



Comparative Energy Analysis Report

Prepared for
City of Seal Beach

Prepared by
The Energy Coalition

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

Date
7/7/2020

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Note to TEC: Complete the following prior to submitting the CEA to the agency:

- Review the CEA, the methodology, and the appendix
- Fill in text in red or remove instruction text in RED
- Remove any information that does not apply to the agency (ex. remove the SL savings graph if the agency has already retrofitted all SLs)
- Verify that all tables and charts are visible
- Ensure that all headers and footers are within printing range
- Attach Appendix B - Agency Buildings (Score Card) if applicable

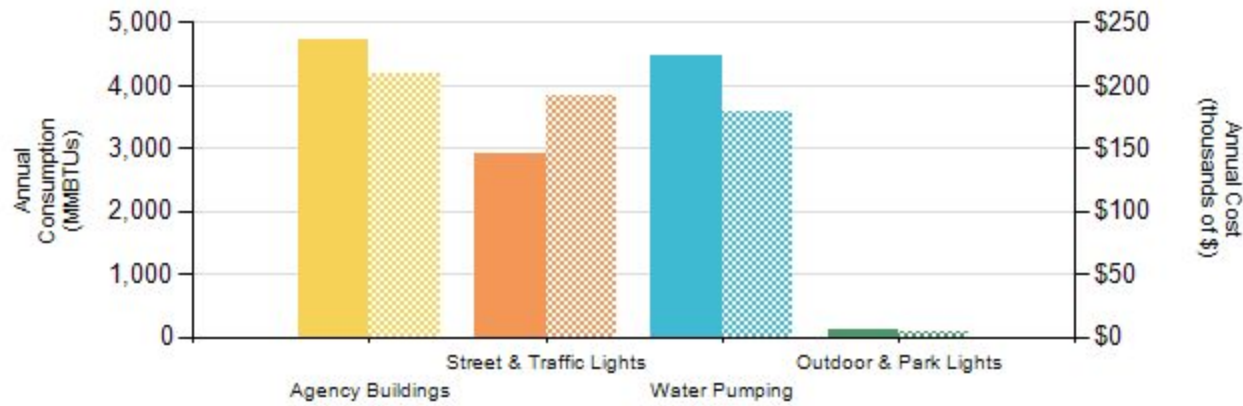
1. Overview

This report is intended to provide a framework for the City of Seal Beach, 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 Corey Bullock at cbullock@energycoalition.org.

2. Total Energy Portfolio

Your Total Annual Energy Cost is **\$583,220**



Key: Solid color represents consumption, hashed color represents cost

Annual Energy Costs

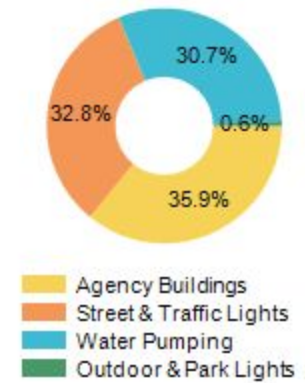


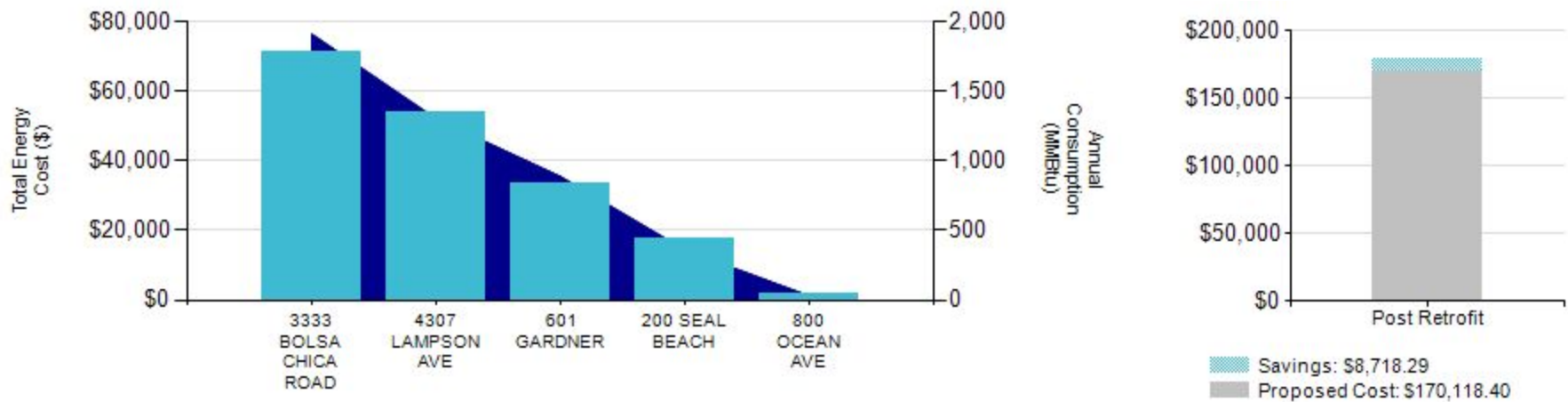
Table 1: Total Energy Portfolio (Annual)

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	1,039,268	\$195,562	11,906	\$13,671	4,737	\$209,234	537,301
Street & Traffic Lights	858,648	\$191,362	0	\$0	2,930	\$191,362	443,921
Water Pumping	1,313,726	\$178,837	0	\$0	4,482	\$178,837	679,196
Outdoor & Park Lights	34,175	\$3,788	0	\$0	117	\$3,788	17,668

3. Water Pumping



Your Annual Energy Cost for Water Pumping is **\$178,837** and **30.7%** 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)
3333 BOLSA CHICA ROAD	3333 BOLSA CHICA ROAD	558,901	\$71,092	\$0.13
HEATHER PARK	4307 LAMPSON AVE	380,947	\$53,752	\$0.14

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

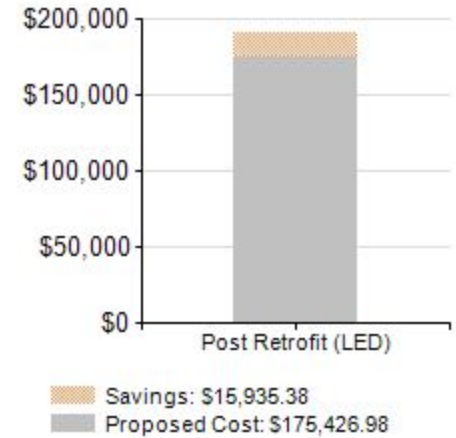
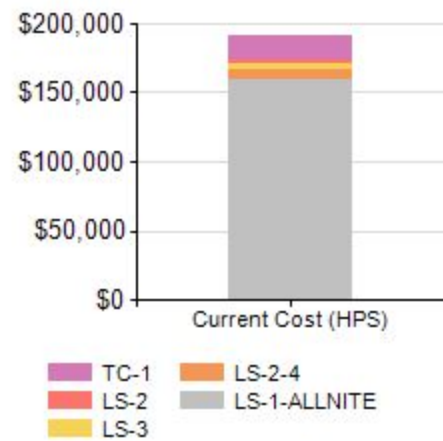
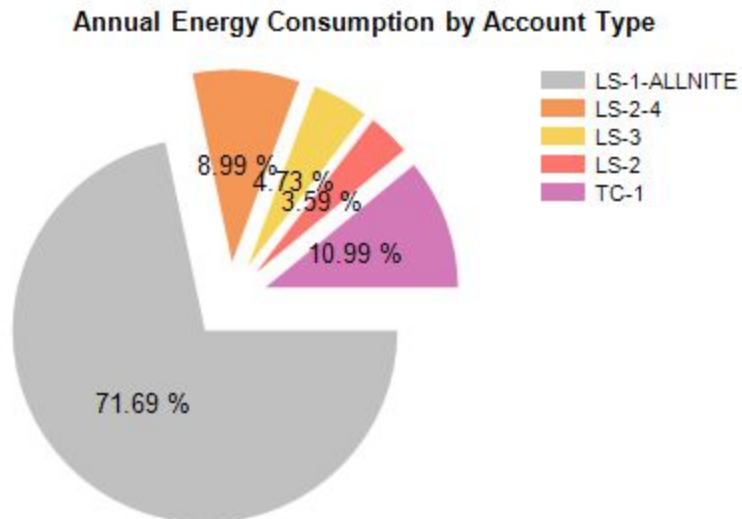
Calculation - projected savings are 7.5% of 65% of the total PA consumption (for ALL pump accounts)

601 GARDNER	601 GARDNER	259,275	\$33,680	\$0.13
ANAHEIM LANDMARK	200 SEAL BEACH	104,965	\$17,466	\$0.17
EISENHOWER PARK	800 OCEAN AVE	8,444	\$1,924	\$0.23

4. Street & Traffic Lights



Your Annual Energy Cost for Street & Traffic Lights is **\$191,362** and **32.8%** 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)

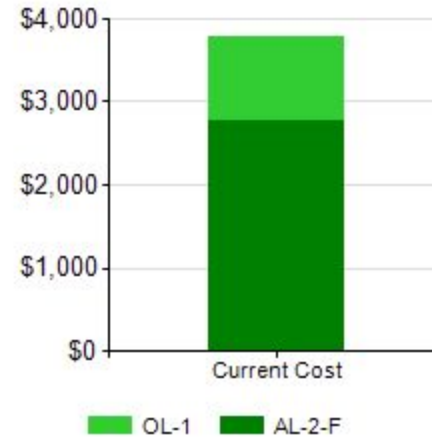
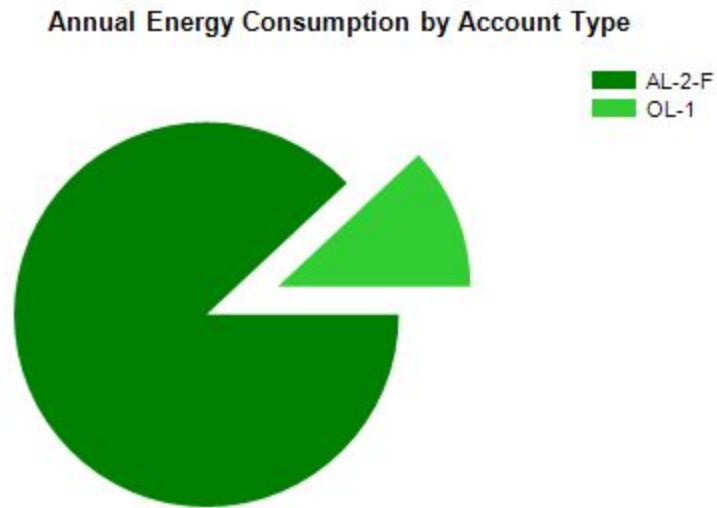
Tariff	Tariff Description	Electric Consumption (kWh)	Electric Cost (\$)	Electric Rate (\$/kWh)
LS-1-ALLNITE	Street Lights (SCE Owned)	615,560	\$159,492	0.26
TC-1	Traffic Signal Lights (Agency Owned)	94,382	\$18,064	0.19
LS-2-4	Street Lights (Agency Owned - unmetered)	77,220	\$7,429	0.10
LS-3	Street Lights (Agency Owned - metered)	40,622	\$3,497	0.09
LS-2	Street Lights (Agency Owned - unmetered)	30,864	\$2,881	0.09

ELECTRIC VEHICLE CHARGING STATION	911 SEAL BEACH BLVD	468,072	\$62,909	\$0.13	3,904	\$4,088	\$1.05
TENIS CENTER	3900 LAMPSON AVE	90,453	\$31,867	\$0.35	403	\$716	\$1.78
ADMINISTRATION BUILDING	211 8TH ST	114,120	\$20,724	\$0.18	1,730	\$2,060	\$1.19
43 1/2 RIVERSEA RD	43 1/2 RIVERSEA RD	52,107	\$17,039	\$0.33	356	\$613	\$1.72
CORPORATE YARD	1776 ADOLFO LOPEZ DR	74,251	\$15,363	\$0.21	1,070	\$1,616	\$1.51
201 8TH ST UNIT A	201 8TH ST UNIT A	65,853	\$13,092	\$0.20	0	\$0	\$0.00
LOS ALAMITOS LIBRARY	3333 SAINT CLOUD DR	32,004	\$5,598	\$0.17	0	\$0	\$0.00
MARINA COMMUNITY PARK	155 MARINA DR	24,319	\$4,334	\$0.18	0	\$0	\$0.00
CORPORATE YARD	1776 1/2 ADOLFO LOPEZ DR	17,904	\$3,033	\$0.17	0	\$0	\$0.00
2600 WESTMINSTER AVE	2600 WESTMINSTER AVE	16,418	\$2,796	\$0.17	0	\$0	\$0.00

6. Outdoor & Park Lights



Your Annual Energy Cost for Outdoor & Park Lights is **\$3,788** and **0.6%** 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	30,083	\$2,782	\$0.09

Area Lighting	Various	OL-1	4,092	\$1,006	\$0.25
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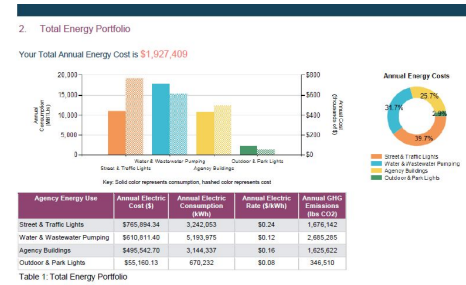
Appendix A - Methodology

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 January 1, 2019 – December 31, 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].

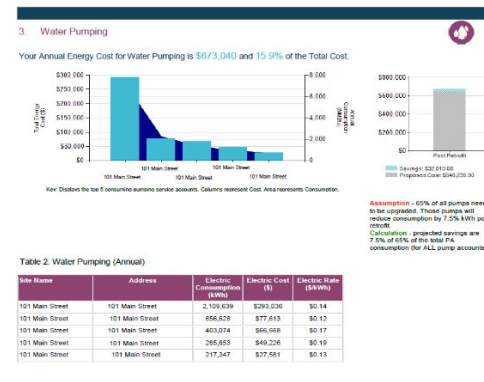
2. Total Energy Portfolio

- 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



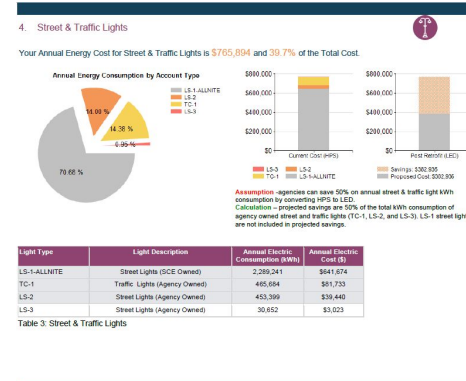
3. Water Pumping

- 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].



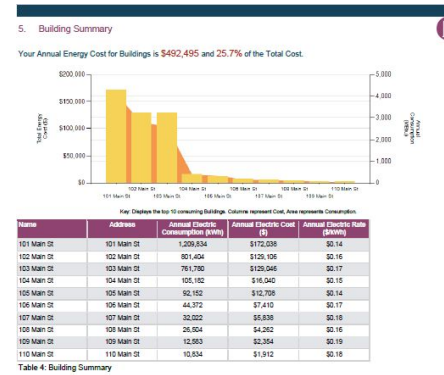
4. Street & Traffic Lights

- 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].



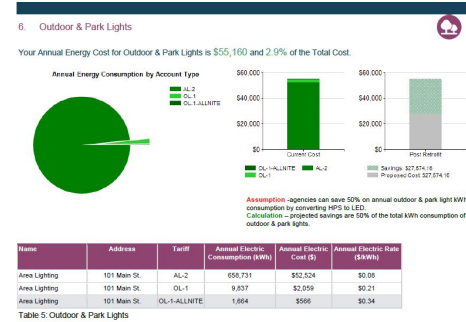
5. Building Summary

- 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: See table below

Tariff Type	Service Account Number/Meter
GS-GN-10	1105683864, 1208091900
TOU-GS1E/B	38594581, 50814537, 50053281, 50209981, 50209983, 50209985, 50209987, 1239354, 1239324
AL-2-F	42807026, 22185978, 1239371

Created New Gas Meters/Accounts for the addresses of following sites and turned off the original Meters/Accounts

1776 ADOLFO LOPEZ DR
 1776 ADOLFO LOPEZ DR UNIT 2
 201 8TH ST
 211 8TH ST
 2701 SEAL BEACH BLVD
 3333 BOLSA CHICA RD
 3900 LAMPSON AVE

43 1/2 RIVERSEA RD

911 SEAL BEACH BLVD APT 1 /911 SEAL BEACH BLVD

Endnotes

[1] Corporate Responsibility Report. (2015). In Southern California Edison. Retrieved from https://www.sce.com/wps/wcm/connect/c0fcee5-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.
