

---

# Comparative Energy Analysis Report

Prepared for  
San Bernardino City Unified School District

Prepared by  
The Energy Coalition

On Behalf of  
The Southern California Regional Energy Network Public Agency Project Delivery Program

Date  
6/13/2019

---

## Table of Contents

1. Overview	1
2. Total Energy Portfolio	2
3. Street & Traffic Lights	3
4. Building Summary	4
5. Outdoor & Park Lights	5
Appendix A - Methodology	6

---

## 1. Overview

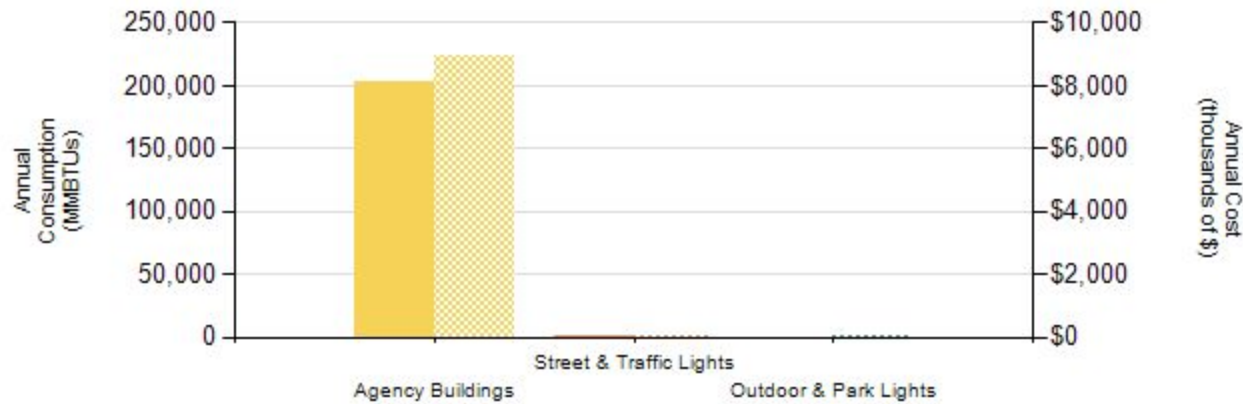
This report is intended to provide a framework for the San Bernardino City USD, referred to as “Agency” herein, to identify inefficient facilities and infrastructure and prioritize further investigation and energy efficiency retrofit work. This analysis uses only total floor area and energy billing data provided by the Agency to analyze energy use across Agency assets, and to help identify opportunities for energy efficiency improvements. Many factors affect the energy use in different assets, including age, type of heating, ventilation, air conditioning (HVAC), and lighting equipment, facility occupancy and hours, plug loads, and climate. Once individual opportunities with the greatest potential for energy savings are identified, a more detailed screening of those facilities can be performed to identify the specific sources of the inefficiencies.

This report was created by The Energy Coalition on behalf of the Southern California Regional Network ([www.socalren.org](http://www.socalren.org)). Any questions about this report can be directed to your assigned Project Manager, Lauren Seymour at [lseymour@energycoalition.org](mailto:lseymour@energycoalition.org).

---

## 2. Total Energy Portfolio

Your Total Annual Energy Cost is **\$8,958,731**



Key: Solid color represents consumption, hashed color represents cost

### Annual Energy Costs

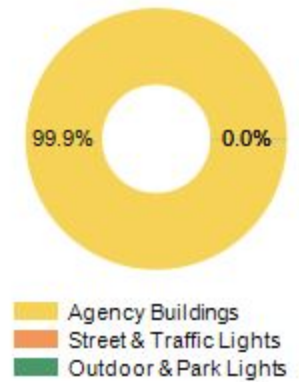


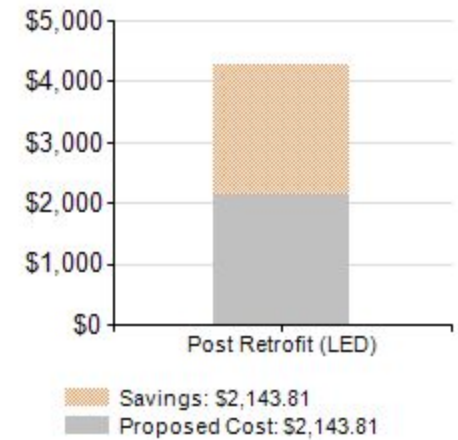
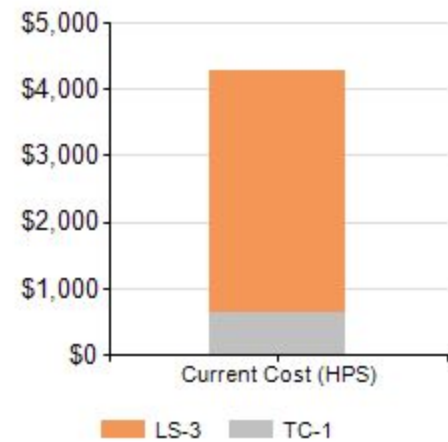
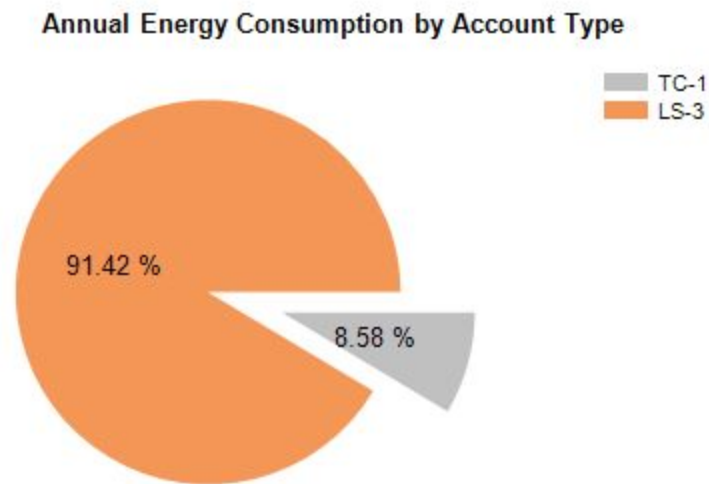
Table 1: Total Energy Portfolio (Annual)

Agency Energy Use	Electric Consumption (kWh)	Electric Cost (\$)	Gas Consumption (therms)	Gas Cost (\$)	Total Energy Consumption (MBTUs)	Total Energy Cost (\$)	GHG Emissions (lbs CO2)
Agency Buildings	38,299,652	\$8,365,756	719,255	\$584,987	202,527,269	\$8,950,743	19,800,920
Street & Traffic Lights	34,206	\$4,288	0	\$0	116,642	\$4,288	17,685
Outdoor & Park Lights	12,648	\$3,701	0	\$0	43,130	\$3,701	6,539

### 3. Street & Traffic Lights



Your Annual Energy Cost for Street & Traffic Lights is **\$4,288** and **0.047%** of the Total Cost.



**Assumption** -agencies can save 50% on annual street & traffic light kWh consumption by converting HPS to LED.  
**Calculation** – projected savings are 50% of the total kWh consumption of agency owned street and traffic lights (TC-1, LS-2, and LS-3). LS-1 street lights are not included in projected savings.

Table 3: Street & Traffic Lights (Annual)

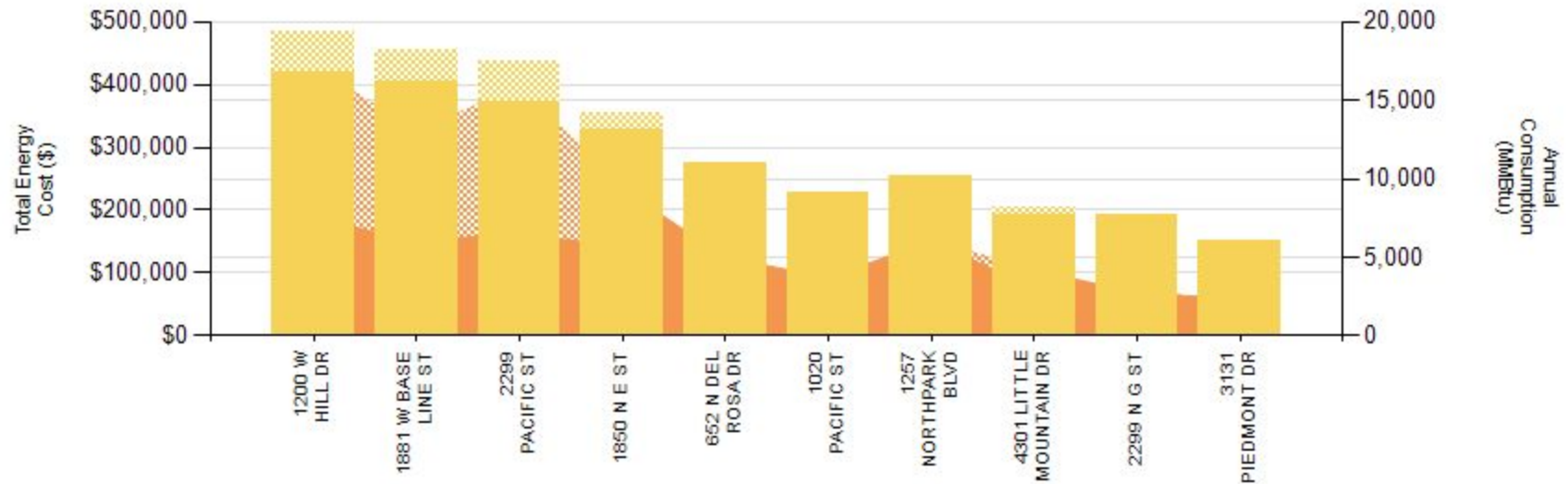
Tariff	Tariff Description	Electric Consumption (kWh)	Electric Cost (\$)	Electric Rate (\$/kWh)
LS-3	Street Lights (Agency Owned - metered)	31,272	\$3,653	0.12
TC-1	Traffic Signal Lights (Agency Owned)	2,934	\$635	0.22



## 4. Building Summary



Your Annual Energy Cost for Buildings is **\$8,950,743** and **99.9%** of the Total Cost.



Key: Displays the top 10 consuming Buildings. Yellow columns represent Cost, Orange area represents Consumption. Electricity is the solid shade, Natural Gas is the hashed shade.

Table 4: Building Summary (Annual) 2018

\*PV solar system installed at site in December

Address	Electric Consumption (kWh)	Electric Cost (\$)	Electric Rate (\$/kWh)	Gas Consumption (therms)	Gas Cost (\$)	Gas Rate (\$/therm)	EUI (kBtu/sq. ft)
1200 W HILL DR							
1881 W BASE LINE ST							
2299 PACIFIC ST							
1850 N E ST							
652 N DEL ROSA DR							
1020 PACIFIC ST							
1257 NORTH PARK BLVD							
4301 LITTLE MOUNTAIN DR							
2299 N G ST							
3131 PIEDMONT DR							

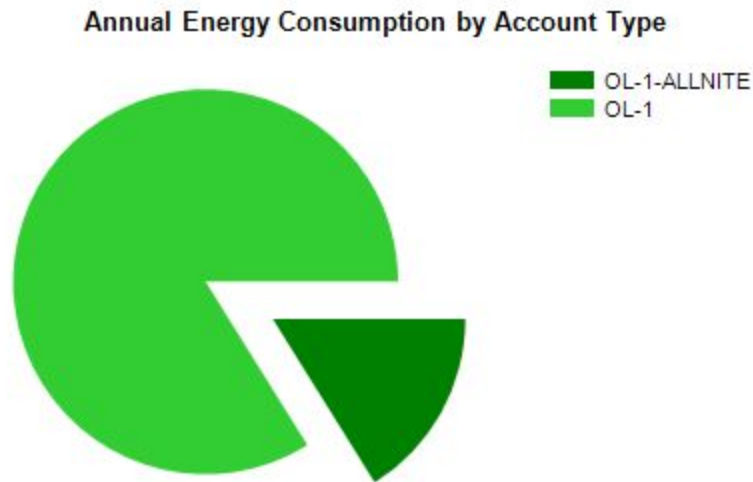
CAJON HIGH SCHOOL*	1200 W HILL DR	2,209,040	\$418,182	\$0.19	96,699	\$65,523	\$0.68	70.1
ARROYO VALLEY HIGH SCHOOL*	1881 W BASE LINE ST	1,758,996	\$404,217	\$0.23	70,199	\$49,743	\$0.71	33.6
SAN GORGONIO HIGH SCHOOL*	2299 PACIFIC ST	1,928,101	\$373,157	\$0.19	93,524	\$64,017	\$0.68	58.6
SAN BERNARDINO HIGH SCHOOL	1850 N E ST	1,644,855	\$327,676	\$0.20	37,270	\$25,930	\$0.70	54.4
INDIAN SPRINGS HIGH SCHOOL*	652 N DEL ROSA DR	1,467,095	\$274,934	\$0.19	0	\$0	\$0.00	44.5
CHILD NUTRITION CENTER	1257 NORTH PARK BLVD	1,784,577	\$254,124	\$0.14	0	\$0	\$0.00	N/A
PACIFIC HIGH SCHOOL*	1020 PACIFIC ST	1,066,537	\$228,666	\$0.21	0	\$0	\$0.00	38.8
SHANDIN HILLS MIDDLE SCHOOL	4301 LITTLE MOUNTAIN DR	882,650	\$193,212	\$0.22	11,871	\$9,965	\$0.84	39.9
ARROWVIEW MIDDLE SCHOOL	2299 N G ST	803,385	\$193,616	\$0.24	0	\$0	\$0.00	33.6
SERRANO MIDDLE SCHOOL	3131 PIEDMONT DR	674,254	\$152,584	\$0.23	0	\$0	\$0.00	33.5



## 5. Outdoor & Park Lights



Your Annual Energy Cost for Outdoor & Park Lights is **\$3,701** and **0.041%** of the Total Cost.



**Assumption** -agencies can save 50% on annual outdoor & park light kWh consumption by converting HPS to LED.

**Calculation** – projected savings are 50% of the total kWh consumption of outdoor & park lights.

Table 5: Outdoor & Park Lights (Annual)

Name	Address	Tariff	Electric Consumption (kWh)	Electric Cost (\$)	Electric Rate (\$/kWh)
Area Lighting	Various	OL-1	10,608	\$3,319	\$0.31
Area Lighting	Various	OL-1-ALLNITE	2,040	\$382	\$0.19



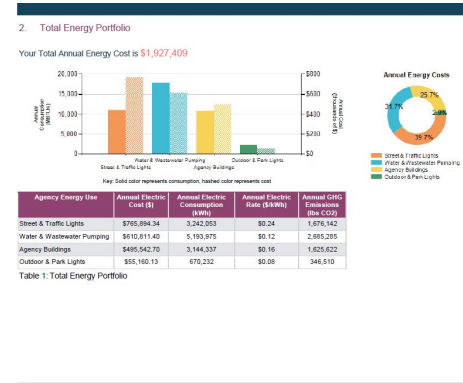
## Appendix A - Methodology

### 1. Data Sources

- Building information, energy usage and cost data used in this analysis were derived from utility consumption billing data provided by agency staff.
- Utility consumption billing data used in this analysis were derived from SCG gas tariffs and SCE electric tariffs
- For more information about the utility tariffs included in this analysis refer to:
  - SCG Gas Tariffs: [For more information about Southern California Gas tariffs;](https://www.socalgas.com/regulatory/tariffs/tariffs-rates.shtml)  
<https://www.socalgas.com/regulatory/tariffs/tariffs-rates.shtml>
  - SCE Electric Tariff: [For more information about Southern California Edison tariffs;](https://www.sce.com/wps/portal/home/regulatory/tariff-books/rates-pricing-choices)  
<https://www.sce.com/wps/portal/home/regulatory/tariff-books/rates-pricing-choices>
- All electricity and gas results were based on usage during period March 1, 2018 – February 28, 2019.
- In some cases, multiple meters were associated with a single facility or asset type. For such facilities, to generate estimates of facility-wide energy use, energy usage and cost values were aggregated by summing energy usage and cost values for each day in the analysis period.
- GHG emissions data used in this analysis were calculated using the conversion: 517 lb CO<sub>2</sub>/MWh + 11.91 lbs CO<sub>2</sub>/therm [1,2].

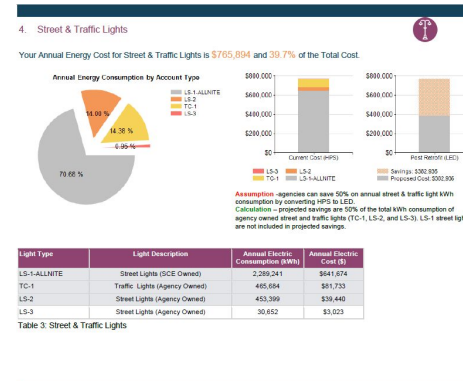
## 2. Total Energy Portfolio

- Total Energy Portfolio data represents an analysis of each agency facility type annual energy costs, annual energy consumption (kWh), GHG Emissions and total annual energy costs for agency facility types based on MBtus.
- The following agency assets are included in the Total Energy Portfolio:
  - Water Pumping
  - Street & Traffic Lights
  - Buildings
  - Outdoor & Parks Lights



## 3. Street & Traffic Lights

- Street & traffic light data represents an analysis of annual energy costs, annual energy consumption (kWh), GHG Emissions per SCE street & traffic light tariff type.
- Annual cost savings reflects only agency owned street lights in the analysis; assumed cost savings conversion is based on converting HPS to LED agency owned traffic and street lights [3].
- On average, agencies can save 50% on annual kWh consumption by converting HPS to LED, which also results in cost savings [3].



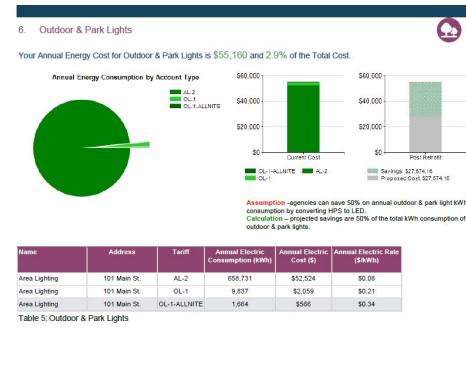
## 4. Building Summary

- Building summary data represents an analysis of the top ten highest energy consuming agency buildings annual energy costs, annual energy consumption (kWh), GHG Emissions, and total annual energy costs based on MBtus.



## 5. Outdoor & Park Lights

- Outdoor & park lights data represents an analysis of annual energy costs, annual energy consumption (kWh), GHG Emissions, and total annual energy costs based on MBtus per SCE outdoor and park lighting tariff type



Certain properties did not have energy usage data for the range of the analysis period and were excluded:

Address	Service Account
1156 N Madison St	18233209
26799 Crest St	43369833
563 W 17 <sup>th</sup> St	57548
781 W 2 <sup>nd</sup> St	48113301
Various LS-3 Street Lights	1031120

---

## Endnotes

[1] Corporate Responsibility Report. (2015). In Southern California Edison. Retrieved from [https://www.sce.com/wps/wcm/connect/c0fcee55-e04a-4287-8301-8e66e3e5fbac/2014\\_Corporate+Responsibility+Report\\_FINAL+single-page.pdf?MOD=AJPERES&ContentCache=NONE](https://www.sce.com/wps/wcm/connect/c0fcee55-e04a-4287-8301-8e66e3e5fbac/2014_Corporate+Responsibility+Report_FINAL+single-page.pdf?MOD=AJPERES&ContentCache=NONE)

[2] Adams, L.S., Nicols, M.D., Goldstene, J. N. (2008). Climate Change Scoping Plan. In California Air Resources Board. Retrieved from [https://www.arb.ca.gov/cc/scopingplan/document/appendices\\_volume2.pdf](https://www.arb.ca.gov/cc/scopingplan/document/appendices_volume2.pdf)

[3] Based on SoCalREN previous project estimates.

---