



Comparative Energy Analysis Report

Prepared for
City of Corona

Prepared by
The Energy Coalition

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

Date
3/1/2020

Table of Contents

1. Overview	1
2. Total Energy Portfolio	2
3. Water Pumping	3
4. Street & Traffic Lights	4
5. Building Summary	5
6. Outdoor & Park Lights	6
Appendix A - Methodology	7

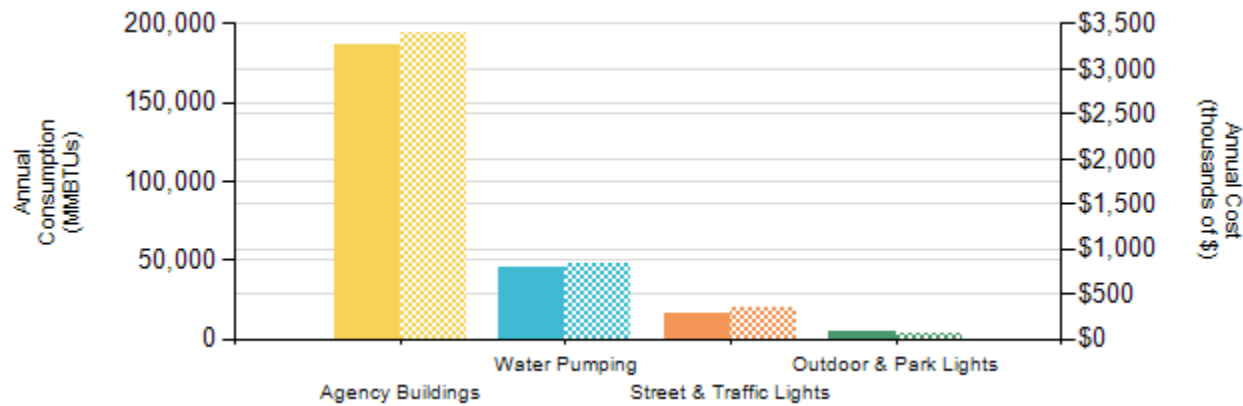
1. Overview

This report is intended to provide a framework for the City of Corona, referred to as “Agency” herein, to identify inefficient facilities and infrastructure and prioritize further investigation and energy efficiency retrofit work. This analysis uses only 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). Any questions about this report can be directed to your assigned Project Manager, Minh Tran, at mtran@energycoalition.org.

2. Total Energy Portfolio

Your Total Annual Energy Cost is **\$4,632,977**



Key: Solid color represents consumption, hashed color represents cost

Annual Energy Costs

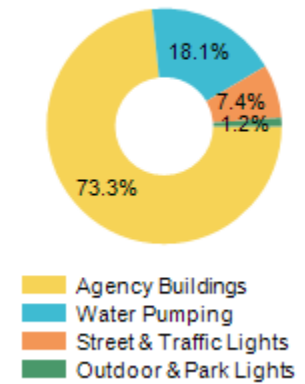


Table 1: Total Energy Portfolio (Annual)

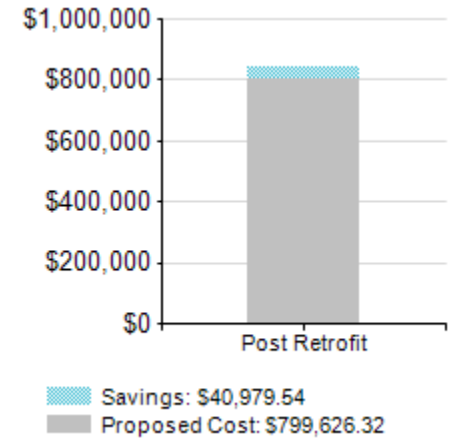
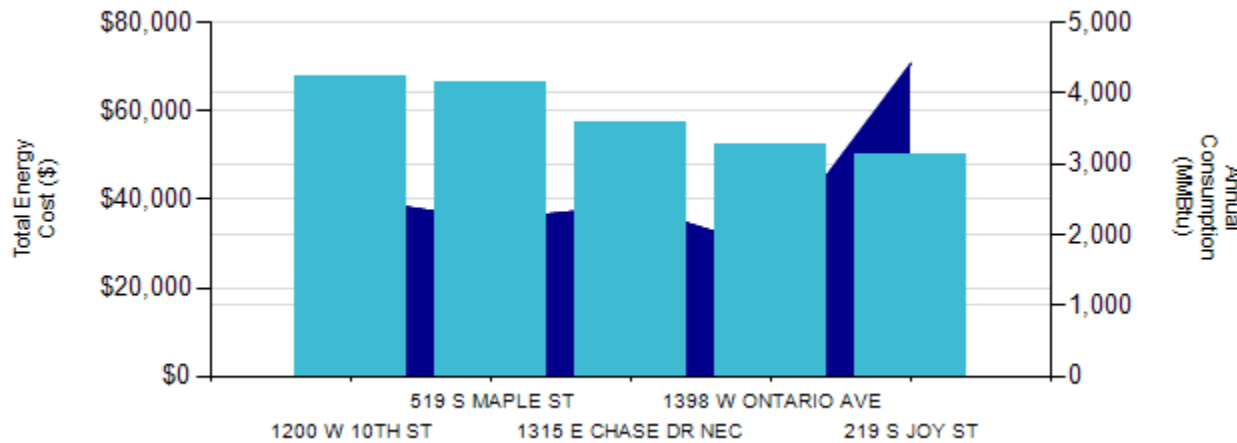
Agency Energy Use	Electric Consumption (kWh)	Electric Cost (\$)	Gas Consumption (therms)	Gas Cost (\$)	Total Energy Consumption (MMBTus)	Total Energy Cost (\$)	GHG Emissions (lbs CO2)
Agency Buildings	29,810,685	\$2,876,739	844,726	\$521,122	186,127	\$3,397,861	15,412,124
Water Pumping	13,312,227	\$840,310	109	\$296	45,406	\$840,606	6,882,421
Street & Traffic Lights	4,658,959	\$341,134	0	\$0	15,887	\$341,134	2,408,682
Outdoor & Park Lights	1,373,720	\$53,376	0	\$0	4,684	\$53,376	710,213



3. Water Pumping



Your Annual Energy Cost for Water Pumping is **\$840,606** and **18.1%** of the Total Cost.



Key: Displays the top 5 consuming pumping service accounts. Columns represent Cost, Area represents Consumption.

Table 2: Water Pumping (Annual)

Site Name	Address	Electric Consumption (kWh)	Electric Cost (\$)	Electric Rate (\$/kWh)
CORONA HIGH SCHOOL	1200 W 10TH ST	736,498	\$67,684	\$0.09
519 S MAPLE ST	519 S MAPLE ST	646,474	\$66,199	\$0.10
1315 E CHASE DR NEC	1315 E CHASE DR NEC	707,237	\$57,215	\$0.08

Assumption - 65% of all pumps need to be upgraded. Those pumps will reduce consumption by 7.5% kWh post retrofit.

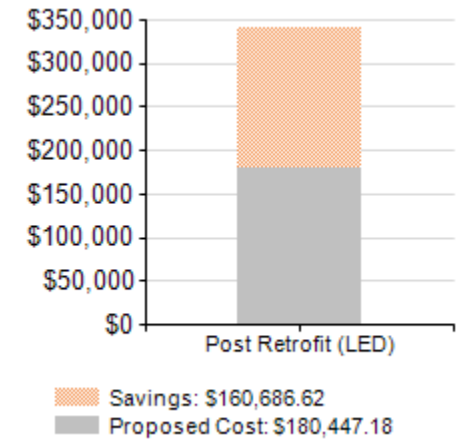
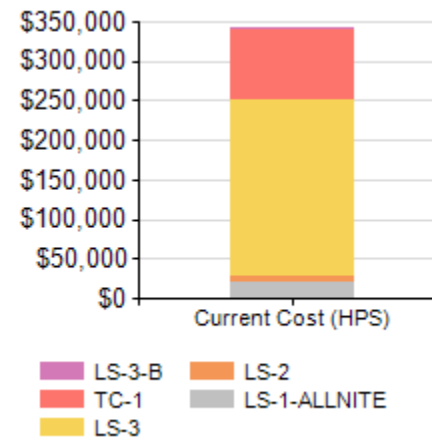
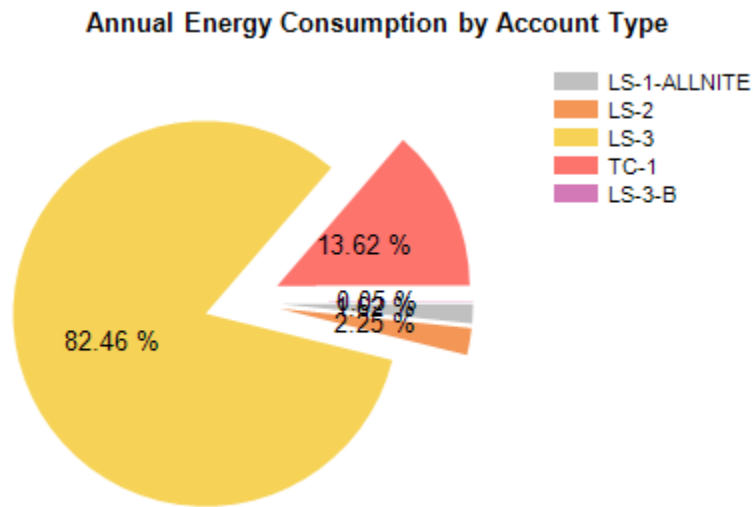
Calculation - projected savings are 7.5% of 65% of the total PA consumption (for ALL pump accounts)

1398 W ONTARIO AVE	1398 W ONTARIO AVE	525,595	\$52,297	\$0.10
219 S JOY ST	219 S JOY ST	1,295,535	\$50,267	\$0.04

4. Street & Traffic Lights



Your Annual Energy Cost for Street & Traffic Lights is **\$341,134** and **7.4%** 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)

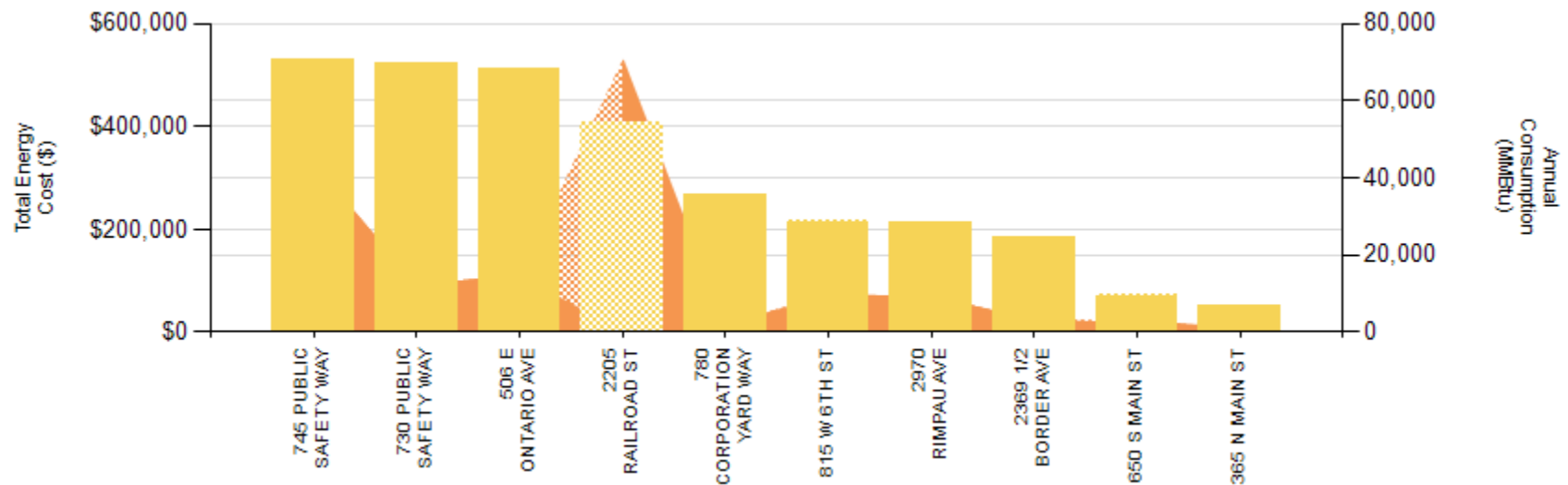
Tariff	Tariff Description	Electric Consumption (kWh)	Electric Cost (\$)	Electric Rate (\$/kWh)
LS-3	Street Lights (Agency Owned - metered)	3,841,851	\$224,935	0.06
TC-1	Traffic Signal Lights (Agency Owned)	634,491	\$88,899	0.14

LS-1-ALLNITE	Street Lights (SCE Owned)	75,482	\$19,761	0.26
LS-2	Street Lights (Agency Owned - unmetered)	104,863	\$7,333	0.07
LS-3-B	Street Lights (Agency Owned - metered)	2,272	\$207	0.09

5. Building Summary



Your Annual Energy Cost for Buildings is **\$3,397,861** and **73.3%** 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)

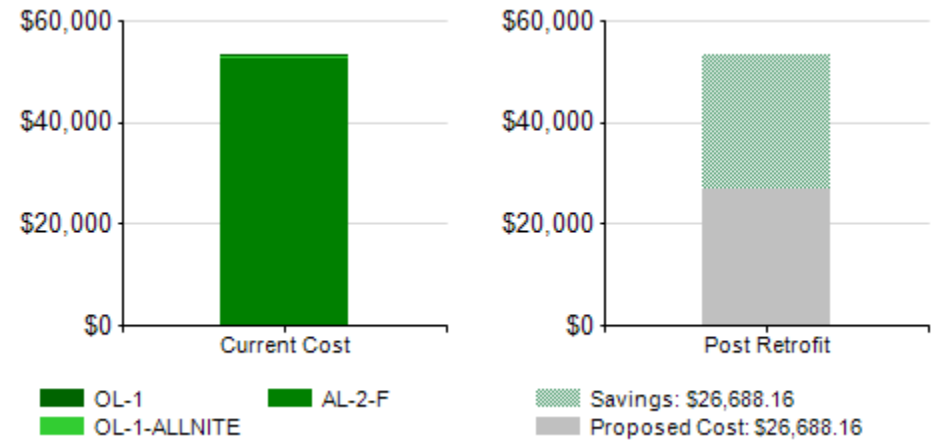
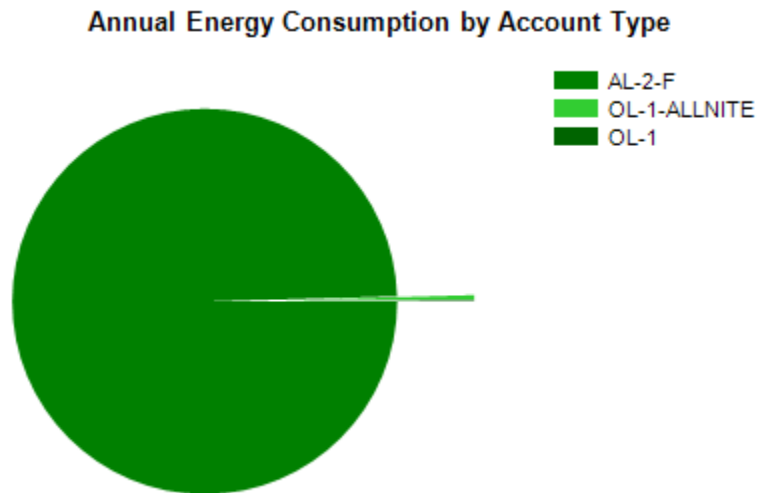
Site Name	Address	Electric Consumption (kWh)	Electric Cost (\$)	Electric Rate (\$/kWh)	Gas Consumption (therms)	Gas Cost (\$)	Gas Rate (\$/therm)	Disadvantaged Community? (Yes/No)
DESALTER FACILITY	745 PUBLIC SAFETY WAY	12,698,293	\$530,789	\$0.04	0	\$0	\$0.00	Yes

POLICE DEPARTMENT	730 PUBLIC SAFETY WAY	3,580,081	\$521,976	\$0.15	0	\$0	\$0.00	Yes
SANTANA REGIONAL PARK	506 E ONTARIO AVE	4,260,540	\$513,821	\$0.12	0	\$0	\$0.00	No
2205 RAILROAD ST	2205 RAILROAD ST	0	\$0	\$0.00	704,214	\$408,514	\$0.58	Yes
780 CORPORATION YARD WAY	780 CORPORATION YARD WAY	527,936	\$266,661	\$0.51	0	\$0	\$0.00	Yes
OBC THEATER	815 W 6TH ST	2,786,022	\$217,575	\$0.08	1,164	\$1,333	\$1.15	Yes
CITY FACILITY	2970 RIMPAU AVE	2,704,371	\$215,268	\$0.08	0	\$0	\$0.00	No
TENNIS COURTS	2369 1/2 BORDER AVE	865,837	\$186,501	\$0.22	0	\$0	\$0.00	Yes
CORONA PUBLIC LIBRARY	650 S MAIN ST	724,640	\$69,421	\$0.10	4,818	\$4,064	\$0.84	Yes
CIRCLE CITY CENTER	365 N MAIN ST	278,370	\$50,914	\$0.18	0	\$0	\$0.00	Yes

6. Outdoor & Park Lights



Your Annual Energy Cost for Outdoor & Park Lights is **\$53,376** and **1.2%** 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	AL-2-F	1,367,672	\$52,410	\$0.04
Area Lighting	Various	OL-1-ALLNITE	5,088	\$729	\$0.14

Area Lighting	Various	OL-1	960	\$238	\$0.25
---------------	---------	------	-----	-------	--------

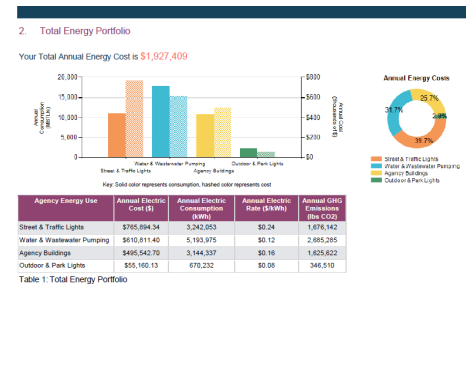
Appendix A - Methodology

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
- Analysis period for 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 CO2/MWh + 11.91 lbs CO2/therm [1,2].

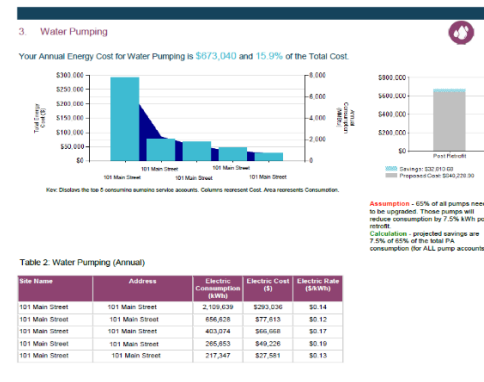
2. Total Energy Portfolio

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



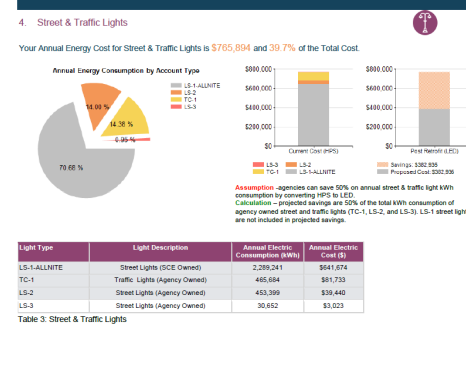
3. Water Pumping

- Water pumping data represents an analysis of the top five highest energy consuming water and wastewater pumping SCE and SCG service accounts annual energy costs, annual energy consumption (kWh and therms) and total annual energy costs.
- Water pump conversion data used in this analysis is derived on the assumption that 65% of all existing pumps need to be upgraded. Of the 65% of pumps requiring upgrades, it is assumed that the pumps will save 7.5% of their annual kWh consumption [3].



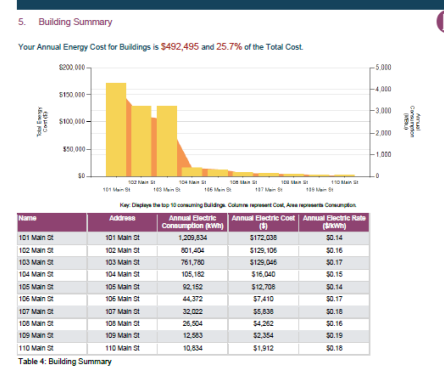
4. Street & Traffic Lights

- Street & traffic light data represents an analysis of annual energy costs and annual energy consumption (kWh) 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].



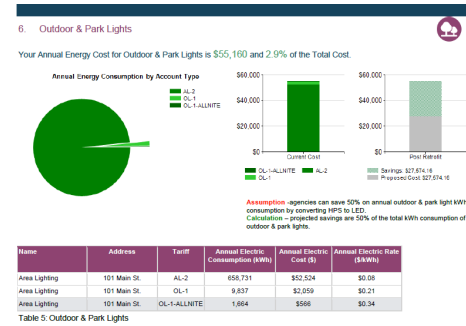
5. Building Summary

- Building summary data is weather normalized and includes the following metrics for the top ten highest energy-consuming agency buildings' (total annual energy costs): annual energy costs and annual energy consumption (kWh and therms).



6. Outdoor & Park Lights

- Outdoor & park lights data represents an analysis of annual energy costs, annual energy consumption (kWh) and total annual energy costs 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:

- Electric
- Gas

Certain properties could not be matched to gas or electricity usage data and were excluded:

- Electric
- Gas

Endnotes

[1] Corporate Responsibility Report. (2015). In Southern California Edison. Retrieved from https://www.sce.com/wps/wcm/connect/c0fceed5-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

[3] Based on SoCalREN previous project estimates.
