

Comparative Energy Analysis Report

Comparative Energy Analysis

Prepared for
City of Beverly Hills

Prepared by
The Energy Coalition on behalf of the
Southern California Regional Energy Network (SoCalREN)

Date
5/3/2018

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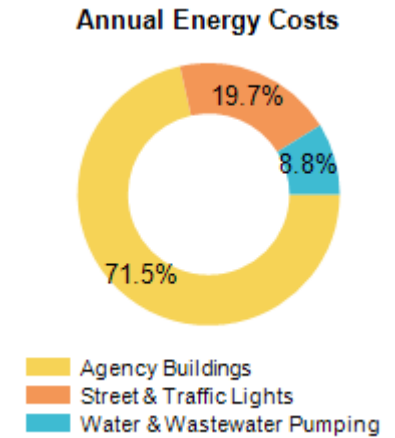
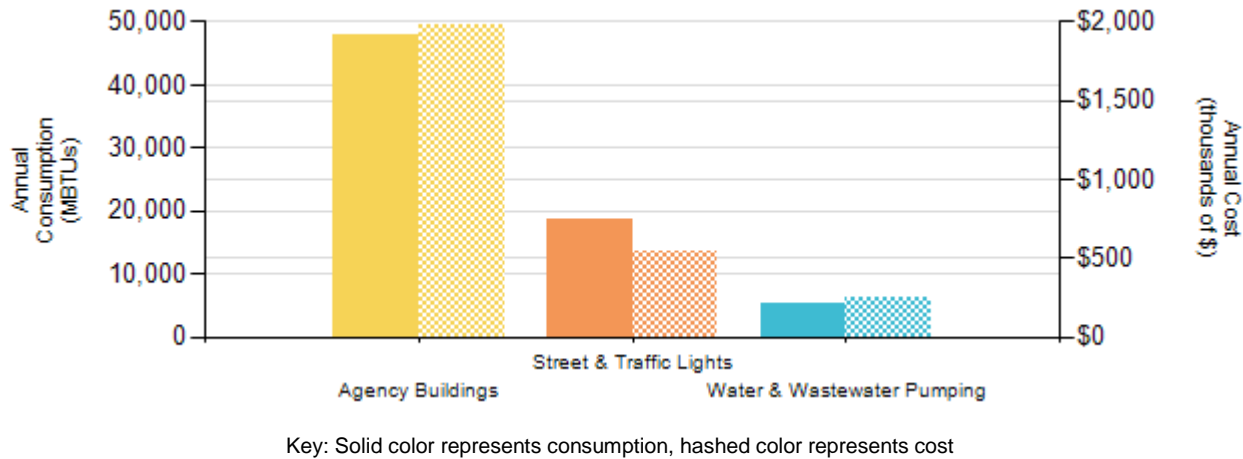
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1. Overview

This report is intended to provide a framework for the City of Beverly Hills, referred to as “Agency” herein, to identify inefficient facilities and prioritize further investigation and energy efficiency retrofit work. This analysis uses only energy billing data provided by the Agency to provide an overview of energy use in Agency facilities and to help identify individual locations with the potential for energy efficiency improvements. Many factors affect the energy use in different facilities, including age, type of heating, ventilation, air conditioning (HVAC), and lighting equipment, facility occupancy and hours, plug loads, and climate. Once individual facilities 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. Further analysis can identify inefficient equipment, malfunctioning equipment, equipment not operating as designed, or suboptimal operational procedures.

2. Total Energy Portfolio

Your Total Annual Energy Cost is **\$2,777,309**



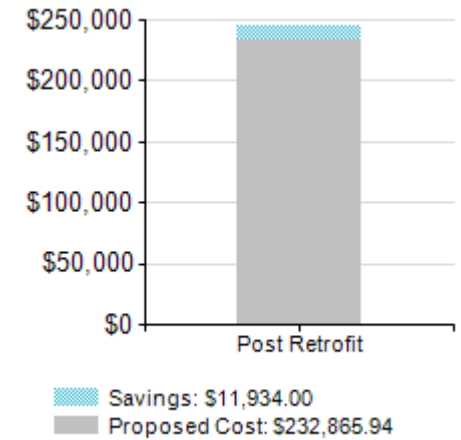
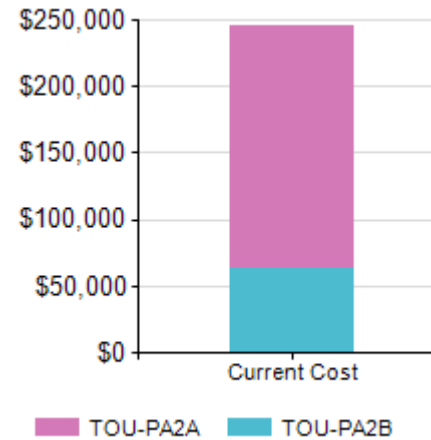
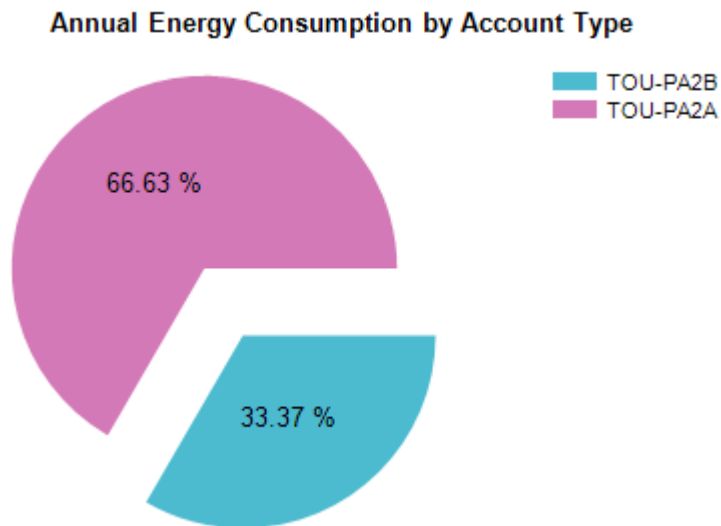
Agency Energy Use	Annual Electric Cost (\$)	Annual Electric Consumption (kWh)	Annual Electric Rate (\$/kWh)	Annual GHG Emissions (lbs CO ₂)
Agency Buildings	\$1,985,511	14,065,642	\$0.14	7,271,937
Street & Traffic Lights	\$546,998	5,429,637	\$0.10	2,807,122
Pumping	\$244,800	1,533,949	\$0.16	793,051

Table 1: Total Energy Portfolio

3. Pumping



Your Annual Energy Cost for Pumping is **\$244,800** and **8.8%** of the Total Cost.



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)

Site Name	Address	Tariff	Annual Electric Consumption (kWh)	Annual Electric Cost (\$)	Annual Electric Rate (\$/kWh)
Pumping	Various	TOU-PA2A	1,022,132	\$181,835	\$0.18
Pumping	Various	TOU-PA2B	511,816	\$62,965	\$0.12

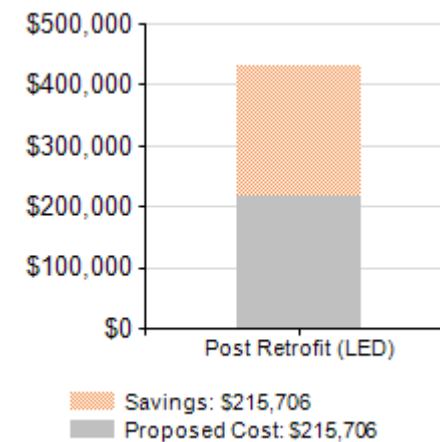
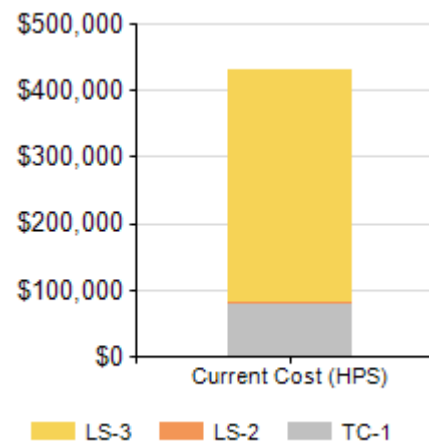
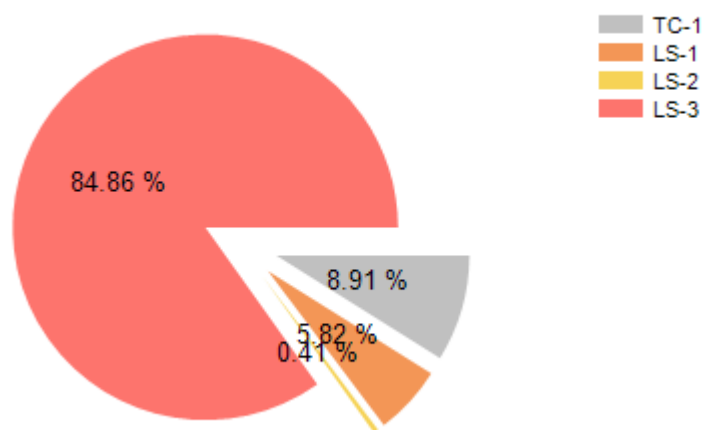
Table 2: Water & Wastewater Pumping



4. Street & Traffic Lights

Your Annual Energy Cost for Street & Traffic Lights is **\$546,998** and **19.7%** of the Total Cost.

Annual Energy Consumption by Account Type



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).

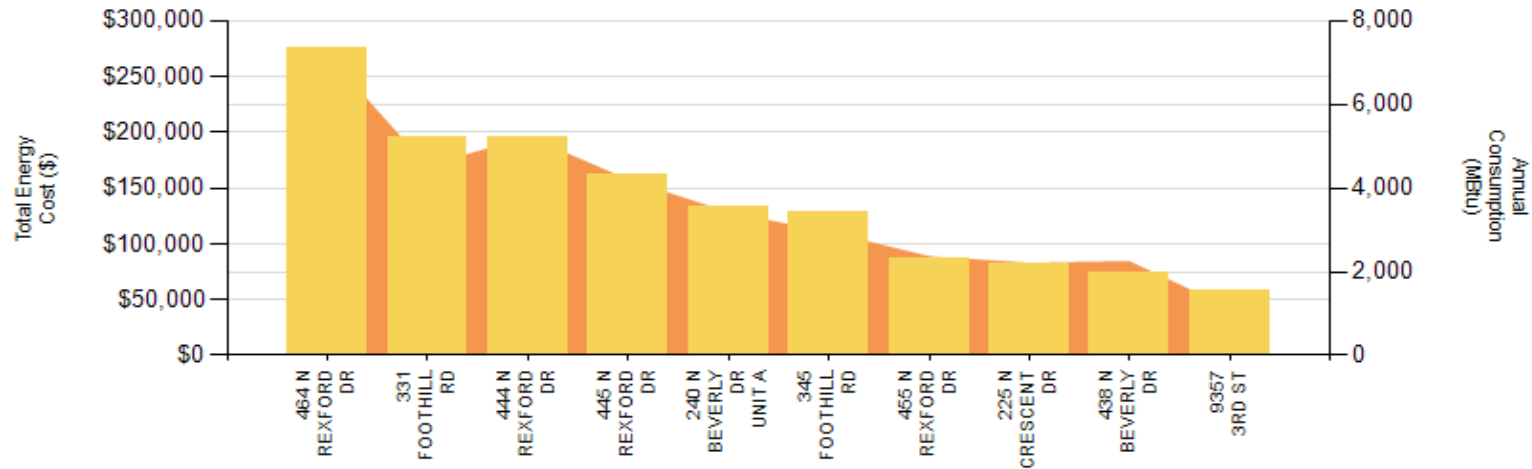
Tariff Type	Light Description	Annual Electric Consumption (kWh)	Annual Electric Cost (\$)
LS-3	Street Lights (Agency Owned)	4,607,586	\$349,712
LS-1	Street Lights (SCE Owned)	315,898	\$115,587
TC-1	Street Lights (Agency Owned)	483,988	\$79,824
LS-2	Street Lights (Agency Owned)	22,165	\$1,875

Table 3: Street & Traffic Lights



5. Building Summary

Your Annual Energy Cost for Buildings is **\$1,985,511** and **71.5%** of the Total Cost.



Key: Displays the top 10 consuming Buildings. Columns represent Cost, Area represents Consumption.

Name	Address	Annual Electric Consumption (kWh)	Annual Electric Cost (\$)	Annual Electric Rate (\$/kWh)
464 N REXFORD DR	464 N REXFORD DR	2,101,048	\$275,237	\$0.13
331 FOOTHILL RD	331 FOOTHILL RD	1,322,755	\$195,636	\$0.15
444 N REXFORD DR	444 N REXFORD DR	1,528,955	\$194,942	\$0.13
445 N REXFORD DR	445 N REXFORD DR	1,228,309	\$162,382	\$0.13
240 N BEVERLY DR UNIT A	240 N BEVERLY DR UNIT A	996,560	\$133,240	\$0.13
345 FOOTHILL RD	345 FOOTHILL RD	859,960	\$128,392	\$0.15
455 N REXFORD DR	455 N REXFORD DR	688,455	\$86,814	\$0.13
225 N CRESCENT DR	225 N CRESCENT DR	644,160	\$81,551	\$0.13
438 N BEVERLY DR	438 N BEVERLY DR	655,765	\$74,823	\$0.11
9357 3RD ST	9357 3RD ST	325,084	\$58,255	\$0.18

Table 4: Building Summary

Appendix A - Methodology

1. Data Sources

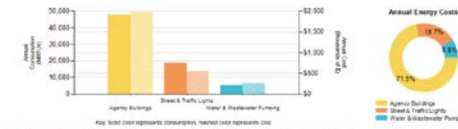
- Building information, energy usage and cost data used in this analysis were derived from: utility consumption billing data provided by agency staff.
- Utility consumption billing data used in this analysis were derived from **SCG gas tariffs and SCE electric tariffs**
- For more information about the 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 January 1, 2017 – January 1, 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 and energy intensity, energy usage and cost values were aggregated by summing the average daily 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 cost, 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 and Wastewater Pumping
 - Street & Traffic Lights
 - Buildings
 - Outdoor & Parks Lights

2. Total Energy Portfolio

Your Total Annual Energy Cost is \$2,777,309



Key: Total GHG emissions (consumption, reduced GHG emissions cost)

Agency Energy Use	Annual Electric Cost (\$)	Annual Electric Consumption (kWh)	Annual Electric Rate (\$/kWh)	Annual GHG Reductions (tCO2e)
Agency Buildings	\$1,965,511	14,063,642	\$0.14	7,271,037
Street & Traffic Lights	\$548,998	5,429,637	\$0.10	2,807,122
Pumping	\$244,800	1,533,943	\$0.16	793,051

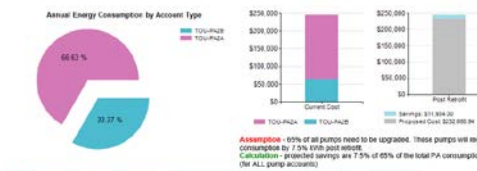
Table 1: Total Energy Portfolio

3. Pumping

- Pumping represents an analysis of annual energy costs, annual energy cost, annual energy consumption (kWh), GHG Emissions, and total annual energy costs based on MBtus by utility tariff type.
- 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

3. Pumping

Your Annual Energy Cost for Pumping is \$244,800 and 0.08% of the Total Cost.

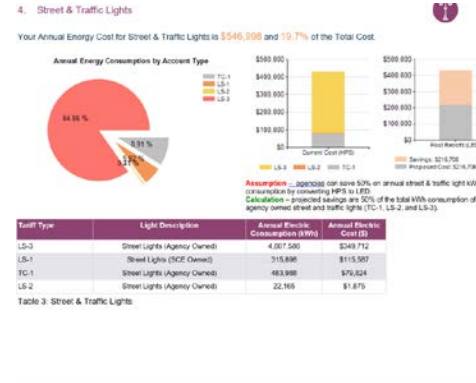


Site Name	Address	Tariff	Annual Electric Consumption (kWh)	Annual Electric Rate (\$/kWh)	Annual Electric Cost (\$)
Pumping	Various	TOU-PA2A	1,022,132	\$0.18	\$184,000
Pumping	Various	TOU-PA2B	511,815	\$0.12	\$61,800

Table 2: Water & Wastewater Pumping

4. Street & Traffic Lights

- Street & traffic light data represents an analysis of annual energy costs, annual electric cost, 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



5. Building Summary

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



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

Tariff Type	Meter Number
LS-3	1376477, 15628301, 1376479
TC	785779
PA	516082, 516081
GS	41502332, 41873326, 43788890

Endnotes

¹Corporate 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

²Adams, 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

³Based on SoCalREN previous project estimates.