



Comparative Energy Analysis Report

Prepared for
City of Santa Monica

Prepared by
The Energy Coalition

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

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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

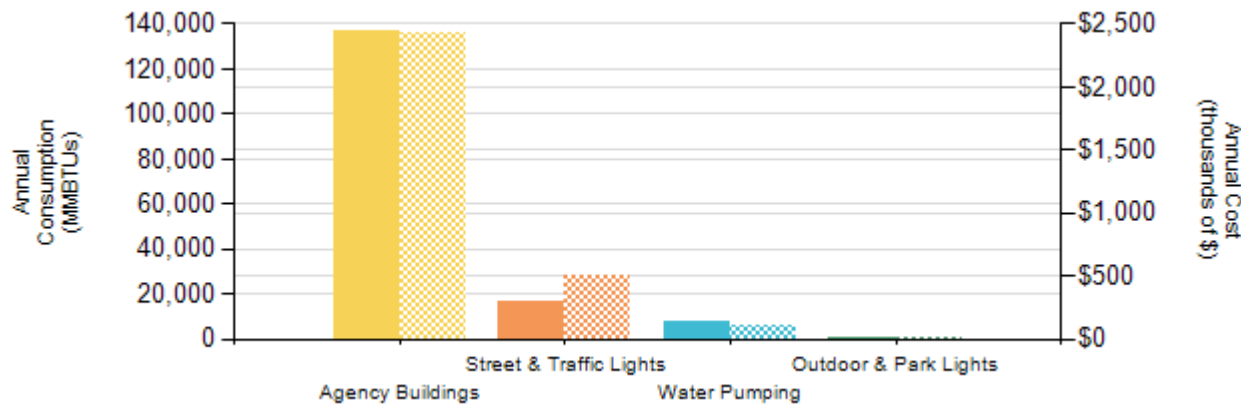
1. Overview

This report is intended to provide a framework for the City of Santa Monica, 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, Ken Gonzales at kgonzales@energycoalition.org.

2. Total Energy Portfolio

Your Total Annual Energy Cost is **\$3,030,060**



Key: Solid color represents consumption, hashed color represents cost

Annual Energy Costs

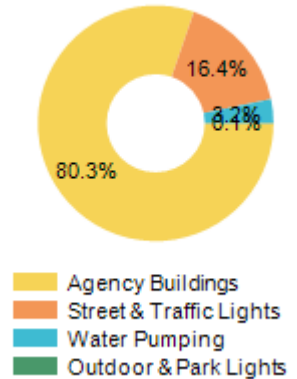


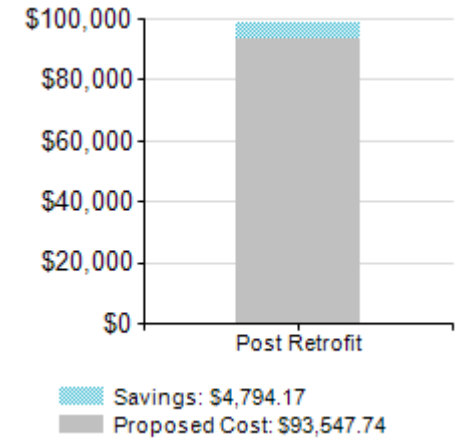
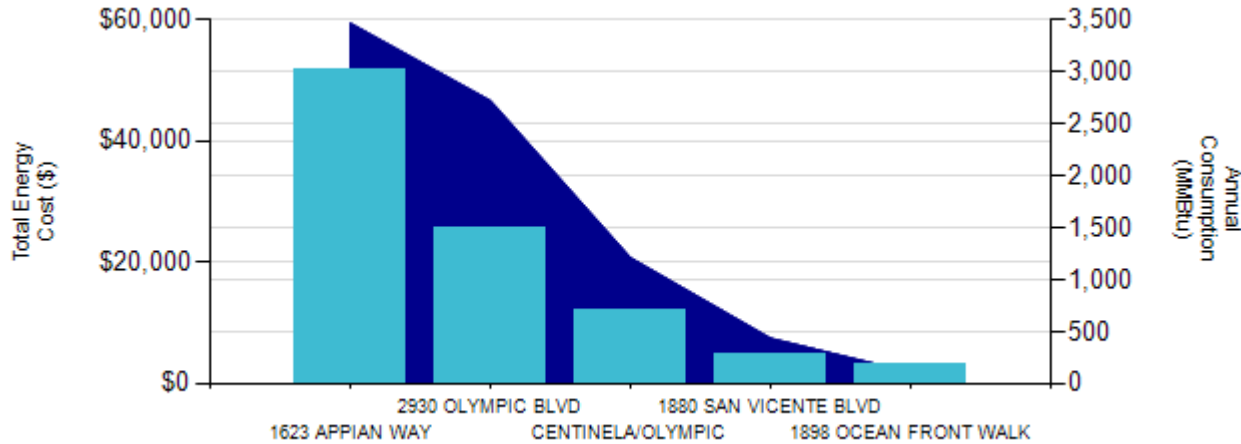
Table 1: Total Energy Portfolio (Annual)

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	20,549,437	\$1,987,108	668,668	\$444,923	136,981	\$2,432,031	10,624,059
Street & Traffic Lights	4,934,875	\$498,134	0	\$0	16,838	\$498,134	2,551,330
Water Pumping	2,323,210	\$98,342	0	\$0	7,927	\$98,342	1,201,100
Outdoor & Park Lights	14,208	\$1,553	0	\$0	48	\$1,553	7,346

3. Water Pumping



Your Annual Energy Cost for Water Pumping is **\$98,342** and **3.2%** 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)
APPIAN WELL	1623 APPIAN WAY	1,014,018	\$51,614	\$0.05
2930 OLYMPIC BLVD	2930 OLYMPIC BLVD	795,718	\$25,702	\$0.03
CENTINELA/OLYMPIC	CENTINELA/OLYMPIC	353,499	\$12,090	\$0.03
1880 SAN VICENTE BLVD	1880 SAN VICENTE BLVD	126,750	\$4,943	\$0.04
1898 OCEAN FRONT WALK	1898 OCEAN FRONT WALK	30,804	\$3,194	\$0.10

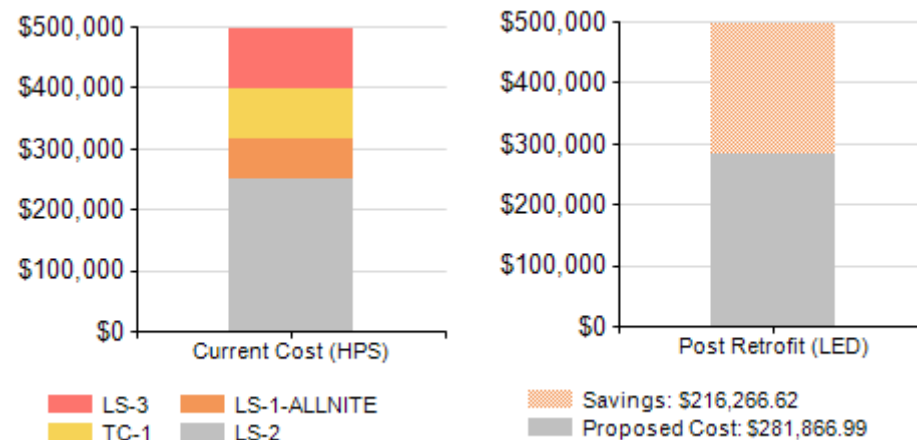
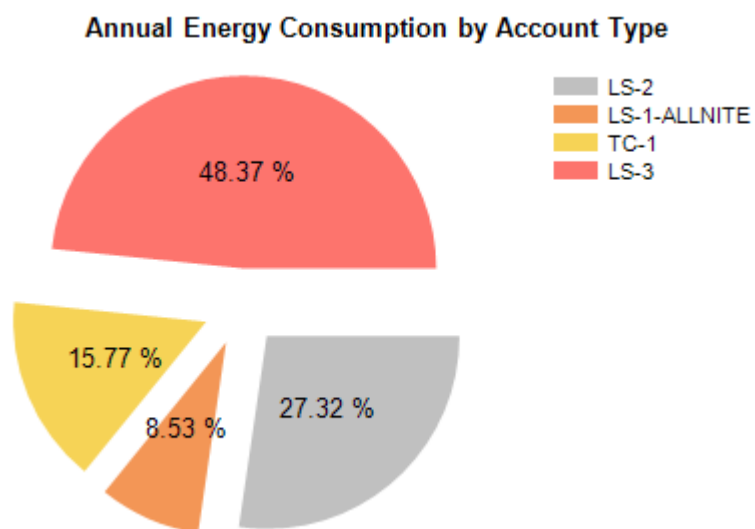
Assumption - 65% of all pumps need to be upgraded. Those pumps will reduce consumption by 7.5% kWh post retrofit.

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 **\$498,134** and **16.4%** 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.

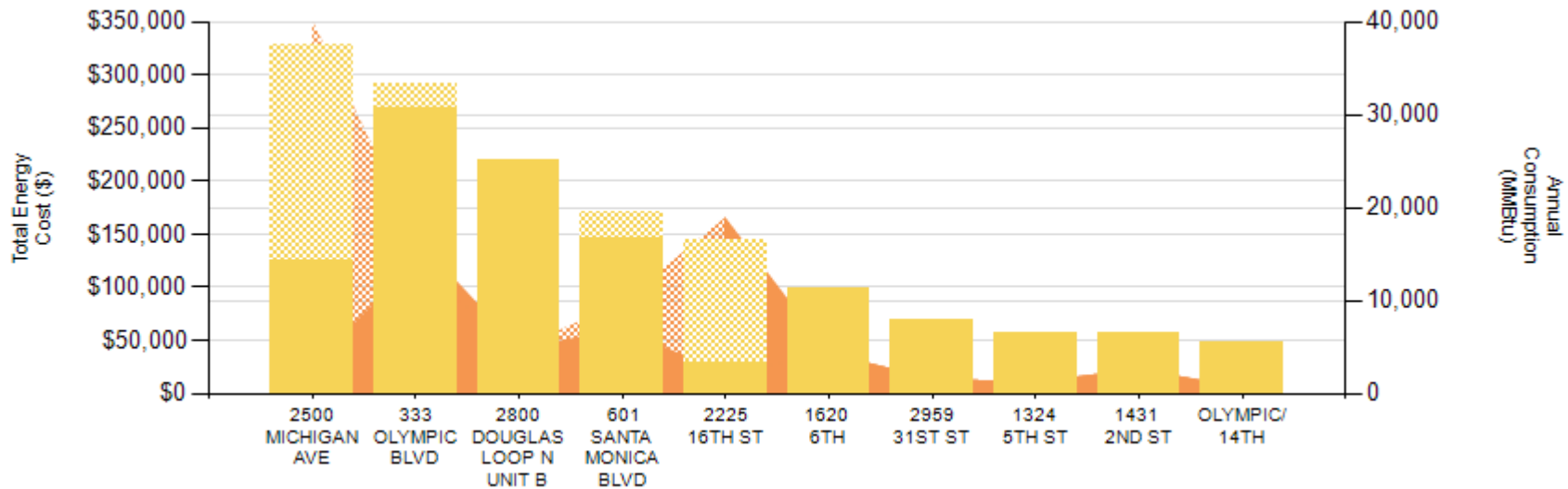
Table 3: Street & Traffic Lights (Annual)

Tariff	Tariff Description	Electric Consumption (kWh)	Electric Cost (\$)	Electric Rate (\$/kWh)
LS-2	Street Lights (Agency Owned - unmetered)	1,348,248	\$250,773	0.19
LS-3	Street Lights (Agency Owned - metered)	2,387,104	\$100,474	0.04
TC-1	Traffic Signal Lights (Agency Owned)	778,468	\$81,286	0.10
LS-1-ALLNITE	Street Lights (SCE Owned)	421,055	\$65,600	0.16

5. Building Summary



Your Annual Energy Cost for Buildings is **\$2,432,031** and **80.3%** 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.

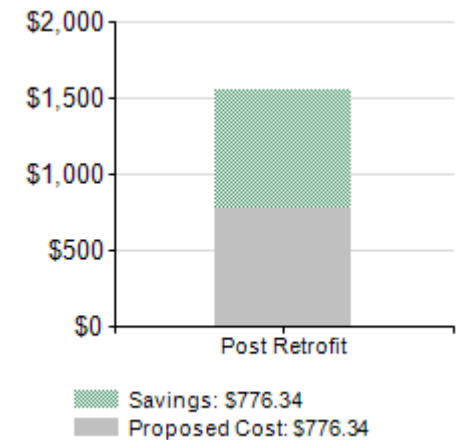
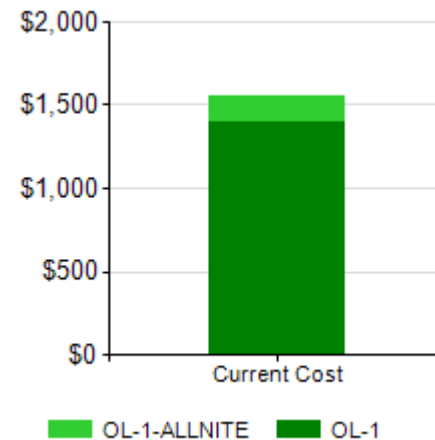
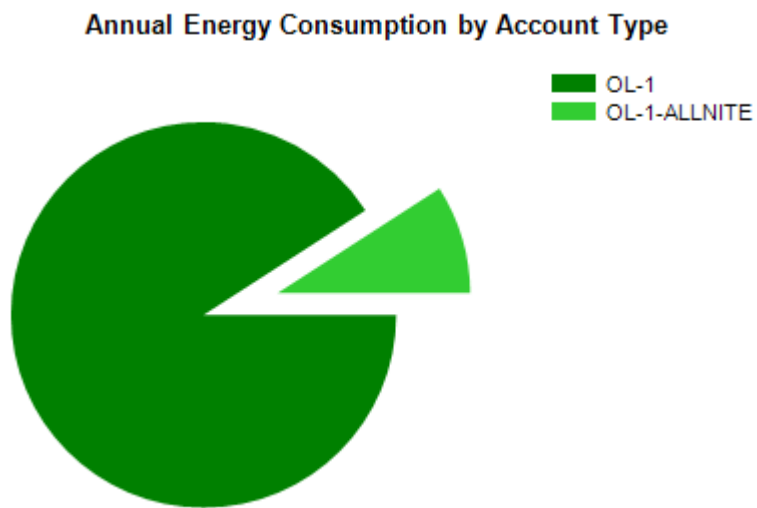
Table 4: Building Summary (Annual)

Site Name	Address	Electric Consumption (kWh)	Electric Cost (\$)	Electric Rate (\$/kWh)	Gas Consumption (therms)	Gas Cost (\$)	Gas Rate (\$/therm)	Weather-Normalized Source EUI (kBtu/sq ft)	Variance from National Median EUI
PUBLIC WORKS	2500 MICHIGAN AVE	901,726	\$124,376	\$0.14	367,357	\$203,139	\$0.55	1,093.1	1028.1%
POLICE DEPT	333 OLYMPIC BLVD	4,139,402	\$268,647	\$0.06	27,419	\$22,643	\$0.83	215.2	0.8%
TRANSPORTATION	2800 DOUGLAS LOOP N UNIT B	1,395,679	\$220,597	\$0.16	0	\$0	\$0.00	N/A	N/A
PUBLIC LIBRARY	601 SANTA MONICA BLVD	2,031,227	\$145,842	\$0.07	29,046	\$24,221	\$0.83	218.6	65.7%
SWIM CENTER	2225 16TH ST	595,860	\$29,316	\$0.05	168,425	\$115,960	\$0.69	1,566.3	1296.1%
BIG BLUE BUS	1620 6TH	1,243,959	\$98,522	\$0.08	0	\$0	\$0.00	206.0	107.7%
2959 31st ST	2959 31ST ST	438,461	\$69,452	\$0.16	0	\$0	\$0.00	N/A	N/A
PUBLIC PARKING LOT	1324 5TH ST	348,127	\$57,406	\$0.16	0	\$0	\$0.00	N/A	N/A
OLYMPIC/14TH	OLYMPIC/14TH	154,450	\$48,312	\$0.31	0	\$0	\$0.00	N/A	N/A



6. Outdoor & Park Lights

Your Annual Energy Cost for Outdoor & Park Lights is **\$1,553** and **0.1%** 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	OL-1	12,912	\$1,394	\$0.11
Area Lighting	Various	OL-1-ALLNITE	1,296	\$159	\$0.12

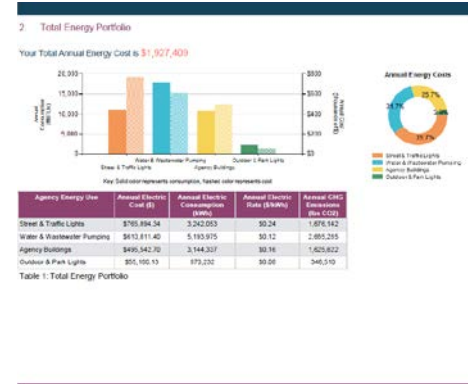
Appendix A - Methodology

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>
 - SCE Electric Tariff: For more information about Southern California Edison tariffs; <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 July 1, 2018 – June 30, 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].
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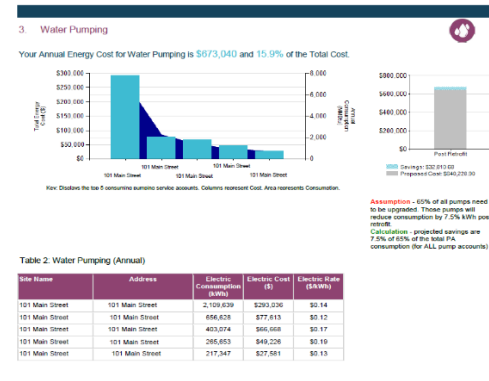
2. Total Energy Portfolio

- 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



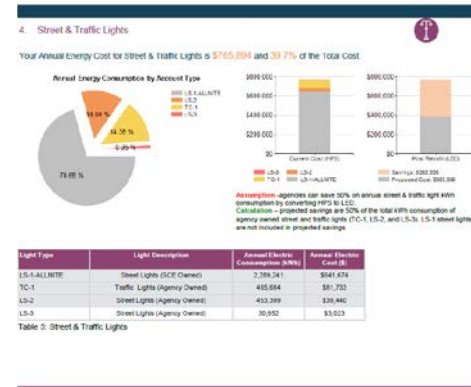
3. Water Pumping

- 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].



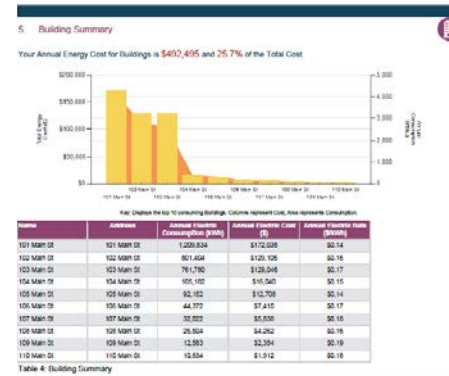
4. Street & Traffic Lights

- 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).



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.
