Comparative Energy Analysis Report

Prepared for

The City of Mission Viejo

Prepared by

The Energy Coalition

On Behalf of

The Southern California Regional Energy Network
Public Agency Program

Date

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1.   Overview

This report is intended to provide a framework for the City of Mission Viejo, referred to as "Agency" herein, to identify inefficient facilities and infrastructure and prioritize further investigation and energy efficiency retrofit work. This analysis uses only SCE and SCG energy billing data (SDG&E data not included) 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.com). 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 $907,111

Key: Solid color represents consumption, hashed color represents cost
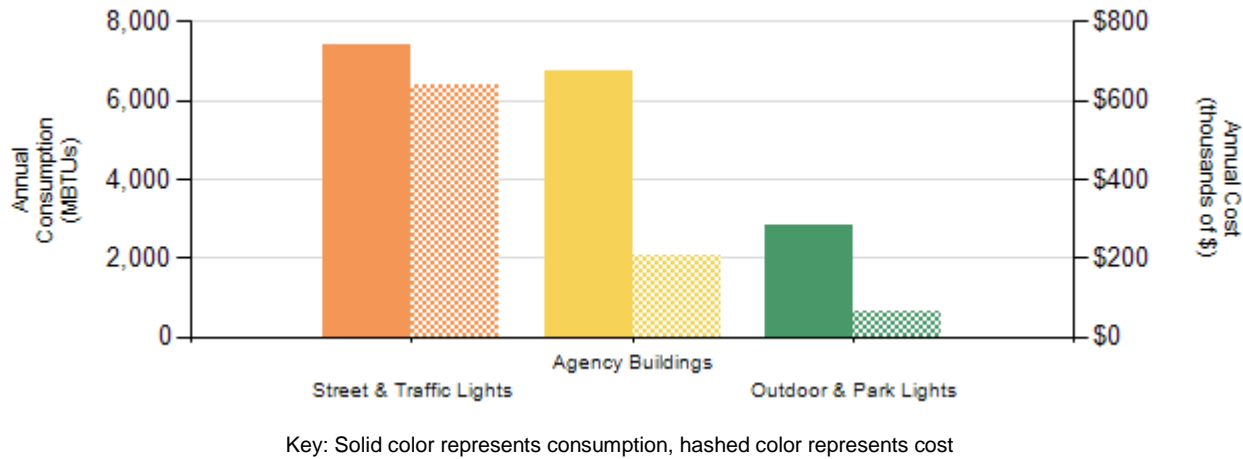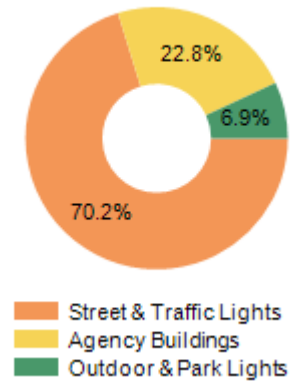
Table 1: Total Energy Portfolio (Annual)

Agency Energy Use	Electric Consumption (kWh)	Electric Cost ($)	Gas Consumption (therms)	Gas Cost ($)	Total Energy Consumption (MBTUs)	Total Energy Cost ($)	GHG Emissions (lbs CO2)
Street & Traffic Lights	2,177,628	$636,968	0	$0	7,425,712	$636,968	1,125,834
Agency Buildings	740,096	$178,708	42,135	$28,488	6,737,270	$207,196	382,629
Outdoor & Park Lights	834,792	$62,947	0	$0	2,846,641	$62,947	431,588

3.   Street & Traffic Lights

Your Annual Energy Cost for Street & Traffic Lights is $636,968 and 70.2% of the Total Cost.
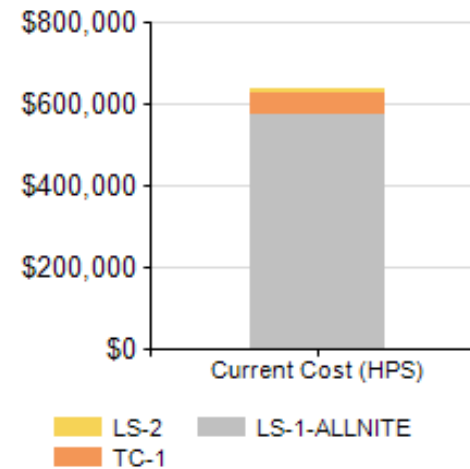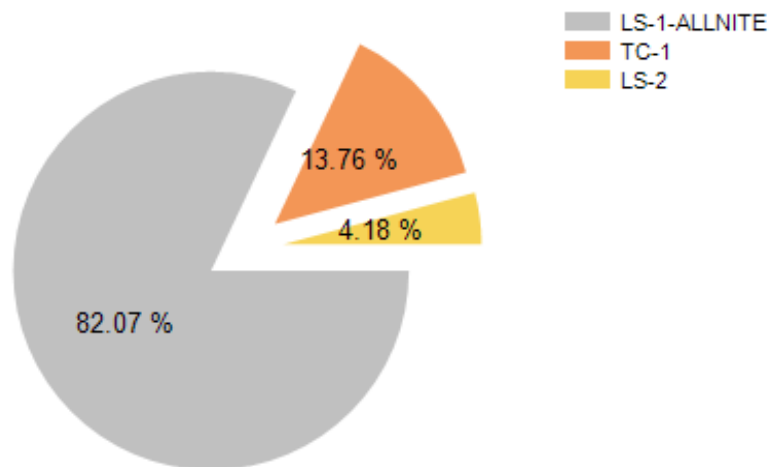

Annual Energy Consumption by Account Type

Table 3: Street & Traffic Lights (Annual)

Tariff	Tariff Description	Electric Consumption (kWh)	Electric Cost ($)	Electric Rate ($/kWh)
LS-1-ALLNITE	Street Lights (SCE Owned)	1,787,081	$573,781	0.32
TC-1	Traffic Signal Lights (Agency Owned)	299,578	$53,951	0.18
LS-2	Street Lights (Agency Owned - unmetered)	90,969	$9,236	0.10

4.   Building Summary

Your Annual Energy Cost for Buildings is **$207,196** and **22.8%** of the Total Cost.
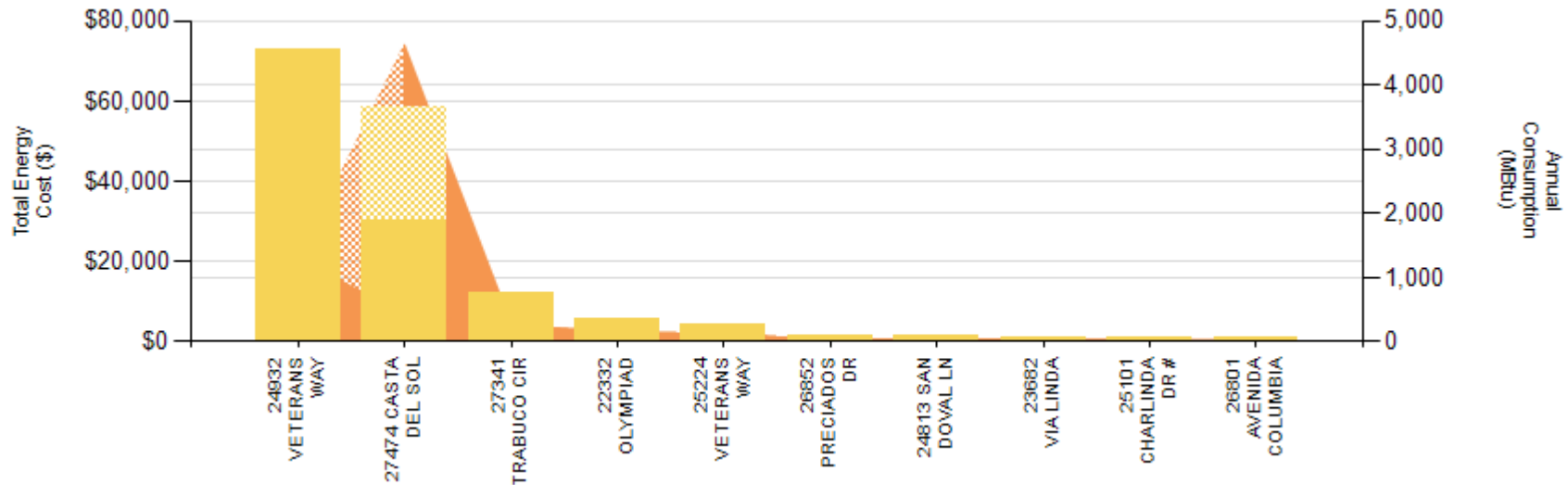
Key: Displays the top 10 consuming Buildings. Columns represent Cost, Area represents Consumption. Electricity is the solid shade, Natural Gas is the hashed shade.
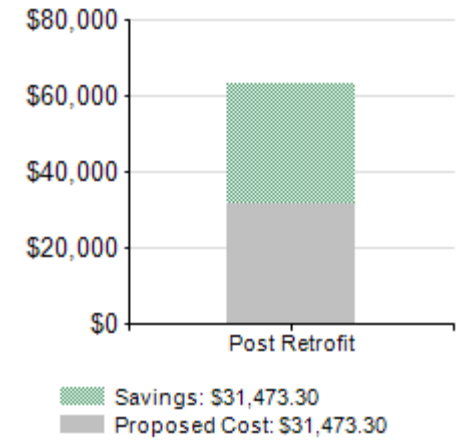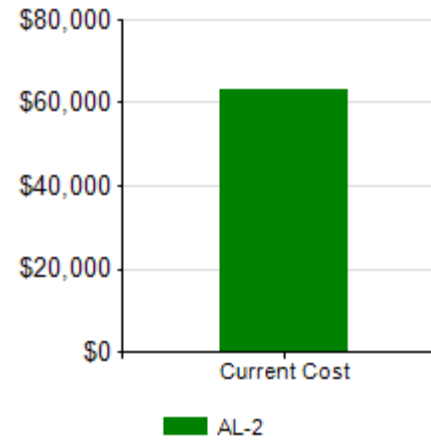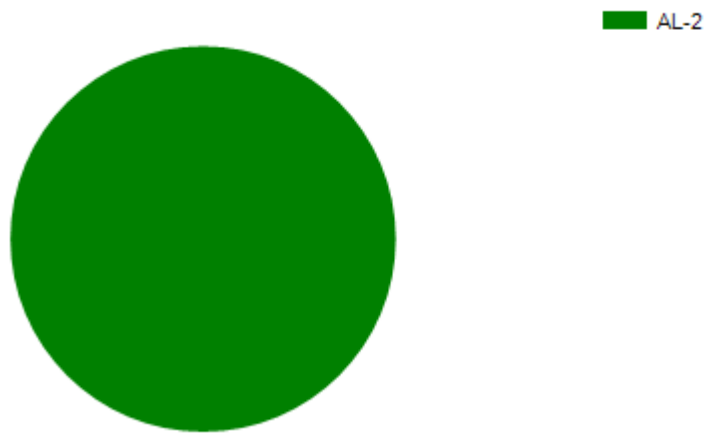
Table 4: Building Summary (Annual)

Site Name	Address	Electric Consumption (kWh)	Electric Cost ($)	Electric Rate ($/kWh)	Gas Consumption (therms)	Gas Cost ($)	Gas Rate ($/therm)
Norman P. Murray Community Center	24932 Veterans Way	384,887	$73,038	$0.19	0	$0	N/A
Marguerite Aquatics Center	27474 Casta Del Sol	121,887	$30,191	$0.25	42,135	$28,488	$0.68
Mission Viejo Family YMCA	27341 Trabuco Cir	74,358	$12,336	$0.17	0	$0	N/A
Florence Joyner Olympiad Park	22332 Olympiad	45,015	$5,609	$0.12	0	$0	N/A
Oso Viejo Community Park	25224 Veterans Way	35,585	$4,249	$0.12	0	$0	N/A
Unknown	26852 Preciados Dr	9,487	$1,475	$0.16	0	$0	N/A
MM O'Neill Park	24813 San Doval Ln	10,764	$1,445	$0.13	0	$0	N/A
William S. Craycraft Park	23682 Via Linda	9,426	$1,299	$0.14	0	$0	N/A
Sycamore Park	25101 Charlinda Dr	6,968	$1,295	$0.19	0	$0	N/A
Christopher Park	26801 Avenida Columbia	8,405	$1,237	$0.15	0	$0	N/A

5. Outdoor & Park Lights

Your Annual Energy Cost for Outdoor & Park Lights is $62,947 and 6.9% 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	834,792	$62,947	$0.08

Appendix A - Methodology

1. Data Sources

- Building information, energy usage and cost data used in this analysis were derived from SCE and SCG utility consumption billing data (SCG&E data not included) 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
  - SCE Electric Tariff: For more information about Southern California Edison tariffs; https://www.sce.com/wps/portal/home/regulatory/tariff-books/rates-pricing-choices
- All electricity and gas results were based on usage during period May 1, 2017 – April 30, 2018.
- 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_2/MWh + 11.91 lbs CO_2/therm [1,2].
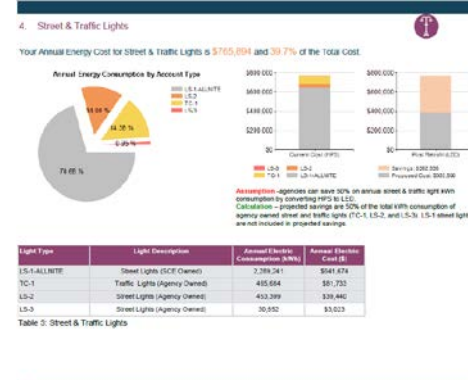
2. Total Energy Portfolio

- 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:
  - Street & Traffic Lights
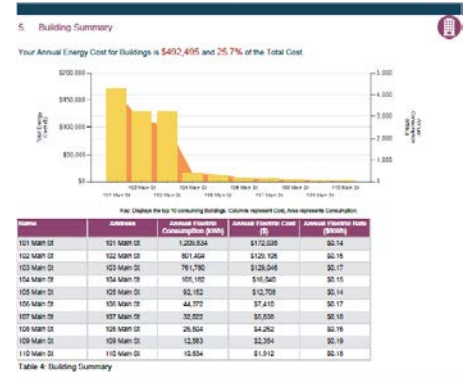 - Buildings
  - Outdoor & Parks Lights
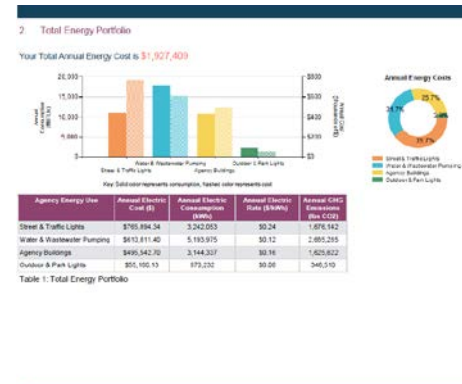
3. Street & Traffic Lights

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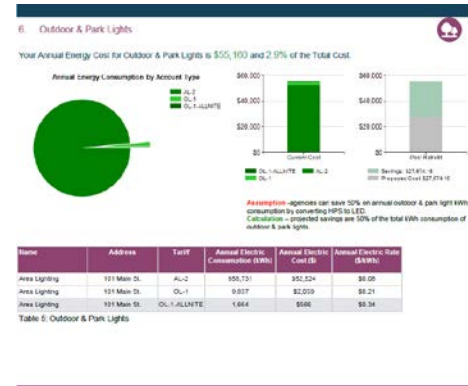
Certain properties did not have energy usage data for the range of the analysis period and were excluded:

Address	Tariff Type	Service Account #	Meter #
21294 Pinecrest, Mission Viejo, CA 92692	TOU-GS1A	14157077	211010-015260
23317 Via Bahia, Mission Viejo, CA 92691	TOU-GS1A	1286472	211010-056957
25566 Jeronimo Rd, Mission Viejo, CA 92691	TOU-GS1A	13119488	222013-907536
27062 Vista Del Lago, Mission Viejo, CA 92691	TOU-GS1A	29137743	222013-821350
24942 Mosquero Ln, Mission Viejo, CA 92691	TOU-GS1A	2832289	211010-030406

Endnotes

[1] Corporate Responsibility Report. (2015). In Southern California Edison. Retrieved from https://www.sce.com/wps/wcm/connect/c0fceef5-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.