

Comparative Energy Analysis Report

Prepared for
City of Victorville

Prepared by
The Energy Coalition

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

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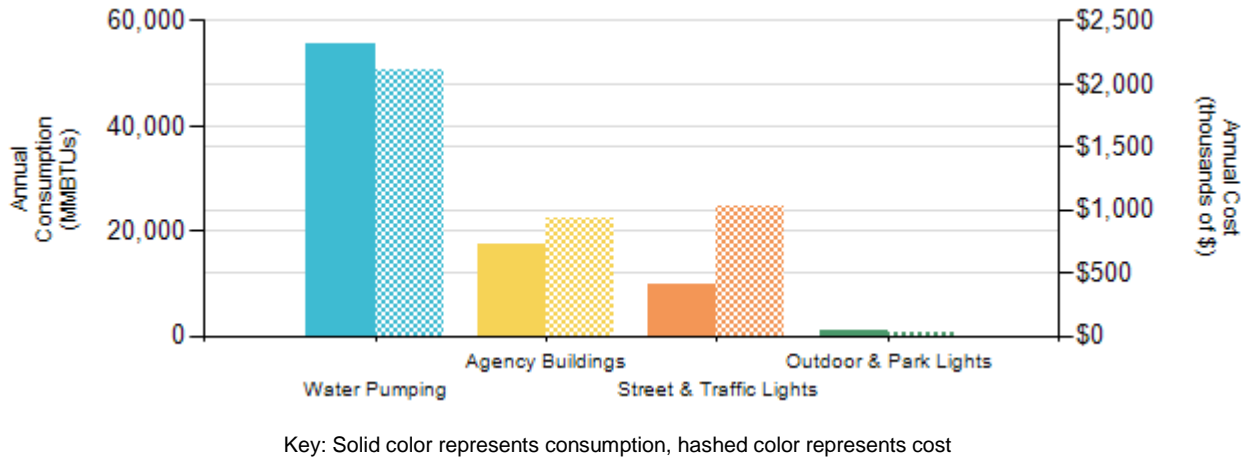
1. Overview

This report is intended to provide a framework for the City of Victorville, 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, Angela Vaszily, at avaszily@energycoalition.org.

2. Total Energy Portfolio

Your Total Annual Energy Cost is **\$4,096,877**



Annual Energy Costs

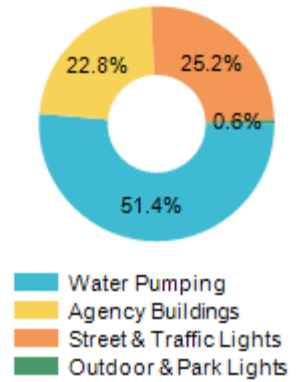


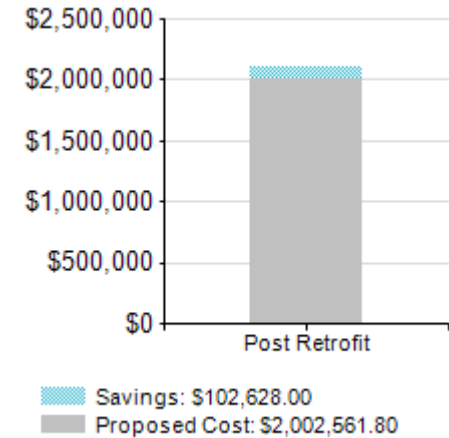
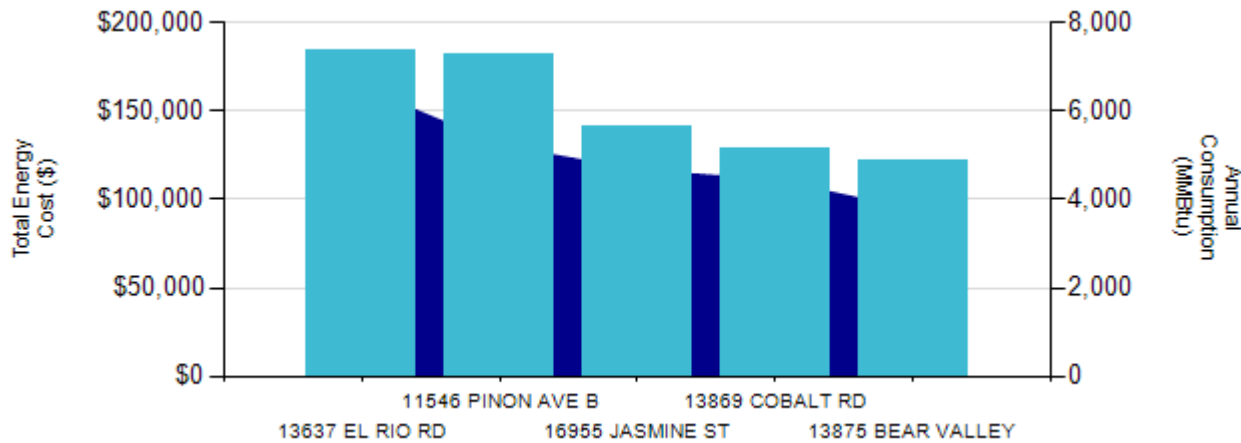
Table 1: Total Energy Portfolio (Annual)

Agency Energy Use	Electric Consumption (kWh)	Electric Cost (\$)	Total Energy Consumption (MMBTus)	Total Energy Cost (\$)	GHG Emissions (lbs CO2)
Water Pumping	16,272,590	\$2,105,190	55,522	\$2,105,190	8,412,929
Street & Traffic Lights	2,877,609	\$1,032,090	9,818	\$1,032,090	1,487,724
Agency Buildings	5,130,808	\$935,739	17,506	\$935,739	2,652,628
Outdoor & Park Lights	309,425	\$23,858	1,056	\$23,858	159,973



3. Water Pumping

Your Annual Energy Cost for Water Pumping is **\$2,105,190** and **51.4%** 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	Service Account Address	Electric Consumption (kWh)	Electric Cost (\$)	Electric Rate (\$/kWh)
Well 131	13637 EL RIO RD	1,912,036	\$184,129	\$0.10
Well 140	11546 PINON AVE B	1,529,106	\$181,964	\$0.12
Well 120	16955 JASMINE ST	1,366,672	\$141,314	\$0.10
Well 134	13869 COBALT RD	1,299,909	\$128,431	\$0.10
Well 201	13875 BEAR VALLEY	1,102,737	\$122,073	\$0.11

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)



4. Street & Traffic Lights

Your Annual Energy Cost for Street & Traffic Lights is **\$1,032,090** and **25.2%** of the Total Cost.

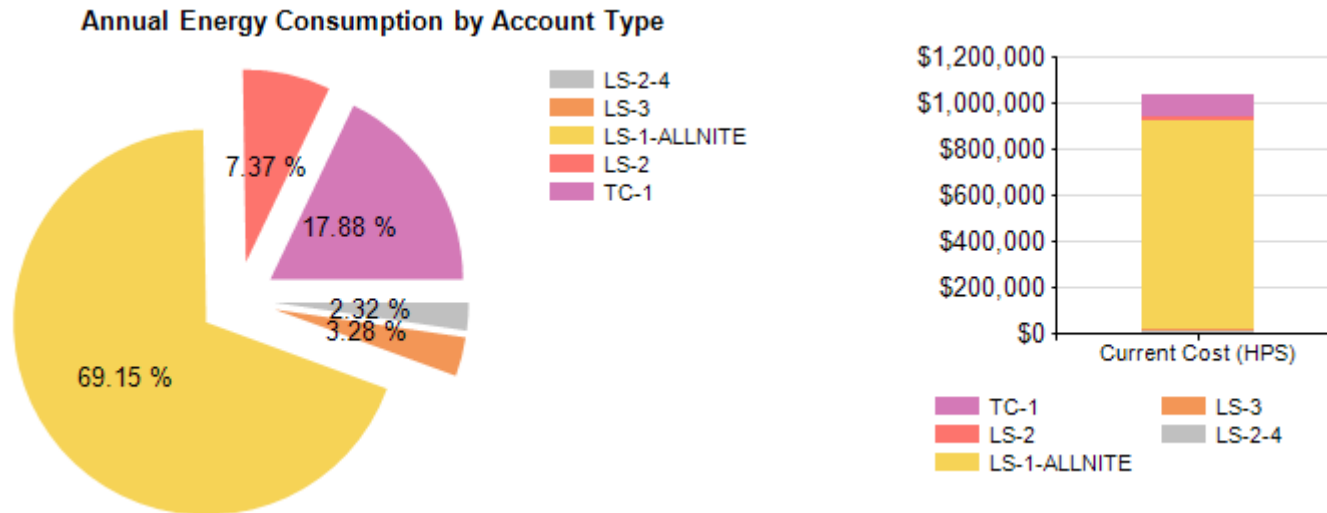


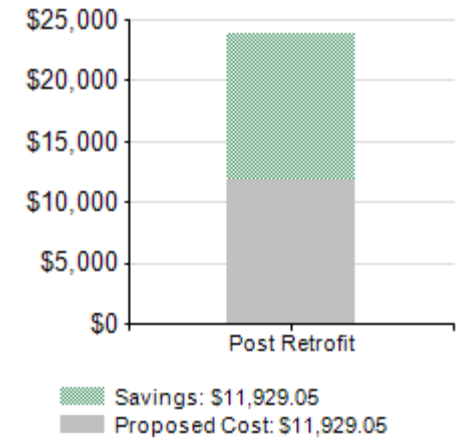
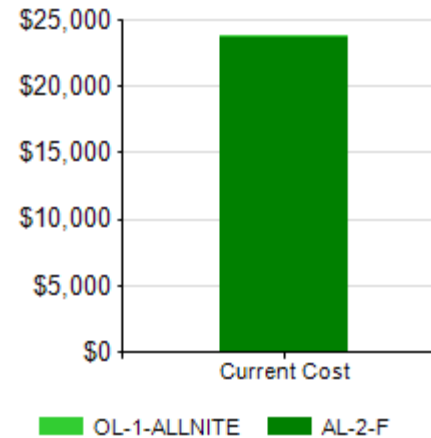
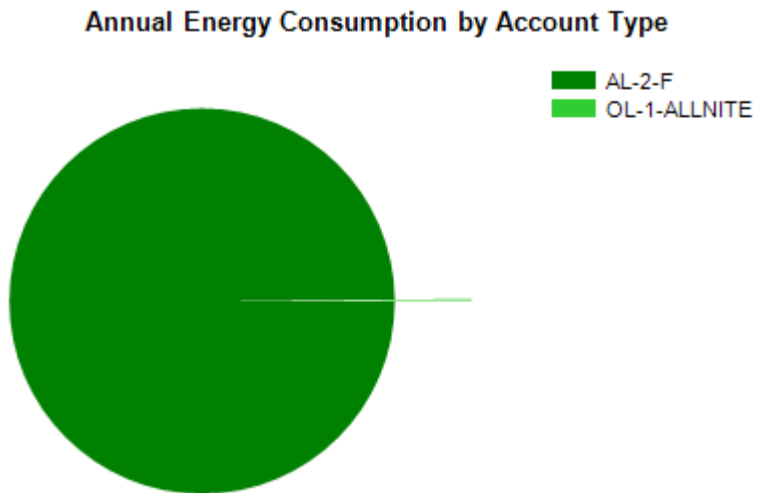
Table 3: Street & Traffic Lights (Annual)

Tariff	Tariff Description	Electric Consumption (kWh)	Electric Cost (\$)	Electric Rate (\$/kWh)
LS-1-ALLNITE	Street Lights (SCE Owned)	1,989,911	\$905,729	0.46
TC-1	Traffic Signal Lights (Agency Owned)	514,613	\$90,767	0.18
LS-2	Street Lights (Agency Owned - unmetered)	211,944	\$19,657	0.09
LS-3	Street Lights (Agency Owned - metered)	94,517	\$9,454	0.10
LS-2-4	Street Lights (Agency Owned - unmetered)	66,624	\$6,483	0.10



5. Outdoor & Park Lights

Your Annual Energy Cost for Outdoor & Park Lights is **\$23,858** 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.

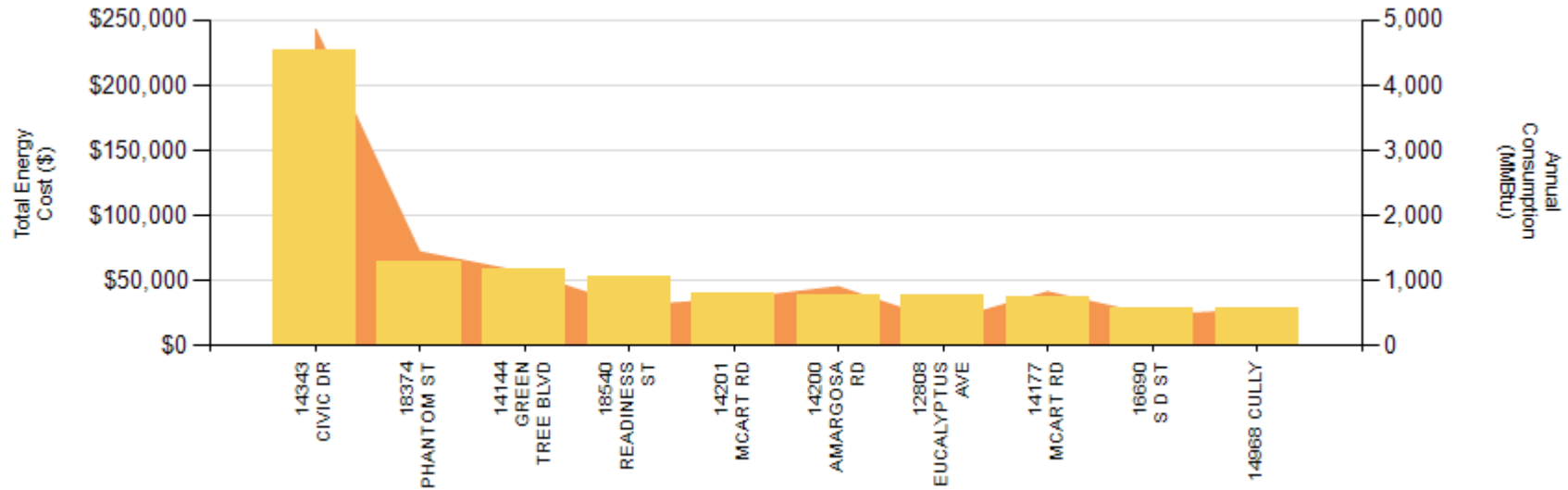
Table 5: Outdoor & Park Lights (Annual)

Name	Address	Tariff	Electric Consumption (kWh)	Electric Cost (\$)	Electric Rate (\$/kWh)
Area Lighting	Various	AL-2-F	308,945	\$23,738	\$0.08
Outdoor Lighting	Various	OL-1-ALLNITE	480	\$120	\$0.25



6. Building Summary

Your Annual Energy Cost for Buildings is **\$935,739** and **22.8%** of the Total Cost.



Key: Displays the top 10 consuming Buildings. Yellow columns represent Cost, Orange area represents Consumption.

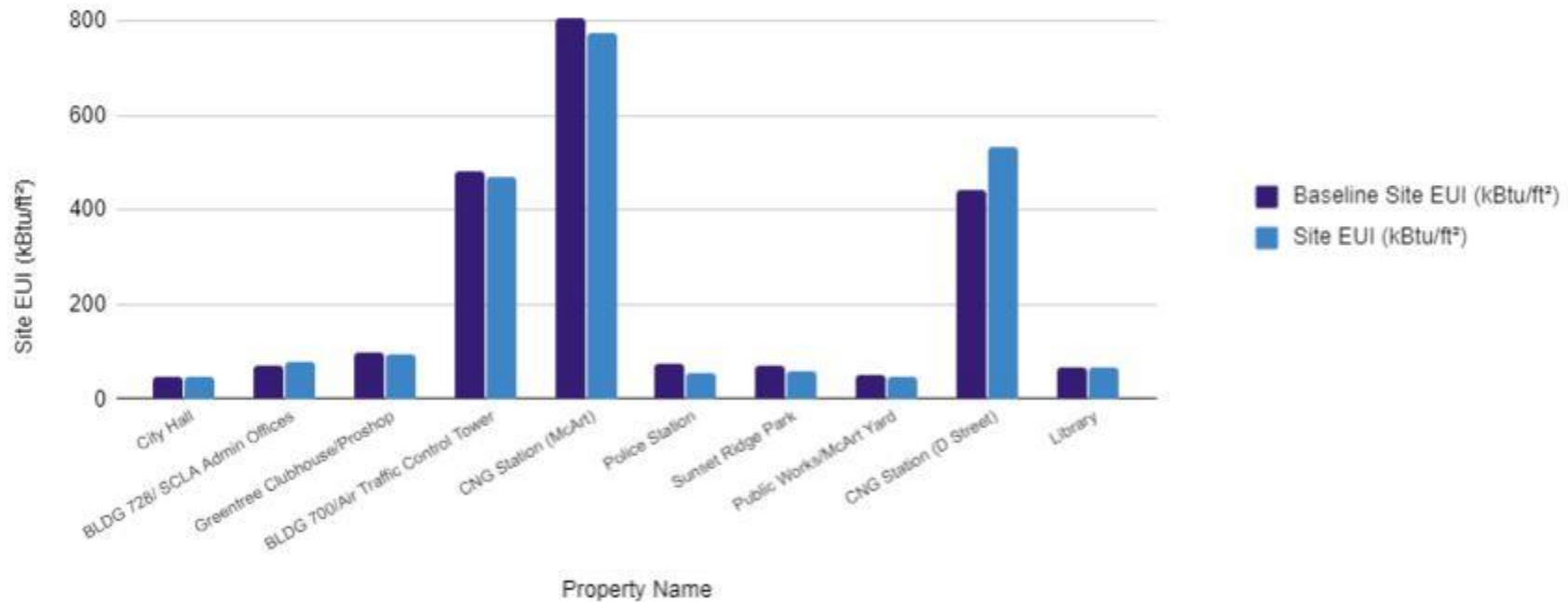
Table 4: Building Summary (Annual)

Site Name	Service Account Address	Electric Consumption (kWh)	Electric Cost (\$)	Electric Rate (\$/kWh)	Disadvantaged Community (Y/N)
City Hall	14343 CIVIC DR	1,421,369	\$226,140	\$0.16	N
SCLA Admin Offices - BLDG 728	18374 PHANTOM ST	423,267	\$64,379	\$0.15	N
Green Tree Golf Course Clubhouse	14144 GREEN TREE BLVD	330,443	\$58,654	\$0.18	Y
Air Traffic Control Tower - BLDG 700	18540 READINESS ST	180,131	\$53,121	\$0.29	N
CNG Station - McArt	14201 MCART RD	211,164	\$40,438	\$0.19	N
Police Station	14200 AMARGOSA RD	266,028	\$39,239	\$0.15	N
Sunset Ridge Park	12808 EUCALYPTUS AVE	108,281	\$38,711	\$0.36	Y
Public Works - McArt Yard	14177 MCART RD	243,419	\$38,139	\$0.16	N
CNG Station - D Street	16690 S D ST	137,614	\$29,050	\$0.21	Y
Library	14968 CULLY	162,932	\$28,855	\$0.18	Y

Appendix A - ENERGY STAR Portfolio Manager® - Energy Use Intensity



Site EUI for Top 10 Energy Users



Portfolio Average Site EUI

+2.3 ▶ Change in Average Site EUI

223.5 ▶ Current Average Site EUI

221.2 ▶ Baseline Average Site EUI

Properties Included: 10

Your Properties Compared to the National Median Site EUI

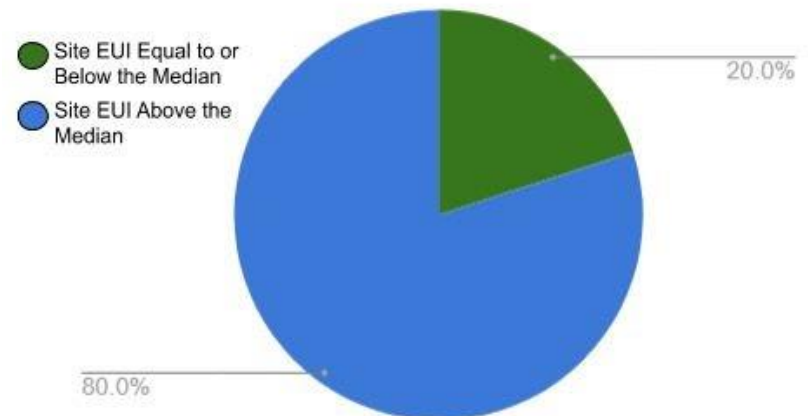


Table 5: Site EUI Summary

Site Name	Property Type – ESPM Calculated	Square Footage (ft ²)	Baseline Average Site EUI (kBTU/ft ²)	Baseline Year	Current Average Site EUI (kBTU/ft ²)	Current Year	Current National Median Average Site EUI (kBTU/ft ²)
City Hall	Office	107,545	45.2	09/30/2017	46.5	02/29/2020	67.8
SCLA Admin Offices - BLDG 728	Office	18,848	71.4	09/30/2017	77.2	03/31/2020	50.8
Green Tree Golf Course Clubhouse	Social/Meeting Hall	13,780	99.7	09/30/2017	96.5	03/31/2019	39.1
Air Traffic Control Tower - BLDG 700	Office	1,298	483.9	09/30/2017	470.1	03/31/2019	47.1
CNG Station - McArt	Other – Utility	900	806.9	04/30/2018	776.7	03/31/2020	31.9
Police Station	Police Station	15,828	73.6	09/30/2017	57.0	03/31/2020	44.6
Sunset Ridge Park	Other – Recreation	5,968	69.6	09/30/2017	60.1	02/29/2020	40.0
Public Works - McArt Yard	Office	17,000	51.8	09/30/2017	47.4	02/29/2020	50.4
CNG Station - D Street	Other – Utility	900	444.2	04/30/2018	535.3	03/31/2020	31.9
Library	Library	9,000	65.6	09/30/2017	67.9	03/31/2019	51.3

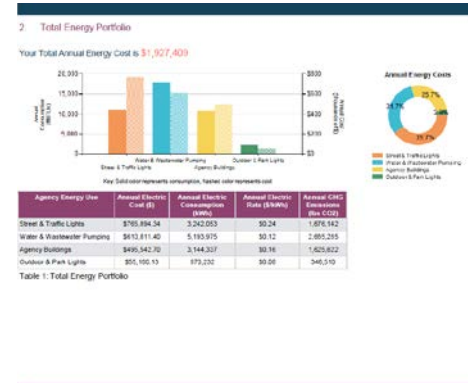
Appendix B - Methodology

1. Data Sources

- Building information, energy usage and cost data used in this analysis were derived from: ENERGY STAR Portfolio Manager® and utility consumption billing data provided by agency staff.
- Utility consumption billing data used in this analysis were derived from: SCE electric tariffs
- For more information about the utility tariffs included in this analysis refer to:
 - 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 were based on usage during period February 1, 2019 – January 31, 2020.
- 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].

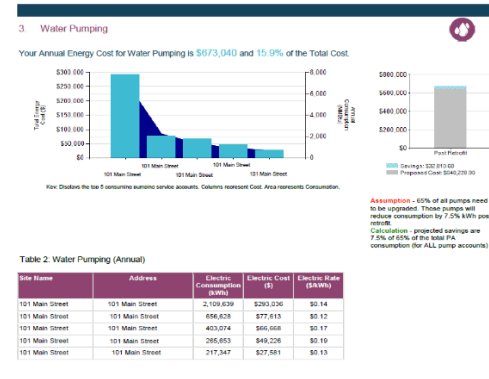
2. Total Energy Portfolio

- Total Energy Portfolio data represents an analysis of each agency facility type annual energy costs, annual energy consumption (kWh), 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



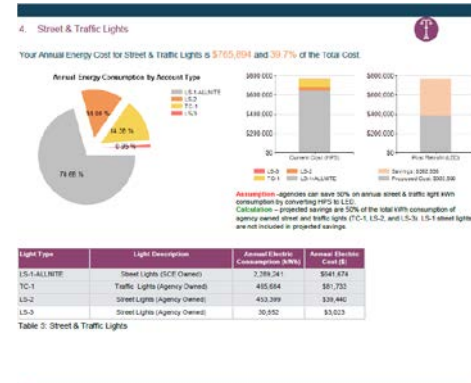
3. Water Pumping

- Water pumping data represents an analysis of the top five highest energy consuming water and wastewater pumping SCE service accounts annual energy costs, annual energy consumption (kWh) 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].



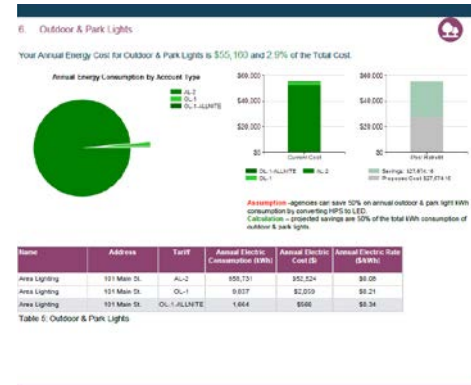
4. Street & Traffic Lights

- 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].



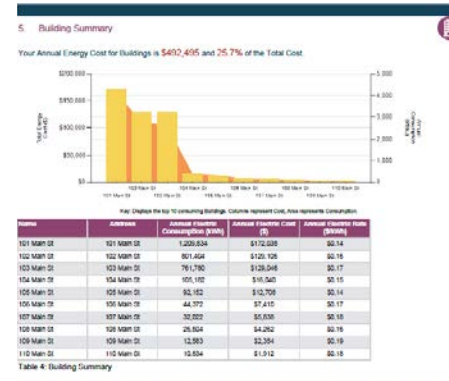
5. Outdoor & Park Lights

- 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.



6. 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).



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

Tariff Type	Service Account Number
LS-2	46026193

Certain properties could not be matched to electric usage data and were updated to General Services account types:

Tariff Type	Service Account Number
DOMESTIC	37813375
MISC CHARGES	32317731, 33721168

Endnotes

[1] Corporate Responsibility Report. (2015). In Southern California Edison. Retrieved from https://www.sce.com/wps/wcm/connect/c0fcef5-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.
