name - Building Name	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	Spencer Adams Lawn Bowling - Club House	787	0.00	0.00	$295	$1,336	4.5
	Westside Comm Center	3,295	0.00	0.00	$671	$2,759	4.1
	TOTAL	**353,375**	**0.00**	**0.00**	**$69,422**	**$396,410**	**5.7**
EEM 4: Upgrade existing HID tennis lighting to LED	Las Positas Tennis Center	17,211	0.00	0.00	$4,769	$74,938	15.7
	TOTAL	**17,211**	**0.00**	**0.00**	**$4,769**	**$74,938**	**15.7**
EEM 5: Programmable Thermostats	Airport - Bldg 117: Office	309	0.06	2.16	$69	$420	6.1
	Airport - Bldg 122: Flight School & Surf Air	1,515	0.29	3.84	$305	$1,260	4.1
	Airport - Bldg 226: Offices	711	0.14	0.00	$135	$1,680	12.4
	Airport - Bldg 227: Offices	695	0.14	0.00	$132	$840	6.4
	Airport - Bldg 252: Restaurant	3,601	0.70	23.36	$644	$2,100	3.3
	Airport - Bldg 255: Administration	2,766	0.54	5.28	$400	$2,520	6.3
	Airport - Bldg 261: Hangar 4	974	0.19	0.00	$185	$840	4.5
	Airport - Bldg 303: Industrial	695	0.14	0.00	$178	$840	4.7
	Airport - Bldg 305: Industrial	1,159	0.23	0.00	$220	$1,260	5.7
	Airport - Bldg 312 & 313: Flight School	2,287	0.44	0.00	$435	$1,680	3.9
	Airport - Bldg 315: Offices	618	0.12	0.00	$117	$420	3.6
	Airport - Bldg 333: Offices & R&D	5,409	1.05	0.00	$1,388	$5,040	3.6
	Airport - Bldg 344: Offices & R&D	1,236	0.24	3.76	$321	$1,260	3.9
	Airport - Bldg 508: QTA	2,009	0.39	0.00	$382	$2,520	6.6
	Animal Control	294	0.06	0.00	$56	$420	7.5
	El Estero WWTP - Administration	6,677	1.30	35.45	$887	$3,360	3.8
	El Estero WWTP - Crews Quarter	448	0.09	0.00	$57	$420	7.3
	El Estero WWTP - Maintenance	757	0.15	5.76	$102	$420	4.1
	El Estero WWTP - Sludge Handling	695	0.14	0.00	$89	$840	9.4
	Fire Department Admin - Office	1,236	0.42	0.00	$268	$840	3.1
	Fire Station 1	3,369	0.65	11.87	$479	$1,260	2.6

Energy Efficiency Measure (EEM)	Site Name - Building Name	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	Fire Station 2	1,546	0.30	13.12	$117	$840	7.2
	Fire Station 3	726	0.14	0.00	$128	$420	3.3
	Fire Station 4	1,005	0.20	0.00	$171	$1,680	9.8
	Fire Station 5	464	0.09	0.00	$79	$420	5.3
	Fire Station 7	603	0.12	0.00	$103	$840	8.2
	Franklin Center	2,627	0.51	20.08	$525	$1,680	3.2
	Louise Lowry Davis Center - Rec Center	1,546	0.30	0.00	$324	$840	2.6
	Mckenzie Park - Park Adult	618	0.12	0.00	$115	$420	3.7
	Public Works - Central Stores Offices	4,281	0.83	12.80	$852	$5,040	5.9
	Recreation Department - Administration Office	1,700	0.33	13.28	$346	$1,260	3.7
	TOTAL	**52,578**	**10.39**	**150.76**	**$9,608**	**$43,680**	**4.6**
EEM 6: HVAC Systems Advanced Maintenance	Airport - Bldg 114: Offices	3,498	3.91	239.09	$880	$2,445	2.8
	Airport - Bldg 122: Flight School & Surf Air	1,406	1.58	31.62	$308	$1,029	3.3
	Airport - Bldg 124: Atlantic Aviation	2,284	2.56	129.10	$550	$1,597	2.9
	Airport - Bldg 226: Offices	331	0.37	0.00	$63	$247	3.9
	Airport - Bldg 227: Offices	216	0.24	0.00	$41	$161	3.9
	Airport - Bldg 252: Restaurant	2,284	2.56	129.10	$511	$1,597	3.1
	Airport - Bldg 255: Administration	1,418	1.59	43.47	$242	$1,024	4.2
	Airport - Bldg 261: Hangar 4	906	1.02	0.00	$172	$675	3.9
	Airport - Bldg 303: Industrial	647	0.73	0.00	$166	$482	2.9
	Airport - Bldg 305: Industrial	1,078	1.22	0.00	$205	$804	3.9
	Airport - Bldg 312 & 313: Flight School	1,409	1.59	0.00	$268	$1,051	3.9
	Airport - Bldg 333: Offices & R&D	5,032	5.68	0.00	$1,291	$3,753	2.9
	Airport - Bldg 344: Offices & R&D	3,437	3.86	153.47	$1,020	$2,477	2.4
	Airport - Bldg 508: QTA	1,869	2.11	0.00	$355	$1,394	3.9
	Carrillo Rec Center - Rec Center	5,980	6.75	0.00	$1,252	$4,460	3.6
	Casa Las Palmas - Rec Center	719	0.81	0.00	$150	$536	3.6

Energy Efficiency Measure (EEM)	Site Name - Building Name	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	Cater WTP - Admin & Maintenance	2,515	2.82	131.73	$480	$1,776	3.7
	Central Library - Library	11,993	13.42	632.96	$2,801	$8,384	3.0
	City Hall	7,576	8.53	170.59	$1,331	$5,550	4.2
	Comm Dev Center	10,637	11.90	697.25	$1,684	$7,436	4.4
	Eastside Library	2,377	2.67	97.48	$653	$1,709	2.6
	El Estero WWTP - Administration	3,608	4.05	136.34	$585	$2,589	4.4
	El Estero WWTP - Crews Quarter	417	0.47	0.00	$53	$311	5.8
	El Estero WWTP - Maintenance	700	0.78	47.42	$132	$489	3.7
	El Estero WWTP - Sludge Handling	359	0.41	0.00	$46	$268	5.8
	Fire Department Admin - Office	1,150	2.27	0.00	$249	$1,501	6.0
	Fire Station 1	3,935	4.42	171.18	$701	$2,811	4.0
	Fire Station 7	273	0.31	0.00	$47	$204	4.4
	Franklin Center	5,354	5.99	364.89	$1,362	$3,743	2.8
	Louise Lowry Davis Center - Rec Center	1,438	1.62	0.00	$301	$1,072	3.6
	Parks Department - Administration Office	999	1.12	75.09	$264	$699	2.7
	Police Department	9,632	10.87	0.00	$1,251	$7,184	5.7
	Public Works - Central Stores Offices	3,183	3.58	73.77	$691	$2,314	3.4
	Recreation Department - Administration Office	857	0.96	63.23	$225	$599	2.7
	TOTAL	**99,518**	**112.76**	**3,387.77**	**$20,331**	**$72,370**	**3.6**
EEM 7: Evaporator fan motor replacement	Airport - Bldg 114: Offices	828	0.00	0.00	$157	$1,800	11.4
	Airport - Bldg 124: Atlantic Aviation	541	0.00	0.00	$103	$1,200	11.7
	Airport - Bldg 312 & 313: Flight School	162	0.00	0.00	$31	$300	9.7
	Airport - Bldg 344: Offices & R&D	541	0.00	0.00	$139	$1,200	8.7
	Cater WTP - Admin & Maintenance	507	0.00	0.00	$73	$300	4.1
	Central Library - Library	886	0.00	0.00	$165	$300	1.8
	Comm Dev Center	507	0.00	0.00	$50	$900	17.9
	Fire Station 1	287	0.00	0.00	$40	$300	7.5

Energy Efficiency Measure (EEM)	Site Name - Building Name	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	Franklin Center	693	0.00	0.00	$134	$1,500	11.2
	Public Works - Central Stores Offices	169	0.00	0.00	$33	$300	9.1
	TOTAL	**5,121**	**0.00**	**0.00**	**$925**	**$8,100**	**8.8**
EEM 8: CRAC units evaporator fan motor replacement	Airport - Bldg 344: Offices & R&D	337	0.03	0.00	$86	$300	3.5
	City Hall	1,122	0.10	0.00	$174	$600	3.4
	Comm Dev Center	281	0.03	0.00	$28	$300	10.8
	Fire Station 1	314	0.03	0.00	$44	$300	6.9
	Police Department	561	0.05	0.00	$73	$300	4.1
	TOTAL	**2,615**	**0.23**	**0.00**	**$405**	**$1,800**	**4.4**
EEM 9: Exposed Rooftop Ductwork Spray-On Insulation	Airport - Bldg 252: Restaurant	864	0.43	432.00	$581	$1,447	2.5
	Airport - Bldg 312 & 313: Flight School	972	0.32	0.00	$185	$268	1.5
	Central Library - Library	1,296	0.65	648.00	$889	$965	1.1
	City Hall	864	0.43	432.00	$566	$375	0.7
	El Estero WWTP - Crews Quarter	432	0.22	216.00	$271	$129	0.5
	El Estero WWTP - Maintenance	648	0.32	324.00	$407	$214	0.5
	El Estero WWTP - Sludge Handling	432	0.22	216.00	$271	$75	0.3
	Fire Station 1	432	0.22	216.00	$276	$107	0.4
	TOTAL	**5,940**	**2.81**	**2,484.00**	**$3,447**	**$3,580**	**1.0**
EEM 10: Kitchen Hood Exhaust	Airport - Bldg 252: Restaurant	13,269	1.65	0.00	$2,294	$5,973	2.6
	TOTAL	**13,269**	**1.65**	**0.00**	**$2,294**	**$5,973**	**2.6**
EEM 11: Circulating Block Heater for Emergency Generators	Airport - Bldg 255: Administration	5,181	0.65	14.00	$740	$864	1.2
	Airport - Bldg 319: Lift Station	5,181	0.65	0.00	$1,513	$864	0.6
	Airport - Infield Lighting	3,349	0.42	0.00	$496	$957	1.9
	Cater WTP - Admin & Maintenance	12,817	1.60	52.00	$1,844	$1,330	0.7
	Fire Station 3	5,181	0.65	76.00	$914	$864	1.0
	Fire Station 4	5,181	0.65	77.00	$883	$864	1.0
	Fire Station 5	5,181	0.65	78.00	$882	$864	1.0

Energy Efficiency Measure (EEM)	Site Name - Building Name	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	Fire Station 6	5,181	0.65	79.00	$879	$864	1.0
	Police Department	5,181	0.65	95.00	$673	$864	1.3
	TOTAL	**52,433**	**6.57**	**471.00**	**$8,823**	**$8,335**	**0.9**
EEM 12: Vending Miser Controller	Airport - Bldg 124: Atlantic Aviation	446	0.00	0.00	$85	$237	2.8
	Airport - Bldg 255: Administration	446	0.00	0.00	$64	$237	3.7
	Airport - Bldg 333: Offices & R&D	446	0.00	0.00	$114	$237	2.1
	City Hall	446	0.00	0.00	$69	$237	3.4
	Municipal Tennis Center	446	0.00	0.00	$269	$237	0.9
	Police Department	891	0.00	0.00	$116	$474	4.1
	Public Works - Central Stores Offices	446	0.00	0.00	$87	$237	2.7
	TOTAL	**3,565**	**0.00**	**0.00**	**$804**	**$1,895**	**2.4**
EEM 13: DHW Heater Replacement	Airport - Bldg 226: Offices	0	0.00	67.94	$61	$1,438	23.5
	Airport - Bldg 311: Office	418	0.00	0.00	$79	$1,294	16.3
	Airport - Bldg 333: Offices & R&D	0	0.00	120.66	$109	$1,650	15.2
	Airport - Bldg 344: Offices & R&D	1,683	0.00	0.00	$432	$923	2.1
	Airport - Bldg 345: Offices	667	0.00	0.00	$171	$1,015	5.9
	Airport - Bldg 349: Paint	399	0.00	0.00	$56	$830	14.9
	Cater WTP - Admin & Maintenance	0	0.00	103.12	$93	$1,863	20.1
	Central Library - Library	0	0.00	301.05	$271	$2,500	9.2
	Fire Station 2	0	0.00	671.98	$605	$2,225	3.7
	Fire Station 4	0	0.00	505.76	$455	$2,225	4.9
	Fire Station 6	0	0.00	136.84	$123	$2,225	18.1
	Louise Lowry Davis Center - Rec Center	0	0.00	101.02	$91	$1,650	18.2
	Mckenzie Park - Lawn Bowling	0	0.00	146.68	$132	$1,438	10.9
	Ortega Park - Welcome House	0	0.00	138.37	$125	$1,438	11.6
	Police Department	0	0.00	683.86	$615	$2,500	4.1
	Recreation Department - Administration Office	0	0.00	98.01	$88	$1,650	18.7

Energy Efficiency Measure (EEM)	Site Name - Building Name	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	TOTAL	**3,167**	**0.00**	**3,075.29**	**$3,506**	**$26,862**	**7.7**
EEM 14: Advanced Package Unit Controllers	Airport - Bldg 114: Offices	12,955	0.74	25.41	$2,484	$30,830	12.4
	Airport - Bldg 122: Flight School & Surf Air	1,586	0.09	3.36	$319	$5,138	16.1
	Airport - Bldg 124: Atlantic Aviation	8,460	0.48	13.72	$1,620	$20,554	12.7
	Airport - Bldg 252: Restaurant	8,460	0.48	13.72	$1,475	$20,554	13.9
	Airport - Bldg 255: Administration	2,644	0.15	4.62	$382	$5,138	13.5
	Airport - Bldg 312 & 313: Flight School	5,182	0.29	0.00	$985	$15,415	15.7
	Airport - Bldg 333: Offices & R&D	18,507	1.05	0.00	$4,748	$56,522	11.9
	Airport - Bldg 344: Offices & R&D	11,104	0.63	16.31	$2,863	$30,830	10.8
	Cater WTP - Admin & Maintenance	7,931	0.45	14.00	$1,154	$5,138	4.5
	Central Library - Library	44,416	2.52	67.27	$8,323	$30,830	3.7
	City Hall	8,989	0.51	18.13	$1,414	$30,830	21.8
	Comm Dev Center	39,393	2.24	74.10	$3,978	$61,661	15.5
	Eastside Library	5,076	0.29	10.36	$1,217	$5,138	4.2
	El Estero WWTP - Administration	8,090	0.46	14.49	$1,049	$10,277	9.8
	El Estero WWTP - Crews Quarter	1,533	0.09	0.00	$196	$5,138	26.2
	El Estero WWTP - Maintenance	2,591	0.15	5.04	$336	$5,138	15.3
	El Estero WWTP - Sludge Handling	1,322	0.08	0.00	$169	$5,138	> 30
	Fire Station 1	9,782	0.56	18.19	$1,376	$10,277	7.5
	Franklin Center	19,829	1.13	38.78	$3,862	$46,245	12.0
	Louise Lowry Davis Center - Rec Center	2,644	0.15	0.00	$554	$5,138	9.3
	Parks Department - Administration Office	3,701	0.21	7.98	$734	$15,415	21.0
	Public Works - Central Stores Offices	6,874	0.39	7.84	$1,356	$20,554	15.2
	Recreation Department - Administration Office	3,173	0.18	6.72	$629	$10,277	16.4
	TOTAL	**234,241**	**13.29**	**360.05**	**$41,223**	**$452,177**	**11.0**
EEM 15: Replace Package Units, Split Systems, and Window Units	Airport - Bldg 117: Office	751	0.56	0.27	$162	$3,194	19.7
	Airport - Bldg 226: Offices	2,103	1.57	0.00	$400	$8,621	21.6

Energy Efficiency Measure (EEM)	Site Name - Building Name	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	Airport - Bldg 227: Offices	2,147	1.60	0.00	$408	$4,791	11.7
	Airport - Bldg 252: Restaurant	2,742	2.04	0.96	$475	$11,658	24.6
	Airport - Bldg 255: Administration	5,133	3.83	0.00	$733	$13,250	18.1
	Airport - Bldg 312 & 313: Flight School	7,124	5.31	0.00	$1,353	$15,650	11.6
	Airport - Bldg 315: Offices	1,502	1.12	0.00	$285	$7,337	25.7
	Animal Control	1,427	1.06	0.00	$271	$3,485	12.9
	Carrillo Rec Center - Rec Center	2,817	2.10	1.00	$591	$11,977	20.3
	Central Library - Library	2,817	2.10	1.00	$525	$11,977	22.8
	City Hall	9,077	6.77	1.48	$1,412	$28,808	20.4
	Comm Dev Center	2,441	1.82	0.62	$243	$10,973	> 30
	Eastside Library	3,005	2.24	1.40	$716	$12,775	17.8
	El Estero WWTP - Administration	6,760	5.04	2.36	$868	$28,745	> 30
	El Estero WWTP - Sludge Handling	1,471	1.10	0.00	$188	$3,194	17.0
	Fire Station 1	1,052	0.78	0.00	$146	$5,136	> 30
	Fire Station 2	3,756	2.80	1.64	$257	$15,969	> 30
	Fire Station 3	1,765	1.32	0.00	$311	$8,621	27.7
	Fire Station 4	2,441	1.82	0.00	$416	$11,922	28.7
	Fire Station 5	1,127	0.84	0.00	$192	$5,503	28.7
	Fire Station 7	751	0.56	0.00	$128	$3,668	28.6
	Mckenzie Park - Park Adult	1,502	1.12	0.00	$280	$7,337	26.2
	Police Department	1,502	1.12	0.00	$195	$7,337	> 30
	Public Works - Central Stores Offices	5,070	3.78	0.94	$996	$16,768	16.8
	Recreation Department - Administration Office	1,878	1.40	0.70	$369	$7,985	21.6
	TOTAL	**72,161**	**53.80**	**12.37**	**$11,922**	**$266,678**	**22.4**
EEM 16: Duct Sealing*	Airport - Bldg 114: Offices	12	0.02	2.04	$4	$935	> 30
	Airport - Bldg 122: Flight School & Surf Air	5	0.01	0.25	$1	$374	> 30
	Airport - Bldg 124: Atlantic Aviation	8	0.02	1.33	$3	$611	> 30

Energy Efficiency Measure (EEM)	Site Name - Building Name	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	Airport - Bldg 226: Offices	1	0.00	0.00	$0	$88	> 30
	Airport - Bldg 227: Offices	1	0.00	0.00	$0	$57	> 30
	Airport - Bldg 252: Restaurant	8	0.02	1.33	$3	$611	> 30
	Airport - Bldg 255: Administration	5	0.01	0.42	$1	$378	> 30
	Airport - Bldg 261: Hangar 4	3	0.01	0.00	$1	$240	> 30
	Airport - Bldg 303: Industrial	2	0.00	0.00	$1	$172	> 30
	Airport - Bldg 305: Industrial	4	0.01	0.00	$1	$286	> 30
	Airport - Bldg 312 & 313: Flight School	5	0.01	0.00	$1	$374	> 30
	Airport - Bldg 333: Offices & R&D	17	0.03	0.00	$4	$1,336	> 30
	Airport - Bldg 344: Offices & R&D	11	0.02	1.08	$4	$916	> 30
	Airport - Bldg 508: QTA	6	0.01	0.00	$1	$496	> 30
	Carrillo Rec Center - Rec Center	20	0.04	0.00	$4	$1,588	> 30
	Casa Las Palmas - Rec Center	2	0.00	0.00	$1	$191	> 30
	Cater WTP - Admin & Maintenance	8	0.02	1.25	$2	$672	> 30
	Central Library - Library	40	0.08	6.98	$14	$3,206	> 30
	City Hall	25	0.05	1.25	$5	$2,015	> 30
	Comm Dev Center	36	0.07	6.19	$9	$2,844	> 30
	Eastside Library	8	0.02	0.80	$3	$634	> 30
	El Estero WWTP - Administration	12	0.03	1.27	$3	$962	> 30
	El Estero WWTP - Crews Quarter	1	0.00	0.00	$0	$111	> 30
	El Estero WWTP - Maintenance	2	0.00	0.41	$1	$187	> 30
	El Estero WWTP - Sludge Handling	1	0.00	0.00	$0	$95	> 30
	Fire Department Admin - Office	7	0.01	0.00	$1	$534	> 30
	Fire Station 1	13	0.03	1.54	$3	$1,050	> 30
	Fire Station 7	1	0.00	0.00	$0	$73	> 30
	Franklin Center	18	0.04	3.12	$6	$1,431	> 30
	Louise Lowry Davis Center - Rec Center	5	0.01	0.00	$1	$382	> 30

Energy Efficiency Measure (EEM)	Site Name - Building Name	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	Parks Department - Administration Office	3	0.01	0.58	$1	$267	> 30
	Police Department	32	0.07	0.00	$4	$2,557	> 30
	Public Works - Central Stores Offices	11	0.02	0.75	$3	$847	> 30
	Recreation Department - Administration Office	3	0.01	0.50	$1	$229	> 30
	TOTAL	**335**	**0.70**	**31.05**	**$86**	**$26,750**	**> 30**
EEM 17: Replace Furnace with High Energy Efficiency Furnaces*	Carrillo Gym - Gym	0	0.00	4.28	$4	$2,361	> 30
	El Estero WWTP - Administration	0	0.00	2.68	$2	$1,476	> 30
	Fire Station 3	0	0.00	3.82	$3	$2,105	> 30
	Los Banos Pool	0	0.00	3.57	$3	$1,968	> 30
	Louise Lowry Davis Center - Rec Center	0	0.00	4.46	$4	$2,459	> 30
	TOTAL	**0**	**0.00**	**18.80**	**$17**	**$10,369**	**> 30**
TOTAL		**1,876,702**	**374.16**	**8,160.56**	**$378,924**	**$3,252,969**	**8.6**

*Based on the poor economics presented by this EEM, the City should just pursue this measure in case the equipment fails.

Table 88: Proposed Building Savings and Cost per EEM

Appendix D: Proposed EEM Savings and Cost per Building

Site Name - Building Name	Energy Efficiency Measure (EEM)	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
Airport - Bldg 114: Offices	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	11,623	3.11	-23.49	$2,715	$25,355	9.3
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	11,371	2.95	-26.08	$2,516	$17,794	7.1
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	1,665	0.00	0.00	$373	$2,811	7.6
	EEM 6: HVAC Systems Advanced Maintenance	3,498	3.91	239.09	$880	$2,445	2.8
	EEM 7: Evaporator fan motor replacement	828	0.00	0.00	$157	$1,800	11.4
	EEM 14: Advanced Package Unit Controllers	12,955	0.74	25.41	$2,484	$30,830	12.4
	EEM 16: Duct Sealing*	12	0.02	2.04	$4	$935	> 30
	TOTAL	**41,951**	**10.73**	**216.97**	**$9,130**	**$81,972**	**9.0**
Airport - Bldg 116: Retail Arrow Camper	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	2,288	0.87	0.00	$538	$5,160	9.6
	TOTAL	**2,288**	**0.87**	**0.00**	**$538**	**$5,160**	**9.6**
Airport - Bldg 117: Office	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	413	0.06	-0.32	$104	$752	7.2
	EEM 5: Programmable Thermostats	309	0.06	2.16	$69	$420	6.1
	EEM 15: Replace Package Units, Split Systems, and Window Units	751	0.56	0.27	$162	$3,194	19.7
	TOTAL	**1,473**	**0.68**	**2.11**	**$335**	**$4,365**	**13.0**
Airport - Bldg 121: Hangar 5	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	3,123	1.19	-1.07	$925	$8,740	9.5
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	6,200	1.79	-3.11	$1,712	$11,133	6.5

Site Name - Building Name	Energy Efficiency Measure (EEM)	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	13,275	0.00	0.00	$3,314	$6,291	1.9
	TOTAL	**22,598**	**2.98**	**-4.18**	**$5,951**	**$26,164**	**4.4**
Airport - Bldg 122: Flight School & Surf Air	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	75,075	12.75	-57.47	$16,267	$66,006	4.1
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	4,785	0.71	-3.51	$1,054	$5,076	4.8
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	35,594	0.00	0.00	$7,630	$27,165	3.6
	EEM 5: Programmable Thermostats	1,515	0.29	3.84	$305	$1,260	4.1
	EEM 6: HVAC Systems Advanced Maintenance	1,406	1.58	31.62	$308	$1,029	3.3
	EEM 14: Advanced Package Unit Controllers	1,586	0.09	3.36	$319	$5,138	16.1
	EEM 16: Duct Sealing*	5	0.01	0.25	$1	$374	> 30
	TOTAL	**119,966**	**15.44**	**-21.92**	**$25,885**	**$106,049**	**4.1**
Airport - Bldg 124: Atlantic Aviation	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	30,536	1.93	-22.22	$6,181	$18,952	3.1
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	3,870	0.00	0.00	$848	$5,648	6.7
	EEM 6: HVAC Systems Advanced Maintenance	2,284	2.56	129.10	$550	$1,597	2.9
	EEM 7: Evaporator fan motor replacement	541	0.00	0.00	$103	$1,200	11.7
	EEM 12: Vending Miser Controller	446	0.00	0.00	$85	$237	2.8
	EEM 14: Advanced Package Unit Controllers	8,460	0.48	13.72	$1,620	$20,554	12.7
	EEM 16: Duct Sealing*	8	0.02	1.33	$3	$611	> 30
	TOTAL	**46,145**	**4.98**	**121.92**	**$9,389**	**$48,798**	**5.2**

Site Name - Building Name	Energy Efficiency Measure (EEM)	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
Airport - Bldg 210: Maintenance Hangar	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	5,316	2.78	0.00	$1,894	$30,878	16.3
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	1,220	0.41	0.00	$367	$3,703	10.1
	TOTAL	**6,535**	**3.19**	**0.00**	**$2,261**	**$34,581**	**15.3**
Airport - Bldg 223: Industrial Retail	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	6,297	2.51	-9.89	$1,799	$30,140	16.8
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	3,188	0.86	-5.02	$780	$8,695	11.2
	TOTAL	**9,485**	**3.37**	**-14.91**	**$2,579**	**$38,835**	**15.1**
Airport - Bldg 224: Offices	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	4,007	1.05	0.00	$919	$7,891	8.6
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	856	0.15	0.00	$205	$2,122	10.4
	TOTAL	**4,863**	**1.20**	**0.00**	**$1,124**	**$10,014**	**8.9**
Airport - Bldg 225: Offices	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	512	0.15	-0.40	$163	$2,007	12.3
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	4,375	1.08	-2.80	$1,167	$5,827	5.0
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	10,391	0.00	0.00	$2,632	$6,806	2.6
	TOTAL	**15,278**	**1.23**	**-3.20**	**$3,962**	**$14,640**	**3.7**
Airport - Bldg 226: Offices	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	9,886	4.73	0.00	$2,828	$47,472	16.8
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	4,056	1.53	0.00	$952	$9,049	9.5

Site Name - Building Name	Energy Efficiency Measure (EEM)	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	EEM 5: Programmable Thermostats	711	0.14	0.00	$135	$1,680	12.4
	EEM 6: HVAC Systems Advanced Maintenance	331	0.37	0.00	$63	$247	3.9
	EEM 13: DHW Heater Replacement	0	0.00	67.94	$61	$1,438	23.5
	EEM 15: Replace Package Units, Split Systems, and Window Units	2,103	1.57	0.00	$400	$8,621	21.6
	EEM 16: Duct Sealing*	1	0.00	0.00	$0	$88	> 30
	TOTAL	**17,087**	**8.34**	**67.94**	**$4,438**	**$68,594**	**15.5**
Airport - Bldg 227: Offices	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	2,020	0.91	0.00	$522	$6,932	13.3
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	4,001	1.41	0.00	$1,029	$13,452	13.1
	EEM 5: Programmable Thermostats	695	0.14	0.00	$132	$840	6.4
	EEM 6: HVAC Systems Advanced Maintenance	216	0.24	0.00	$41	$161	3.9
	EEM 15: Replace Package Units, Split Systems, and Window Units	2,147	1.60	0.00	$408	$4,791	11.7
	EEM 16: Duct Sealing*	1	0.00	0.00	$0	$57	> 30
	TOTAL	**9,079**	**4.30**	**0.00**	**$2,133**	**$26,233**	**12.3**
Airport - Bldg 251: Storage	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	539	0.28	0.00	$396	$1,637	4.1
	TOTAL	**539**	**0.28**	**0.00**	**$396**	**$1,637**	**4.1**
Airport - Bldg 252: Restaurant	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	2,456	0.36	-15.50	$506	$4,073	8.1
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	13,088	2.63	-17.80	$2,569	$15,322	6.0
	EEM 5: Programmable Thermostats	3,601	0.70	23.36	$644	$2,100	3.3
	EEM 6: HVAC Systems Advanced Maintenance	2,284	2.56	129.10	$511	$1,597	3.1
	EEM 9: Exposed Rooftop Ductwork Spray-On Insulation	864	0.43	432.00	$581	$1,447	2.5

Site Name - Building Name	Energy Efficiency Measure (EEM)	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	EEM 10: Kitchen Hood Exhaust	13,269	1.65	0.00	$2,294	$5,973	2.6
	EEM 14: Advanced Package Unit Controllers	8,460	0.48	13.72	$1,475	$20,554	13.9
	EEM 15: Replace Package Units, Split Systems, and Window Units	2,742	2.04	0.96	$475	$11,658	24.6
	EEM 16: Duct Sealing*	8	0.02	1.33	$3	$611	> 30
	TOTAL	**46,772**	**10.87**	**567.16**	**$9,057**	**$63,334**	**7.0**
Airport - Bldg 255: Administration	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	16,974	0.00	0.00	$2,780	$17,729	6.4
	EEM 5: Programmable Thermostats	2,766	0.54	5.28	$400	$2,520	6.3
	EEM 6: HVAC Systems Advanced Maintenance	1,418	1.59	43.47	$242	$1,024	4.2
	EEM 11: Circulating Block Heater for Emergency Generators	5,181	0.65	14.00	$740	$864	1.2
	EEM 12: Vending Miser Controller	446	0.00	0.00	$64	$237	3.7
	EEM 14: Advanced Package Unit Controllers	2,644	0.15	4.62	$382	$5,138	13.5
	EEM 15: Replace Package Units, Split Systems, and Window Units	5,133	3.83	0.00	$733	$13,250	18.1
	EEM 16: Duct Sealing*	5	0.01	0.42	$1	$378	> 30
	TOTAL	**34,567**	**6.77**	**67.79**	**$5,341**	**$41,140**	**7.7**
Airport - Bldg 256: Security	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	20,782	1.12	-16.42	$4,225	$13,814	3.3
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	11,500	0.00	0.00	$2,405	$10,989	4.6
	TOTAL	**32,282**	**1.12**	**-16.42**	**$6,630**	**$24,803**	**3.7**
Airport - Bldg 258: Offices	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	702	0.25	0.00	$159	$1,559	9.8

Site Name - Building Name	Energy Efficiency Measure (EEM)	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	3,696	0.00	0.00	$751	$3,932	5.2
	TOTAL	**4,399**	**0.25**	**0.00**	**$909**	**$5,491**	**6.0**
Airport - Bldg 261: Hangar 4	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	12,313	1.24	0.00	$2,457	$5,886	2.4
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	7,231	0.00	0.00	$1,445	$3,536	2.5
	EEM 5: Programmable Thermostats	974	0.19	0.00	$185	$840	4.5
	EEM 6: HVAC Systems Advanced Maintenance	906	1.02	0.00	$172	$675	3.9
	EEM 16: Duct Sealing*	3	0.01	0.00	$1	$240	> 30
	TOTAL	**21,426**	**2.46**	**0.00**	**$4,259**	**$11,178**	**2.6**
Airport - Bldg 267: Hangar 3	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	1,372	0.71	0.00	$519	$8,325	16.1
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	3,920	1.40	0.00	$1,139	$6,676	5.9
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	5,785	0.00	0.00	$1,541	$2,829	1.8
	TOTAL	**11,076**	**2.11**	**0.00**	**$3,198**	**$17,830**	**5.6**
Airport - Bldg 268: Storage	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	1,792	0.80	-0.46	$667	$10,380	15.6
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	634	0.25	0.00	$186	$1,166	6.3
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	1,959	0.00	0.00	$526	$1,167	2.2
	TOTAL	**4,385**	**1.05**	**-0.46**	**$1,379**	**$12,713**	**9.2**

Site Name - Building Name	Energy Efficiency Measure (EEM)	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
Airport - Bldg 274: Hangar	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	1,190	1.49	0.00	$355	$6,437	18.1
	TOTAL	**1,190**	**1.49**	**0.00**	**$355**	**$6,437**	**18.1**
Airport - Bldg 303: Industrial	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	13,927	1.74	-77.86	$4,051	$23,885	5.9
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	1,056	0.12	-5.90	$296	$1,246	4.2
	EEM 5: Programmable Thermostats	695	0.14	0.00	$178	$840	4.7
	EEM 6: HVAC Systems Advanced Maintenance	647	0.73	0.00	$166	$482	2.9
	EEM 16: Duct Sealing*	2	0.00	0.00	$1	$172	> 30
	TOTAL	**16,328**	**2.73**	**-83.76**	**$4,691**	**$26,625**	**5.7**
Airport - Bldg 304: Offices	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	2,341	0.58	-1.04	$677	$3,821	5.7
	TOTAL	**2,341**	**0.58**	**-1.04**	**$677**	**$3,821**	**5.7**
Airport - Bldg 305: Industrial	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	7,571	0.63	0.00	$1,772	$16,699	9.4
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	1,034	0.10	0.00	$212	$799	3.8
	EEM 5: Programmable Thermostats	1,159	0.23	0.00	$220	$1,260	5.7
	EEM 6: HVAC Systems Advanced Maintenance	1,078	1.22	0.00	$205	$804	3.9
	EEM 16: Duct Sealing*	4	0.01	0.00	$1	$286	> 30
	TOTAL	**10,846**	**2.18**	**0.00**	**$2,411**	**$19,849**	**8.2**
Airport - Bldg 306: Office	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	3,734	1.45	0.00	$954	$12,239	12.8
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	5,583	1.56	0.00	$1,280	$10,964	8.6

Site Name - Building Name	Energy Efficiency Measure (EEM)	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	3,785	0.00	0.00	$801	$4,085	5.1
	TOTAL	**13,102**	**3.01**	**0.00**	**$3,035**	**$27,288**	**9.0**
Airport - Bldg 307: Hangar	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	7,081	2.38	-2.15	$2,148	$16,588	7.7
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	477	0.15	0.00	$141	$923	6.6
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	2,950	0.00	0.00	$785	$1,398	1.8
	TOTAL	**10,508**	**2.53**	**-2.15**	**$3,074**	**$18,909**	**6.2**
Airport - Bldg 308: Infield Lighting Generator	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	107	0.35	0.00	$113	$4,073	> 30
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	131	0.00	0.00	$55	$852	15.4
	TOTAL	**238**	**0.35**	**0.00**	**$168**	**$4,925**	**29.3**
Airport - Bldg 309: Hangar 2	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	8,815	3.52	0.00	$2,693	$21,563	8.0
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	2,893	0.00	0.00	$770	$1,414	1.8
	TOTAL	**11,708**	**3.52**	**0.00**	**$3,463**	**$22,977**	**6.6**
Airport - Bldg 311: Office	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	801	0.35	0.00	$233	$4,037	17.3
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	227	0.08	0.00	$52	$462	8.8
	EEM 13: DHW Heater Replacement	418	0.00	0.00	$79	$1,294	16.3
	TOTAL	**1,446**	**0.43**	**0.00**	**$365**	**$5,792**	**15.9**

Site Name - Building Name	Energy Efficiency Measure (EEM)	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
Airport - Bldg 312 & 313: Flight School	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	13,212	5.07	0.00	$3,003	$24,619	8.2
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	4,984	1.58	0.00	$1,188	$12,080	10.2
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	8,350	0.00	0.00	$1,686	$4,973	3.0
	EEM 5: Programmable Thermostats	2,287	0.44	0.00	$435	$1,680	3.9
	EEM 6: HVAC Systems Advanced Maintenance	1,409	1.59	0.00	$268	$1,051	3.9
	EEM 7: Evaporator fan motor replacement	162	0.00	0.00	$31	$300	9.7
	EEM 9: Exposed Rooftop Ductwork Spray-On Insulation	972	0.32	0.00	$185	$268	1.5
	EEM 14: Advanced Package Unit Controllers	5,182	0.29	0.00	$985	$15,415	15.7
	EEM 15: Replace Package Units, Split Systems, and Window Units	7,124	5.31	0.00	$1,353	$15,650	11.6
	EEM 16: Duct Sealing*	5	0.01	0.00	$1	$374	> 30
	TOTAL	**43,686**	**14.62**	**0.00**	**$9,134**	**$76,410**	**8.4**
Airport - Bldg 314: Offices	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	2,429	0.67	0.00	$998	$13,250	13.3
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	1,794	0.37	0.00	$596	$2,750	4.6
	TOTAL	**4,223**	**1.04**	**0.00**	**$1,594**	**$16,000**	**10.0**
Airport - Bldg 315: Offices	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	4,938	1.33	-3.84	$1,193	$12,725	10.7
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	3,778	0.70	-2.76	$895	$8,874	9.9
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	2,471	0.00	0.00	$496	$1,342	2.7

Site Name - Building Name	Energy Efficiency Measure (EEM)	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	EEM 5: Programmable Thermostats	618	0.12	0.00	$117	$420	3.6
	EEM 15: Replace Package Units, Split Systems, and Window Units	1,502	1.12	0.00	$285	$7,337	25.7
	TOTAL	**13,307**	**3.27**	**-6.60**	**$2,987**	**$30,698**	**10.3**
Airport - Bldg 317: Hangar 1	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	9,636	2.96	0.00	$2,015	$9,201	4.6
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	8,367	2.39	0.00	$1,814	$11,210	6.2
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	1,475	0.00	0.00	$294	$699	2.4
	TOTAL	**19,478**	**5.35**	**0.00**	**$4,123**	**$21,110**	**5.1**
Airport - Bldg 319: Lift Station	EEM 11: Circulating Block Heater for Emergency Generators	5,181	0.65	0.00	$1,513	$864	0.6
	TOTAL	**5,181**	**0.65**	**0.00**	**$1,513**	**$864**	**0.6**
Airport - Bldg 333: Offices & R&D	EEM 5: Programmable Thermostats	5,409	1.05	0.00	$1,388	$5,040	3.6
	EEM 6: HVAC Systems Advanced Maintenance	5,032	5.68	0.00	$1,291	$3,753	2.9
	EEM 12: Vending Miser Controller	446	0.00	0.00	$114	$237	2.1
	EEM 13: DHW Heater Replacement	0	0.00	120.66	$109	$1,650	15.2
	EEM 14: Advanced Package Unit Controllers	18,507	1.05	0.00	$4,748	$56,522	11.9
	EEM 16: Duct Sealing*	17	0.03	0.00	$4	$1,336	> 30
	TOTAL	**29,410**	**7.81**	**120.66**	**$7,653**	**$68,538**	**9.0**
Airport - Bldg 344: Offices & R&D	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	28,512	7.52	-22.25	$8,294	$48,967	5.9
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	8,070	1.94	-6.29	$2,358	$14,385	6.1
	EEM 5: Programmable Thermostats	1,236	0.24	3.76	$321	$1,260	3.9
	EEM 6: HVAC Systems Advanced Maintenance	3,437	3.86	153.47	$1,020	$2,477	2.4

Site Name - Building Name	Energy Efficiency Measure (EEM)	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	EEM 7: Evaporator fan motor replacement	541	0.00	0.00	$139	$1,200	8.7
	EEM 8: CRAC units evaporator fan motor replacement	337	0.03	0.00	$86	$300	3.5
	EEM 13: DHW Heater Replacement	1,683	0.00	0.00	$432	$923	2.1
	EEM 14: Advanced Package Unit Controllers	11,104	0.63	16.31	$2,863	$30,830	10.8
	EEM 16: Duct Sealing*	11	0.02	1.08	$4	$916	> 30
	TOTAL	**54,932**	**14.25**	**146.08**	**$15,517**	**$101,258**	**6.5**
Airport - Bldg 345: Offices	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	2,224	0.70	-1.73	$759	$9,417	12.4
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	1,341	0.30	-0.89	$421	$3,856	9.2
	EEM 13: DHW Heater Replacement	667	0.00	0.00	$171	$1,015	5.9
	TOTAL	**4,232**	**1.00**	**-2.62**	**$1,351**	**$14,288**	**10.6**
Airport - Bldg 349: Paint	EEM 13: DHW Heater Replacement	399	0.00	0.00	$56	$830	14.9
	TOTAL	**399**	**0.00**	**0.00**	**$56**	**$830**	**14.9**
Airport - Bldg 351: Maint. School	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	591	0.19	-0.46	$215	$3,153	14.7
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	62	0.01	-0.05	$17	$37	2.2
	TOTAL	**653**	**0.20**	**-0.51**	**$231**	**$3,191**	**13.8**
Airport - Bldg 352: Office	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	395	0.13	0.00	$146	$2,018	13.8
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	71	0.01	0.00	$22	$179	8.0
	TOTAL	**466**	**0.14**	**0.00**	**$168**	**$2,197**	**13.1**
Airport - Bldg 363: Golf Shop	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	1,951	0.49	0.00	$504	$6,684	13.3

Site Name - Building Name	Energy Efficiency Measure (EEM)	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	355	0.08	0.00	$74	$332	4.5
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	32,120	0.00	0.00	$7,372	$63,444	8.6
	TOTAL	**34,426**	**0.57**	**0.00**	**$7,950**	**$70,460**	**8.9**
Airport - Bldg 370: Tire Shop	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	1,149	0.17	0.00	$298	$3,979	13.4
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	4,883	0.45	0.00	$1,017	$4,483	4.4
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	2,139	0.00	0.00	$438	$1,601	3.7
	TOTAL	**8,171**	**0.62**	**0.00**	**$1,754**	**$10,062**	**5.7**
Airport - Bldg 508: QTA	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	13,004	1.58	0.00	$2,796	$16,256	5.8
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	12,219	1.17	0.00	$2,639	$15,880	6.0
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	16,301	0.00	0.00	$3,395	$14,898	4.4
	EEM 5: Programmable Thermostats	2,009	0.39	0.00	$382	$2,520	6.6
	EEM 6: HVAC Systems Advanced Maintenance	1,869	2.11	0.00	$355	$1,394	3.9
	EEM 16: Duct Sealing*	6	0.01	0.00	$1	$496	> 30
	TOTAL	**45,407**	**5.26**	**0.00**	**$9,568**	**$51,443**	**5.4**
Airport - Infield Lighting	EEM 11: Circulating Block Heater for Emergency Generators	3,349	0.42	0.00	$496	$957	1.9
	TOTAL	**3,349**	**0.42**	**0.00**	**$496**	**$957**	**1.9**

Site Name - Building Name	Energy Efficiency Measure (EEM)	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
Animal Control	EEM 5: Programmable Thermostats	294	0.06	0.00	$56	$420	7.5
	EEM 15: Replace Package Units, Split Systems, and Window Units	1,427	1.06	0.00	$271	$3,485	12.9
	TOTAL	**1,721**	**1.12**	**0.00**	**$326**	**$3,905**	**12.0**
Building Maintenance - Garage	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	39,666	10.67	-79.06	$5,953	$179,382	> 30
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	1,475	0.18	-3.03	$141	$2,641	18.8
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	5,605	0.00	0.00	$603	$13,419	22.3
	TOTAL	**46,745**	**10.86**	**-82.09**	**$6,697**	**$195,442**	**29.2**
Carrillo Gym - Gym	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	1,384	0.70	-5.76	$452	$8,129	18.0
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	1,664	0.46	-13.92	$413	$3,224	7.8
	EEM 17: Replace Furnace with High Energy Efficiency Furnaces*	0	0.00	4.28	$4	$2,361	> 30
	TOTAL	**3,048**	**1.16**	**-15.40**	**$869**	**$13,713**	**15.8**
Carrillo Rec Center - Rec Center	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	1,342	0.91	-11.18	$644	$18,132	28.2
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	16,603	5.53	-136.04	$3,917	$22,031	5.6
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	3,426	0.00	0.00	$795	$3,902	4.9
	EEM 6: HVAC Systems Advanced Maintenance	5,980	6.75	0.00	$1,252	$4,460	3.6
	EEM 15: Replace Package Units, Split Systems, and Window Units	2,817	2.10	1.00	$591	$11,977	20.3

Site Name - Building Name	Energy Efficiency Measure (EEM)	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	EEM 16: Duct Sealing*	20	0.04	0.00	$4	$1,588	> 30
	TOTAL	**30,189**	**15.33**	**-146.22**	**$7,203**	**$62,091**	**8.6**
Casa Las Palmas - Rec Center	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	2,046	0.48	0.00	$508	$10,343	20.4
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	48	0.01	0.00	$14	$364	25.4
	EEM 6: HVAC Systems Advanced Maintenance	719	0.81	0.00	$150	$536	3.6
	EEM 16: Duct Sealing*	2	0.00	0.00	$1	$191	> 30
	TOTAL	**2,815**	**1.30**	**0.00**	**$673**	**$11,435**	**17.0**
Cater WTP - Admin & Maintenance	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	32,765	3.25	-189.48	$5,592	$43,892	7.9
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	37,008	2.39	-215.57	$5,837	$25,613	4.4
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	809	0.00	0.00	$142	$1,302	9.1
	EEM 6: HVAC Systems Advanced Maintenance	2,515	2.82	131.73	$480	$1,776	3.7
	EEM 7: Evaporator fan motor replacement	507	0.00	0.00	$73	$300	4.1
	EEM 11: Circulating Block Heater for Emergency Generators	12,817	1.60	52.00	$1,844	$1,330	0.7
	EEM 13: DHW Heater Replacement	0	0.00	103.12	$93	$1,863	20.1
	EEM 14: Advanced Package Unit Controllers	7,931	0.45	14.00	$1,154	$5,138	4.5
	EEM 16: Duct Sealing*	8	0.02	1.25	$2	$672	> 30
	TOTAL	**94,361**	**10.53**	**-102.96**	**$15,217**	**$81,885**	**5.4**
Central Library - Library	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	6,013	2.18	-21.70	$1,735	$30,841	17.8
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	49	0.01	-0.18	$11	$89	8.2

Site Name - Building Name	Energy Efficiency Measure (EEM)	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	EEM 6: HVAC Systems Advanced Maintenance	11,993	13.42	632.96	$2,801	$8,384	3.0
	EEM 7: Evaporator fan motor replacement	886	0.00	0.00	$165	$300	1.8
	EEM 9: Exposed Rooftop Ductwork Spray-On Insulation	1,296	0.65	648.00	$889	$965	1.1
	EEM 13: DHW Heater Replacement	0	0.00	301.05	$271	$2,500	9.2
	EEM 14: Advanced Package Unit Controllers	44,416	2.52	67.27	$8,323	$30,830	3.7
	EEM 15: Replace Package Units, Split Systems, and Window Units	2,817	2.10	1.00	$525	$11,977	22.8
	EEM 16: Duct Sealing*	40	0.08	6.98	$14	$3,206	> 30
	TOTAL	**67,510**	**20.96**	**1,635.38**	**$14,733**	**$89,093**	**6.1**
Chase Palm Park - Club House	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	1,073	0.21	0.00	$328	$8,502	25.9
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	6,363	0.85	0.00	$1,360	$21,236	15.6
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	1,147	0.00	0.00	$226	$2,854	12.6
	TOTAL	**8,584**	**1.06**	**0.00**	**$1,914**	**$32,592**	**17.0**
City Hall	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	2,919	0.77	-7.00	$596	$6,852	11.5
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	7,666	1.21	-17.84	$1,538	$16,617	10.8
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	5,291	0.00	0.00	$936	$5,186	5.5
	EEM 6: HVAC Systems Advanced Maintenance	7,576	8.53	170.59	$1,331	$5,550	4.2
	EEM 8: CRAC units evaporator fan motor replacement	1,122	0.10	0.00	$174	$600	3.4
	EEM 9: Exposed Rooftop Ductwork Spray-On Insulation	864	0.43	432.00	$566	$375	0.7

Site Name - Building Name	Energy Efficiency Measure (EEM)	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	EEM 12: Vending Miser Controller	446	0.00	0.00	$69	$237	3.4
	EEM 14: Advanced Package Unit Controllers	8,989	0.51	18.13	$1,414	$30,830	21.8
	EEM 15: Replace Package Units, Split Systems, and Window Units	9,077	6.77	1.48	$1,412	$28,808	20.4
	EEM 16: Duct Sealing*	25	0.05	1.25	$5	$2,015	> 30
	TOTAL	**43,975**	**18.36**	**598.60**	**$8,043**	**$97,072**	**12.1**
City Surveyor's Office - Office	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	273	0.08	0.00	$87	$1,388	16.0
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	1,690	0.00	0.00	$399	$1,627	4.1
	TOTAL	**1,964**	**0.08**	**0.00**	**$486**	**$3,015**	**6.2**
Comm Dev Center	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	4,701	1.46	-19.68	$1,097	$31,528	28.7
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	3,846	0.46	-17.18	$993	$30,536	> 30
	EEM 6: HVAC Systems Advanced Maintenance	10,637	11.90	697.25	$1,684	$7,436	4.4
	EEM 7: Evaporator fan motor replacement	507	0.00	0.00	$50	$900	17.9
	EEM 8: CRAC units evaporator fan motor replacement	281	0.03	0.00	$28	$300	10.8
	EEM 14: Advanced Package Unit Controllers	39,393	2.24	74.10	$3,978	$61,661	15.5
	EEM 15: Replace Package Units, Split Systems, and Window Units	2,441	1.82	0.62	$243	$10,973	> 30
	EEM 16: Duct Sealing*	36	0.07	6.19	$9	$2,844	> 30
	TOTAL	**61,841**	**17.98**	**741.30**	**$8,083**	**$146,177**	**18.1**
Eastside Library	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	4,273	0.76	-15.43	$1,247	$11,492	9.2

Site Name - Building Name	Energy Efficiency Measure (EEM)	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	5,571	0.00	0.00	$1,487	$8,084	5.4
	EEM 6: HVAC Systems Advanced Maintenance	2,377	2.67	97.48	$653	$1,709	2.6
	EEM 14: Advanced Package Unit Controllers	5,076	0.29	10.36	$1,217	$5,138	4.2
	EEM 15: Replace Package Units, Split Systems, and Window Units	3,005	2.24	1.40	$716	$12,775	17.8
	EEM 16: Duct Sealing*	8	0.02	0.80	$3	$634	> 30
	TOTAL	**20,310**	**5.97**	**94.61**	**$5,323**	**$39,832**	**7.5**
El Estero WWTP - Administration	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	34,607	6.28	-77.45	$5,654	$61,024	10.8
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	8,978	0.00	0.00	$1,447	$14,870	10.3
	EEM 5: Programmable Thermostats	6,677	1.30	35.45	$887	$3,360	3.8
	EEM 6: HVAC Systems Advanced Maintenance	3,608	4.05	136.34	$585	$2,589	4.4
	EEM 14: Advanced Package Unit Controllers	8,090	0.46	14.49	$1,049	$10,277	9.8
	EEM 15: Replace Package Units, Split Systems, and Window Units	6,760	5.04	2.36	$868	$28,745	> 30
	EEM 16: Duct Sealing*	12	0.03	1.27	$3	$962	> 30
	EEM 17: Replace Furnace with High Energy Efficiency Furnaces*	0	0.00	2.68	$2	$1,476	> 30
	TOTAL	**68,732**	**17.15**	**115.14**	**$10,496**	**$123,301**	**11.8**
El Estero WWTP - Crews Quarter	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	1,950	0.07	-6.28	$316	$3,293	10.4
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	2,351	0.00	0.00	$390	$4,466	11.4
	EEM 5: Programmable Thermostats	448	0.09	0.00	$57	$420	7.3
	EEM 6: HVAC Systems Advanced Maintenance	417	0.47	0.00	$53	$311	5.8

Site Name - Building Name	Energy Efficiency Measure (EEM)	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	EEM 9: Exposed Rooftop Ductwork Spray-On Insulation	432	0.22	216.00	$271	$129	0.5
	EEM 14: Advanced Package Unit Controllers	1,533	0.09	0.00	$196	$5,138	26.2
	EEM 16: Duct Sealing*	1	0.00	0.00	$0	$111	> 30
	TOTAL	**7,133**	**0.93**	**209.72**	**$1,285**	**$13,868**	**10.8**
El Estero WWTP - Digester Control	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	7,857	0.67	-16.50	$1,205	$9,931	8.2
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	6,938	0.00	0.00	$1,010	$6,073	6.0
	TOTAL	**14,795**	**0.67**	**-16.50**	**$2,215**	**$16,004**	**7.2**
El Estero WWTP - Influent Pump Station	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	8,138	0.80	-17.09	$1,322	$13,993	10.6
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	14,506	1.00	-30.47	$2,167	$15,461	7.1
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	5,403	0.00	0.00	$863	$8,559	9.9
	TOTAL	**28,048**	**1.80**	**-47.56**	**$4,353**	**$38,014**	**8.7**
El Estero WWTP - Maintenance	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	19,971	2.03	-37.24	$3,205	$32,322	10.1
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	2,793	0.00	0.00	$405	$2,352	5.8
	EEM 5: Programmable Thermostats	757	0.15	5.76	$102	$420	4.1
	EEM 6: HVAC Systems Advanced Maintenance	700	0.78	47.42	$132	$489	3.7
	EEM 9: Exposed Rooftop Ductwork Spray-On Insulation	648	0.32	324.00	$407	$214	0.5
	EEM 14: Advanced Package Unit Controllers	2,591	0.15	5.04	$336	$5,138	15.3
	EEM 16: Duct Sealing*	2	0.00	0.41	$1	$187	> 30

Site Name - Building Name	Energy Efficiency Measure (EEM)	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	TOTAL	**27,463**	**3.44**	**345.39**	**$4,588**	**$41,123**	**9.0**
El Estero WWTP - Parking	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	175	0.13	0.00	$54	$1,558	29.1
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	700	0.36	0.00	$117	$1,368	11.7
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	11,311	0.00	0.00	$1,632	$9,180	5.6
	TOTAL	**12,185**	**0.48**	**0.00**	**$1,803**	**$12,106**	**6.7**
El Estero WWTP - Prim&Second Process	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	6,140	0.58	-12.67	$1,007	$11,019	10.9
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	4,228	0.22	-8.87	$597	$2,758	4.6
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	36,576	0.00	0.00	$5,606	$46,040	8.2
	TOTAL	**46,944**	**0.80**	**-21.54**	**$7,210**	**$59,817**	**8.3**
El Estero WWTP - Sludge Handling	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	5,286	0.51	-11.10	$804	$6,338	7.9
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	585	0.05	-0.47	$100	$1,275	12.7
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	16,272	0.00	0.00	$2,287	$10,138	4.4
	EEM 5: Programmable Thermostats	695	0.14	0.00	$89	$840	9.4
	EEM 6: HVAC Systems Advanced Maintenance	359	0.41	0.00	$46	$268	5.8
	EEM 9: Exposed Rooftop Ductwork Spray-On Insulation	432	0.22	216.00	$271	$75	0.3
	EEM 14: Advanced Package Unit Controllers	1,322	0.08	0.00	$169	$5,138	> 30

Site Name - Building Name	Energy Efficiency Measure (EEM)	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	EEM 15: Replace Package Units, Split Systems, and Window Units	1,471	1.10	0.00	$188	$3,194	17.0
	EEM 16: Duct Sealing*	1	0.00	0.00	$0	$95	> 30
	TOTAL	**26,424**	**2.49**	**204.43**	**$3,956**	**$27,361**	**6.9**
Fire Department Admin - Office	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	1,154	1.57	-1.04	$796	$27,751	> 30
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	1,095	0.59	-2.60	$393	$8,254	21.0
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	812	0.00	0.00	$203	$1,682	8.3
	EEM 5: Programmable Thermostats	1,236	0.42	0.00	$268	$840	3.1
	EEM 6: HVAC Systems Advanced Maintenance	1,150	2.27	0.00	$249	$1,501	6.0
	EEM 16: Duct Sealing*	7	0.01	0.00	$1	$534	> 30
	TOTAL	**5,454**	**4.87**	**-3.64**	**$1,910**	**$40,562**	**21.2**
Fire Station 1	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	9,606	0.23	-30.92	$1,684	$17,420	10.4
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	31,013	0.51	-79.02	$4,719	$20,382	4.3
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	1,836	0.00	0.00	$313	$2,889	9.2
	EEM 5: Programmable Thermostats	3,369	0.65	11.87	$479	$1,260	2.6
	EEM 6: HVAC Systems Advanced Maintenance	3,935	4.42	171.18	$701	$2,811	4.0
	EEM 7: Evaporator fan motor replacement	287	0.00	0.00	$40	$300	7.5
	EEM 8: CRAC units evaporator fan motor replacement	314	0.03	0.00	$44	$300	6.9
	EEM 9: Exposed Rooftop Ductwork Spray-On Insulation	432	0.22	216.00	$276	$107	0.4

Site Name - Building Name	Energy Efficiency Measure (EEM)	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	EEM 14: Advanced Package Unit Controllers	9,782	0.56	18.19	$1,376	$10,277	7.5
	EEM 15: Replace Package Units, Split Systems, and Window Units	1,052	0.78	0.00	$146	$5,136	> 30
	EEM 16: Duct Sealing*	13	0.03	1.54	$3	$1,050	> 30
	TOTAL	**61,640**	**7.42**	**308.84**	**$9,782**	**$61,932**	**6.3**
Fire Station 2	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	3,515	0.72	0.00	$417	$8,912	21.4
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	13,177	0.22	-40.89	$1,112	$10,787	9.7
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	5,532	0.00	0.00	$480	$5,211	10.9
	EEM 5: Programmable Thermostats	1,546	0.30	13.12	$117	$840	7.2
	EEM 13: DHW Heater Replacement	0	0.00	671.98	$605	$2,225	3.7
	EEM 15: Replace Package Units, Split Systems, and Window Units	3,756	2.80	1.64	$257	$15,969	> 30
	TOTAL	**27,524**	**4.04**	**645.85**	**$2,988**	**$43,944**	**14.7**
Fire Station 3	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	5,862	0.10	-13.17	$1,097	$3,171	2.9
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	591	0.00	0.00	$118	$696	5.9
	EEM 5: Programmable Thermostats	726	0.14	0.00	$128	$420	3.3
	EEM 11: Circulating Block Heater for Emergency Generators	5,181	0.65	76.00	$914	$864	1.0
	EEM 15: Replace Package Units, Split Systems, and Window Units	1,765	1.32	0.00	$311	$8,621	27.7
	EEM 17: Replace Furnace with High Energy Efficiency Furnaces*	0	0.00	3.82	$3	$2,105	> 30
	TOTAL	**14,126**	**2.20**	**66.65**	**$2,572**	**$15,877**	**6.2**

Site Name - Building Name	Energy Efficiency Measure (EEM)	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
Fire Station 4	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	10,346	0.18	-41.73	$1,889	$6,323	3.4
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	737	0.00	0.00	$140	$700	5.0
	EEM 5: Programmable Thermostats	1,005	0.20	0.00	$171	$1,680	9.8
	EEM 11: Circulating Block Heater for Emergency Generators	5,181	0.65	77.00	$883	$864	1.0
	EEM 13: DHW Heater Replacement	0	0.00	505.76	$455	$2,225	4.9
	EEM 15: Replace Package Units, Split Systems, and Window Units	2,441	1.82	0.00	$416	$11,922	28.7
	TOTAL	**19,710**	**2.85**	**541.03**	**$3,954**	**$23,714**	**6.0**
Fire Station 5	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	-20	0.00	0.12	$15	$920	> 30
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	7,065	0.19	-28.32	$1,292	$4,467	3.5
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	238	0.00	0.00	$43	$121	2.8
	EEM 5: Programmable Thermostats	464	0.09	0.00	$79	$420	5.3
	EEM 11: Circulating Block Heater for Emergency Generators	5,181	0.65	78.00	$882	$864	1.0
	EEM 15: Replace Package Units, Split Systems, and Window Units	1,127	0.84	0.00	$192	$5,503	28.7
	TOTAL	**14,055**	**1.77**	**49.80**	**$2,503**	**$12,294**	**4.9**
Fire Station 6	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	6,866	0.14	-18.17	$1,259	$4,751	3.8
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	557	0.00	0.00	$141	$2,329	16.5

Site Name - Building Name	Energy Efficiency Measure (EEM)	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	EEM 11: Circulating Block Heater for Emergency Generators	5,181	0.65	79.00	$879	$864	1.0
	EEM 13: DHW Heater Replacement	0	0.00	136.84	$123	$2,225	18.1
	TOTAL	**12,604**	**0.79**	**197.67**	**$2,402**	**$10,169**	**4.2**
Fire Station 7	EEM 5: Programmable Thermostats	603	0.12	0.00	$103	$840	8.2
	EEM 6: HVAC Systems Advanced Maintenance	273	0.31	0.00	$47	$204	4.4
	EEM 15: Replace Package Units, Split Systems, and Window Units	751	0.56	0.00	$128	$3,668	28.6
	EEM 16: Duct Sealing*	1	0.00	0.00	$0	$73	> 30
	TOTAL	**1,628**	**0.99**	**0.00**	**$278**	**$4,785**	**17.2**
Franklin Center	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	12,881	4.27	-46.46	$3,932	$72,300	18.4
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	1,230	0.22	-4.54	$318	$4,044	12.7
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	12,116	0.00	0.00	$2,776	$21,857	7.9
	EEM 5: Programmable Thermostats	2,627	0.51	20.08	$525	$1,680	3.2
	EEM 6: HVAC Systems Advanced Maintenance	5,354	5.99	364.89	$1,362	$3,743	2.8
	EEM 7: Evaporator fan motor replacement	693	0.00	0.00	$134	$1,500	11.2
	EEM 14: Advanced Package Unit Controllers	19,829	1.13	38.78	$3,862	$46,245	12.0
	EEM 16: Duct Sealing*	18	0.04	3.12	$6	$1,431	> 30
	TOTAL	**54,748**	**12.16**	**375.87**	**$12,915**	**$152,800**	**11.8**
Las Positas Tennis Center	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	550	0.17	0.00	$142	$1,859	13.1
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	101	0.03	0.00	$23	$166	7.4

Site Name - Building Name	Energy Efficiency Measure (EEM)	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	5,994	0.00	0.00	$1,167	$1,421	1.2
	EEM 4: Upgrade existing HID tennis lighting to LED	17,211	0.00	0.00	$4,769	$74,938	15.7
	TOTAL	**23,855**	**0.20**	**0.00**	**$6,100**	**$78,384**	**12.9**
Los Banos Pool	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	777	0.66	-1.46	$270	$8,849	> 30
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	411	0.13	-1.45	$122	$3,636	29.9
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	1,728	0.00	0.00	$267	$3,056	11.4
	EEM 17: Replace Furnace with High Energy Efficiency Furnaces*	0	0.00	3.57	$3	$1,968	> 30
	TOTAL	**2,916**	**0.79**	**0.66**	**$662**	**$17,509**	**26.5**
Louise Lowry Davis Center - Rec Center	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	1,010	0.13	-4.99	$261	$4,197	16.1
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	4,754	0.00	0.00	$962	$6,306	6.6
	EEM 5: Programmable Thermostats	1,546	0.30	0.00	$324	$840	2.6
	EEM 6: HVAC Systems Advanced Maintenance	1,438	1.62	0.00	$301	$1,072	3.6
	EEM 13: DHW Heater Replacement	0	0.00	101.02	$91	$1,650	18.2
	EEM 14: Advanced Package Unit Controllers	2,644	0.15	0.00	$554	$5,138	9.3
	EEM 16: Duct Sealing*	5	0.01	0.00	$1	$382	> 30
	EEM 17: Replace Furnace with High Energy Efficiency Furnaces*	0	0.00	4.46	$4	$2,459	> 30
	TOTAL	**11,396**	**2.21**	**100.49**	**$2,497**	**$22,045**	**8.8**
Mckenzie Park - Lawn Bowling	EEM 13: DHW Heater Replacement	0	0.00	146.68	$132	$1,438	10.9

Site Name - Building Name	Energy Efficiency Measure (EEM)	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	TOTAL	**0**	**0.00**	**146.68**	**$132**	**$1,438**	**10.9**
Mckenzie Park - Park Adult	EEM 5: Programmable Thermostats	618	0.12	0.00	$115	$420	3.7
	EEM 15: Replace Package Units, Split Systems, and Window Units	1,502	1.12	0.00	$280	$7,337	26.2
	TOTAL	**2,121**	**1.24**	**0.00**	**$395**	**$7,757**	**19.6**
Municipal Tennis Center	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	276	0.06	0.00	$185	$920	5.0
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	164	0.04	0.00	$103	$222	2.2
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	115	0.00	0.00	$85	$780	9.2
	EEM 12: Vending Miser Controller	446	0.00	0.00	$269	$237	0.9
	TOTAL	**1,000**	**0.10**	**0.00**	**$641**	**$2,159**	**3.4**
Oak Park - Field	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	304	0.10	0.00	$123	$2,478	20.2
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	184	0.02	0.00	$51	$328	6.5
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	3,452	0.00	0.00	$917	$4,441	4.8
	TOTAL	**3,940**	**0.12**	**0.00**	**$1,090**	**$7,247**	**6.7**
Ortega Park - Pool	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	70	0.22	-0.23	$75	$3,158	> 30
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	122	0.25	-0.45	$119	$4,877	> 30
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	2,451	0.00	0.00	$581	$7,925	13.7

Site Name - Building Name	Energy Efficiency Measure (EEM)	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	TOTAL	**2,643**	**0.47**	**-0.68**	**$774**	**$15,960**	**20.6**
Ortega Park - Welcome House	EEM 13: DHW Heater Replacement	0	0.00	138.37	$125	$1,438	11.6
	TOTAL	**0**	**0.00**	**138.37**	**$125**	**$1,438**	**11.6**
Parks Department - Administration Office	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	9,900	2.45	-7.06	$3,015	$53,625	17.8
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	66	0.00	0.00	$21	$426	19.8
	EEM 6: HVAC Systems Advanced Maintenance	999	1.12	75.09	$264	$699	2.7
	EEM 14: Advanced Package Unit Controllers	3,701	0.21	7.98	$734	$15,415	21.0
	EEM 16: Duct Sealing*	3	0.01	0.58	$1	$267	> 30
	TOTAL	**14,670**	**3.78**	**76.59**	**$4,035**	**$70,432**	**17.5**
Police Department	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	41,276	3.29	-94.12	$6,144	$39,067	6.4
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	58,034	5.05	-48.28	$8,055	$25,737	3.2
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	6,378	0.00	0.00	$969	$7,037	7.3
	EEM 6: HVAC Systems Advanced Maintenance	9,632	10.87	0.00	$1,251	$7,184	5.7
	EEM 8: CRAC units evaporator fan motor replacement	561	0.05	0.00	$73	$300	4.1
	EEM 11: Circulating Block Heater for Emergency Generators	5,181	0.65	95.00	$673	$864	1.3
	EEM 12: Vending Miser Controller	891	0.00	0.00	$116	$474	4.1
	EEM 13: DHW Heater Replacement	0	0.00	683.86	$615	$2,500	4.1
	EEM 15: Replace Package Units, Split Systems, and Window Units	1,502	1.12	0.00	$195	$7,337	> 30
	EEM 16: Duct Sealing*	32	0.07	0.00	$4	$2,557	> 30
	TOTAL	**123,488**	**21.10**	**636.46**	**$18,097**	**$93,058**	**5.1**

Site Name - Building Name	Energy Efficiency Measure (EEM)	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
Public Works - Central Stores & Purchasing	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	12,536	1.95	-31.03	$3,150	$34,494	11.0
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	11,651	1.96	-23.17	$2,660	$18,705	7.0
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	3,220	0.00	0.00	$707	$3,776	5.3
	TOTAL	**27,408**	**3.90**	**-54.20**	**$6,518**	**$56,975**	**8.7**
Public Works - Central Stores Offices	EEM 5: Programmable Thermostats	4,281	0.83	12.80	$852	$5,040	5.9
	EEM 6: HVAC Systems Advanced Maintenance	3,183	3.58	73.77	$691	$2,314	3.4
	EEM 7: Evaporator fan motor replacement	169	0.00	0.00	$33	$300	9.1
	EEM 12: Vending Miser Controller	446	0.00	0.00	$87	$237	2.7
	EEM 14: Advanced Package Unit Controllers	6,874	0.39	7.84	$1,356	$20,554	15.2
	EEM 15: Replace Package Units, Split Systems, and Window Units	5,070	3.78	0.94	$996	$16,768	16.8
	EEM 16: Duct Sealing*	11	0.02	0.75	$3	$847	> 30
	TOTAL	**20,033**	**8.60**	**96.10**	**$4,018**	**$46,059**	**11.5**
Recreation Department - Administration Office	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	12,535	2.89	-9.58	$3,586	$56,309	15.7
	EEM 5: Programmable Thermostats	1,700	0.33	13.28	$346	$1,260	3.7
	EEM 6: HVAC Systems Advanced Maintenance	857	0.96	63.23	$225	$599	2.7
	EEM 13: DHW Heater Replacement	0	0.00	98.01	$88	$1,650	18.7
	EEM 14: Advanced Package Unit Controllers	3,173	0.18	6.72	$629	$10,277	16.4
	EEM 15: Replace Package Units, Split Systems, and Window Units	1,878	1.40	0.70	$369	$7,985	21.6
	EEM 16: Duct Sealing*	3	0.01	0.50	$1	$229	> 30
	TOTAL	**20,145**	**5.77**	**172.86**	**$5,244**	**$78,308**	**14.9**
Spencer Adams Lawn Bowling - Club House	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	271	0.13	0.00	$114	$1,081	9.5

Site Name - Building Name	Energy Efficiency Measure (EEM)	Electricity Savings	Electric Demand Reduction	Natural Gas Savings	Annual Utility Cost Savings	Implementation Cost	Net Simple Payback Period
		(kWh/yr)	(kW)	(thm/yr)	($/yr)	($)	(yr)
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	787	0.00	0.00	$295	$1,336	4.5
	TOTAL	**1,058**	**0.13**	**0.00**	**$409**	**$2,417**	**5.9**
Westside Comm Center	EEM 1: Retrofit of interior fluorescent troffers with new LED retrofit kits	2,686	1.30	0.00	$796	$14,706	18.5
	EEM 2: Replacement of interior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	2,553	0.67	0.00	$716	$11,937	16.7
	EEM 3: Replacement of exterior fluorescent, HID, and incandescent lamps and fixtures with new LED lamps and fixtures	3,295	0.00	0.00	$671	$2,759	4.1
	TOTAL	**8,534**	**1.97**	**0.00**	**$2,182**	**$29,401**	**13.5**
TOTAL	**TOTAL**	**1,876,702**	**374.16**	**8,160.56**	**$378,924**	**$3,252,969**	**8.6**

*Based on the poor economics presented by this EEM, the City should just pursue this measure in case the equipment fails.

Table 89: Proposed EEM Savings and Cost per Building

Appendix E: City of Santa Barbara Benchmarking Report

ENERGY BENCHMARKING REPORT

CITY OF SANTA BARBARA

AUGUST 9, 2019

REPORT BY: COMMUNITY ENVIRONMENTAL COUNCIL (APRIL PRICE)

FUNDED BY:
SOUTHERN CALIFORNIA EDISON
AND SOUTHERN CALIFORNIA GAS COMPANY

Summary

The City of Santa Barbara, through funding from Southern California Edison and Southern California Gas Company, had 29 facilities energy benchmarked by The Community Environmental Council, using Energy Star Portfolio Manager. This report includes the energy benchmark metrics and Energy Star scores as available for each facility. The report also discusses the data gaps and limitations of the project. The results of this benchmarking project will be incorporated into the City's zero net energy roadmap to prioritize energy investments.

Acknowledgements

Thank you to Alelia Parenteau from the City of Santa Barbara for initiating this project and for assistance in analyzing energy data. Thank you to staff at Southern California Edison (SCE) and Southern California Gas Company (SCG) for assistance in tracking down data. From SCE, thank you Nan Song, Bernard Adebayo-Ige, and Omar Cisneros. From SCG, thank you Jordon Nakasone and Jeff Lawler.

Introduction

Energy benchmarking is the process of comparing a facility's energy usage to that of established norms for a facility type, or to that of its "peers", or similar facilities. Energy benchmarking, or "benchmarking" requires energy data for 12 consecutive months, including all onsite facility energy consumption: grid electricity, natural gas, onsite solar, or other energy sources. Through the process of benchmarking, managers may have a better sense of the energy usage of their facilities. They may also prioritize energy investments based on the benchmarking results across a portfolio of facilities.

Between January 2018 and August 2019, City of Santa Barbara facilities were benchmarked by The Community Environmental Council of Santa Barbara (CEC-SB). This work was funded through Southern California Edison (SCE) and SoCalGas (SGC) in the form of "strategic planning" funding. CEC-SB completed the benchmarking as the "implementer" of the Local Government Partnership, "South County Energy Efficiency Partnership" (SCEEP) through which local governments receive support to pursue energy efficiency projects through SCE and SCG[47]. Benchmarking was completed as part of a larger effort by the City of Santa Barbara to develop a zero net energy (ZNE) roadmap, to guide energy upgrade projects throughout the City's facilities. The ZNE roadmap will incorporate results from this report as well as results from energy audits conducted in 2018 and 2019 on City facilities.

Through Assembly Bill 802 (AB 802), The California Energy Commission requires owners of large (over 50,000 square foot) commercial buildings to report the facility's energy usage annually using the EPA benchmarking platform, "Energy Star Portfolio Manager" (ESPM)[48]. Although the City of Santa Barbara's facilities are mainly smaller than 50,000 ft^2, and therefore not covered by the current policy, benchmarking has become a common best practice for energy managers in California as a tool for energy investment prioritization and to prepare for more stringent state benchmarking requirements. The City of Santa Barbara included benchmarking in their ZNE roadmap planning process as one tool to prioritize investment in energy upgrades for the ZNE roadmap.

[47] https://www.sceep.org/
[48] https://www.energy.ca.gov/programs-and-topics/programs/building-energy-benchmarking-program

Ultimately, 29 facilities were benchmarked through this effort, listed alphabetically by name, including address and square footage in Table 1 below.

Table 1: Benchmarked Facilities, Addresses and square footage

Property/Facility Name	Address	Property Square Footage (ft^2)
Airport	500 Fowler St	72,000
Airport Bldg 255: Administration	601 Firestone Road	12,192
Airport Bldg 258: Offices	629-F Firestone Rd	3,816
Animal Control	413 E Solar St	2,329
Carrillo Recreation Center	100 E Carrillo St	27,429
Casa Las Palmas	323 East Cabrillo Blvd	1,680
Cater Admin	1150 San Roque Rd	20,000
Central Library	40 E Anapamu St	53,580
Chase Palm Park Rec Center	236 E Cabrillo Blvd	2,428
City Hall	735 Anacapa St	24,341
City Surveyor's Office	220 E Ortega	488
Community Development/Public Works	630 Garden St	27,429
Eastside Library	1102 East Montecito St	7,157
Fire Station 1	121 W. Carrillo	28,713
Fire Station 2	819 Cacique St	5,700
Fire Station 3	415 E Sola St	4,261
Fire Station 4	19 North Ontare	5,313
Fire Station 5	2505 Modoc Rd	3,400
Fire Station 6	1802 Cliff Dr	3,570
Fire Station 7	2411 Stanwood	3,198
Fire Station 8	40 Hartley Place	3,000
Franklin Community Center	1136 E. Montecito St	10,900
Louise Lowry Davis Center	1232 De La Vina St	3,649
Municipal Tennis Center Operations Building	1414 Park Place	2,230
Corporate Yard (including Building Maintenance)[49]	616, 620 and 625 Laguna St	51,652
Central Stores and Purchasing Dept[50]	310 E Ortega	7,500
Ortega Park Buildings	600 E Ortega	2,217
Police Station	215 E. Figueroa	27,570
Westside Community Center	423 W. Victoria St	13,661

[49] Full list of offices in Appendix 1

[50] See note regarding SCE meters and assumptions for facility in Appendix 1

Methods

Benchmarking requires collecting data from utilities and facility managers to determine how much energy a facility uses. CEC-SB determined which utility meter data should be included in each facility benchmark based on a review of City energy data and through conversations with City Staff Alelia Parenteau when there was confusion. Monthly utility energy usage data was entered into ESPM through either SCE's Benchmarking Portal, spreadsheets provided by SCE/SCG, or by entering account data from SCG. A variety of methods were used based on the advice of utility staff when the first data sharing method failed. Solar data was provided from the City and uploaded to ESPM on spreadsheets.

The timeline for the benchmarking efforts, which occurred between January 2018 and August 2019, was impacted by delays in data requests from both utilities and by the federal government shutdown that occurred between Dec 22, 2018 and Jan 25, 2019. The federal government shutdown made ESPM inaccessible for the duration of the government closure and created a significant backlog in data requests. These data delays resulted in a variety of "baseline years" (First full 12 months of energy usage, including all energy types) for different facilities; in cases where data was provided later than others, the baseline year is also later.

Assumptions

This report assumes that the data for each of the facilities is an accurate reflection of the energy usage of the **buildings**. There may, however, be instances in which the energy data does not reflect the energy usage of a building for several reasons. Examples of data accuracy concerns are listed below but are not addressed in the benchmarking analyses because CEC-SB was not able to determine whether or not the following were true.

Potential Data Concerns:

1) The meters that were used for benchmarking analysis (electricity) may also include a significant amount of outdoor lighting.
2) The meters that were used for benchmarking analysis (electricity and/or gas) may also include processes that are outside of the scope of the energy analysis of the building.
3) In sharing data with the platform ESPM, there may be errors by CEC-SB and/or SCE, SCG.
4) There are some cases (noted in the report) in which the City indicated which meter was likely to serve a facility, or a group of facilities, but these connections were not tested because of the cost and impracticality of doing so. Therefore, there is a possibility that an incorrect meter is included in the benchmarking analysis of a building.
5) Determining the exact hours of operation and occupancy of facilities was beyond the scope of this project, therefore default values were used for these metrics. In cases where Energy Star Scores were assigned, or could be assigned in the future, including accurate operating hours is advised, as scores are normalized to address building activity.
6) The facilities in this report have a variety of "baseline years" based on the access to data as discussed above. This report compares the facilities to each other based on energy usage, but does not consider weather variations, which could impact the energy usage of the buildings.

Solar Data Concerns:

In addition to the potential concerns listed above, there are also assumptions specific to facilities with solar installations that should be carefully noted.

1) There are some instances (noted in the report) in which solar is installed on a facility but the City does not have data for that solar production. These facilities are still included in the benchmarking analysis, using only the grid electricity data and the gas data, but future analysis should include solar production as a separate meter in ESPM (if the data is available) in order to provide an accurate benchmarking analysis.
2) In the instances where the City provided solar production data, CEC-SB was not able to determine how much energy was sent back onto the grid from the solar arrays. Therefore, this report assumes that all of the energy was used onsite. Future analyses should include the kwh totals that were sent back onto the grid, using the ESPM protocols in order to conduct a more accurate benchmarking analysis.

Excluded Facilities

Although the intention of this project was to benchmark all of the city's facilities, there were data gaps that limited the facilities that could be analyzed. There were two main categories of data gaps that excluded facilities from being benchmarked:

1) Addresses did not match utility accounts: The City owns a number of facilities near the airport that are either used for municipal operations or rented out. Many addresses associated with these facilities are not associated with utility accounts at the same address. The City determined that tracking down the utility accounts for each of these facilities was beyond the scope of this benchmarking effort. The City also determined that they would not benchmark facilities that were being rented out.

2) Gas data was not available: There were several cases in which electricity data (SCE) could be attained for a facility but it was not feasible to determine the gas service account (several cases with airport buildings). In these cases, the facilities were excluded from the benchmarking effort because of incomplete energy data.

Metrics and Findings

Facilities in this report were analyzed using the following metrics:

1) Energy Star Scores
2) Site Energy Usage Intensity (Site EUI)
3) Source Energy Usage Intensity (Source EUI)
4) Percentage difference from National Median EUI

The findings are summarized in Table 2 below, with a discussion of the various metrics in the following sections.

Raw numbers for natural gas usage (therms) and electricity usage (kWh) are also included in Table 2. These values reflect one year of energy usage from the year leading up to the "Energy Baseline Date". These values are included in the results to demonstrate the actual energy usage of each facility, in addition to the calculated metrics.

Table 2: Benchmarking Results

Property Name	Property GFA - Self-Reported (ft^2)	Year Built	ENERGY STAR Score	Site EUI ($kBtu/ft^2$)	Source EUI ($kBtu/ft^2$)	% Difference from National Median Site/Source EUI	Energy Baseline Date	Electricity Use - Grid Purchase (kWh)	Natural Gas Use (therms)	Generated from Onsite Solar and Used Onsite (kWh)
Chase Palm Park Rec Center	2,428	1983	Not Available	70.9	179.7	-68.7	10/31/2018	42,808.7	260.5	No Solar
Animal Control	2,329	1929	Not Available	14.5	40.5	-67.6	09/30/2017	9,867.8	Not Available[51]	No Solar
Airport Bldg 258: Offices	3,816	1970	95	20.7	47.3	-61.3	09/30/2018	16,328.8	234.5	No Solar
Carrillo Recreation Center	27,429	1913	Not Available	21.7	47.8	-57.4	09/30/2018	114,506.5	2,056.0	No Solar
Central Library	53,580	1925	Not Available	23.2	63.4	-55.9	02/28/2019	350,162.1	496.2	No Solar
Fire Station 3	4,261	1929	Not Available	32.5	61.1	-51	08/31/2018	19,298.1	724.8	No Solar
Eastside Library	7,157	1973	Not Available	29	71	-50.5	08/31/2018	48,695.6	411.8	No Solar
Community Development/Public Works	27,429	1988	87	37.7	58.2	-46.7	11/30/2018	112,446.2	1,937.1	207,832
Airport Bldg 255: Administration	12,192	1980	86	23.1	63.3	-45.4	01/31/2019	79,778.1	91.1	No Solar
Fire Station 6	3,570	1951	Not Available	33.8	68.7	-45	08/31/2018	19,834.4	529.8	No Solar
Fire Station 2	5,700	1993	Not Available	34.6	69.8	-44.1	08/31/2018	31,876.4	887.0	10 kw solar system[52]
Corporate Yard (including Building Maintenance)	51,652	1970	Not Available	46.5	66.7	-42.7	12/31/2018	141,971.7	6,176.4	285,613
Central Stores and Purchasing Warehouse	7,500	1970	Not Available	38	66.9	-42.5	12/31/2018	130,886.9	6,531.5	No Solar

[51] Assumed to not have gas service

[52] Solar data not included in benchmarking, but presence of solar system means that the draw of electricity from the grid is lower than the actual energy usage of the building

Fire Station 1	28,713	1960	Not Available	30.4	73.3	-41.3	08/31/2018	198,601.8	1,963.9	15 kw solar system[53]

Table 2: Benchmarking Results (Continued)

Property Name	Property GFA - Self-Reported (ft^2)	Year Built	ENERGY STAR Score	Site EUI ($kBtu/ft^2$)	Source EUI ($kBtu/ft^2$)	% Difference from National Median Site/Source EUI	Energy Baseline Date	Electricity Use - Grid Purchase (kWh)	Natural Gas Use (therms)	Generated from Onsite Solar and Used Onsite (kWh)
Fire Station 4	5,313	1985	Not Available	40.1	75	-40	08/31/2018	2,9252.8	1,131.0	No Solar
Fire Station 7	3,198	1951	Not Available	35.5	77	-38.4	10/31/2018	21,260.3	410.0	No Solar
Municipal Tennis Center Operations	2,230	1960	Not Available	29.3	75.5	-32.6	11/30/2018	16,705.2	84.4	No Solar
Louise Lowry Davis Center	3,649	1939	Not Available	41	75.5	-31.2	09/30/2018	19,819.3	818.8	No Solar
Fire Station 5	3,400	1966	Not Available	40.7	87.3	-30	08/31/2018	25,392.1	518.0	No Solar
Westside Community Center	13,661	1925	Not Available	41.9	82.2	-25	10/31/2018	87,412.9	2,737.0	No Solar
City Hall	24,341	1923	64	39.1	104.8	-18.4	11/30/2018	260,012.1	640.8	No Solar
Cater Admin	20,000	1940	63	44.6	99.9	-17.2	10/31/2018	177,740	2,849.0	No Solar
City Surveyor's Office	488	1946	Not Available	38.9	109	-6.3	09/30/2017	5,568.4	Not Available[54]	No Solar
Police Station	27,570	1940	Not Available	45.7	121.9	-2.4	11/30/2018	341,465.8	940.4	No Solar
Franklin Community Center	10,900	1974	Not Available	49.4	124.9	13.9	08/31/2018	133,188	842.9	No Solar
Casa Las Palmas	1,680	1998	Not Available	50.4	133.4	21.7	12/31/2018	22,645.7	73.4	No Solar
Ortega Park Buildings	2,217	1952	Not Available	105.5	148.8	32.8	10/31/2018	14,101.1	1,858.6[55]	No Solar

[53] Solar data not included in benchmarking, but presence of solar system means that the draw of electricity from the grid is lower than the actual energy usage of the building
[54] Assumed to not have gas service
[55] Does not include gas from pool meter

Fire Station 8	3,000	1996	Not Available	98.1	199.2	59.5	09/30/2018	48,352.8	1,292.3	No Solar
Airport	72,000	2011	Not Available	123.6	294.6	163.1	09/30/2018	1,987,951	21,160.0	No Solar

ENERGY STAR SCORE

Some facilities that are benchmarked through ESPM are eligible to receive a 1-100 Energy Star Score. Energy Star scores rate building performance on measured (metered) energy usage using a percentile basis for facilities within a given category. For instance, buildings with a score of 50 perform better than 50% of their peers; buildings earning a score of 75 perform better than 75% of their peers.

Energy Star score calculations consider the source energy consumption (discussed in the "Source EUI" section, following). Weather for the facility location is also considered in the calculation[56]. Table 2, below (from the EPA's technical reference, Aug 2018) details the elements of the EPA Energy Star Score.

Table 3: Energy Star Score Explanation from EPA

✓ The Score Does	× The Score Does Not
✓ Evaluate actual metered energy use	× Sum the energy use of each piece of equipment
✓ Normalize for business activity (hours, workers, climate)	× Credit specific technologies
✓ Compare buildings to the national population	× Compare buildings with others in Portfolio Manager
✓ Indicate the level of energy performance	× Explain why a building performs well or poorly

Energy Star Scores are currently available for a limited number of facility types in the US, listed below:

Bank branch
Barracks
Courthouse
Data center
Distribution center
Financial office
Hospital (general medical & surgical)
Hotel
K-12 school
Medical office
Multifamily housing
Non-refrigerated warehouse
Office
Refrigerated warehouse
Residence hall/ dormitory
Retail store
Senior care community
Supermarket/grocery store
Wastewater treatment plant
Wholesale club/supercenter
Worship facility

Five facilities within this study were given an Energy Star Score, given the limitations of the list above. These facilities are shown in Table 3 below:

[56] https://portfoliomanager.energystar.gov/pdf/reference/ENERGY%20STAR%20Score.pdf

Table 4: Energy Star Scores

Building Name	Energy Star Score	Address
Cater Admin	63	1150 San Roque Rd
City Hall	64	735 Anacapa St
Airport Bldg 255: Administration	86	601 Firestone Road
Community Development/Public Works	87	630 Garden St
Airport Bldg 258: Offices	95	629-F Firestone Rd

Site/Source Energy Usage Intensity EUI

In addition to Energy Star, ESPM calculates both site and source energy usage intensity, as shown in Table 2 above. "Site EUI" accounts for the "amount of heat and electricity consumed by a building as reflected in utility bills[57]". "Source EUI" is a metric that attempts to include the raw fuel inputs of energy sources to capture loss. ESPM uses Source-Site ratios to account for the energy losses associated with electricity production. These ratios are not based on the actual fuel sources of the electricity in any given state/utility, but rather based on national averages, which are updated in ESPM from year to year. Using national averages benefits the nation-wide comparison of buildings because buildings are not penalized/rewarded based on the energy mix of their utility.

This report includes site and source EUI in Table 2, but the City may be most interested in the metric, "% Difference from National Median Site/Source EUI", as a clearer metric of building performance. In cases where facilities to do not generate an Energy Star Score, this metric still allows facility managers to compare energy consumption to national averages.

In Table 2, the facilities are sorted based on "% Difference from National Median Site/Source EUI". If the City determines that they are interested in using that metric to prioritize energy upgrades, managers may decide to begin with page 7 of this report, with the lowest performing facilities.

Discussion/Future Considerations

The results shown in Table 2 should be carefully considered with the assumptions listed in this report. Of special consideration are the "worst" performing buildings, especially the Santa Barbara Airport. The airport results should be considered carefully given the airport's newer construction and LEED status. As Energy Star Scores for airports are not available, the energy intensity of airport operations may inflate the EUI as compared to national averages within the more general category of "transportation terminals".

Fire Station 8 appears to have very high energy usage. The City may want to investigate: potential errors in meter readings, confirm that the meters are not also used for other processes outside the normal

[57] https://portfoliomanager.energystar.gov/pdf/reference/Source%20Energy.pdf

operation of a fire station, and/or discuss potential reasons for the increased energy intensity with station managers.

In analyzing the benchmarking results for opportunities for energy investments, the City may consider both the EUI of the facility and the capacity for energy savings. For instance, several of the facilities on the lower end of the performance list are small and use relatively little energy, despite their high EUI. The City Surveyor's Office, Casa Las Palmas, and Ortega Park Buildings, for example, are all relatively poor performing buildings, but in sum, their electricity and gas usage are less than half of City Hall. The City may prioritize energy improvements in facilities with the most opportunity for estimated energy savings per dollars invested, as identified in the energy audits that will accompany this report in the ZNE roadmap. Alternately, there may be cost savings in bundling energy upgrades for the smaller, inefficient facilities.

Although the process of benchmarking the City's facilities was largely intended to guide investment for the ZNE roadmap, the City may determine that it is useful to maintain current data in ESPM for the purposes of reassessing energy performance following energy upgrades. The City may also determine that it is interested in using other applications of ESPM, such as waste and water tracking/goal setting. Following the expiration of the data sharing allowances (CISR forms) with CEC-SB, the City will need to make sure that there are no technical errors in the established data sharing interfaces between SCE and ESPM. There are also some cases in which manual data upload was required and may be required again in the future unless the glitches in the data sharing systems are resolved. As the City adds more solar to their facilities there will be an ongoing need to upload the production values from solar systems, and perhaps to further investigate methods to include the energy that is sent back to the grid from these systems, as discussed in the Solar Data Concerns section, above. Given the duplication of data tracking efforts between the City's own energy management systems and those of ESPM, the City may determine that such efforts are too time intensive.

As the state implements AB802 and benchmarking becomes a more common practice, the issues of data access from utilities, availability of Energy Star Scores, and general usability of ESPM may improve significantly. Through this process, CEC-SB has observed numerous barriers to benchmarking, in terms of effort and lack of clarity in processes. CEC-SB hopes that this report will be useful to the City of Santa Barbara in their ZNE roadmap planning process and to the utility partners (SCE and SCG) that funded this work, in improving their data access procedures and policies.

Appendix 1

The City of Santa Barbara determined that groups of offices in the downtown corporate yard are likely served by two main SCE meters, separated as shown in TABLE 5 below. These groupings were used to benchmark the facilities in the report. Facility designations of "bays" were assumed to be non-conditioned spaces. These spaces were not included in the square footage totals of the benchmarking analyses, as noted in the table below.

Table 6: Assumed meters for downtown corporate yard

Designation	Address	Square Footage	Assumed Meter Grouping	Name of "Grouped" Facility in this report
Building Maintenance	616 Laguna St	10,000	Grouped with 616, 620 and 625 Laguna, as SCE meter tied to 625 Laguna	Corporate Yard (including Building Maintenance)
Trade Shops	620 Laguna St	5,120	Grouped with 616, 620 and 625 Laguna, as SCE meter tied to 625 Laguna	Corporate Yard (including Building Maintenance)
Parks Equipment Bay	620 Laguna St	5,000	Grouped with 616, 620 and 625 Laguna, as SCE meter tied to 625 Laguna***Square footage not included***	Corporate Yard (including Building Maintenance)
Water Warehouse	620 Laguna St	4,830	Grouped with 616, 620 and 625 Laguna, as SCE meter tied to 625 Laguna	Corporate Yard (including Building Maintenance)
Water Distribution/ Collections	620 Laguna St	4,823	Grouped with 616, 620 and 625 Laguna, as SCE meter tied to 625 Laguna	Corporate Yard (including Building Maintenance)
Rec Administration	620 Laguna St	4,365	Grouped with 616, 620 and 625 Laguna, as SCE meter tied to 625 Laguna	Corporate Yard (including Building Maintenance)
Electronic Maintenance	616 Laguna St	3,500	Grouped with 616, 620 and 625 Laguna, as SCE meter tied to 625 Laguna	Corporate Yard (including Building Maintenance)
Parks Administration	620 Laguna St	3,437	Grouped with 616, 620 and 625 Laguna, as SCE meter tied to 625 Laguna	Corporate Yard (including Building Maintenance)
Water Resources Annex	620 Laguna St	3,077	Grouped with 616, 620 and 625 Laguna, as SCE meter tied to 625 Laguna	Corporate Yard (including Building Maintenance)
Traffic Signal Maintenance	616 Laguna St	500	Grouped with 616, 620 and 625 Laguna, as SCE meter tied to 625 Laguna	Corporate Yard (including Building Maintenance)
Garage Motor Pool	625 Laguna St	10,000	Grouped with 616, 620 and 625 Laguna, as SCE meter tied to 625 Laguna	Corporate Yard (including Building Maintenance)

Motor Pool Vehicle Bays	625 Laguna St	9,446	Grouped with 616, 620 and 625 Laguna, as SCE meter tied to 625 Laguna ***Square footage not included***	Corporate Yard (including Building Maintenance)
Motor Pool Offices & Engineering Annex	625 Laguna St	2,000	Grouped with 616, 620 and 625 Laguna, as SCE meter tied to 625 Laguna	Corporate Yard (including Building Maintenance)
Central Stores and Purchasing Warehouse	310 E Ortega St	7,500	SCE meter tied to 635 Laguna	Central Stores and Purchasing Warehouse