

# Comparative Energy Analysis Report

Prepared for  
City of South Pasadena

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

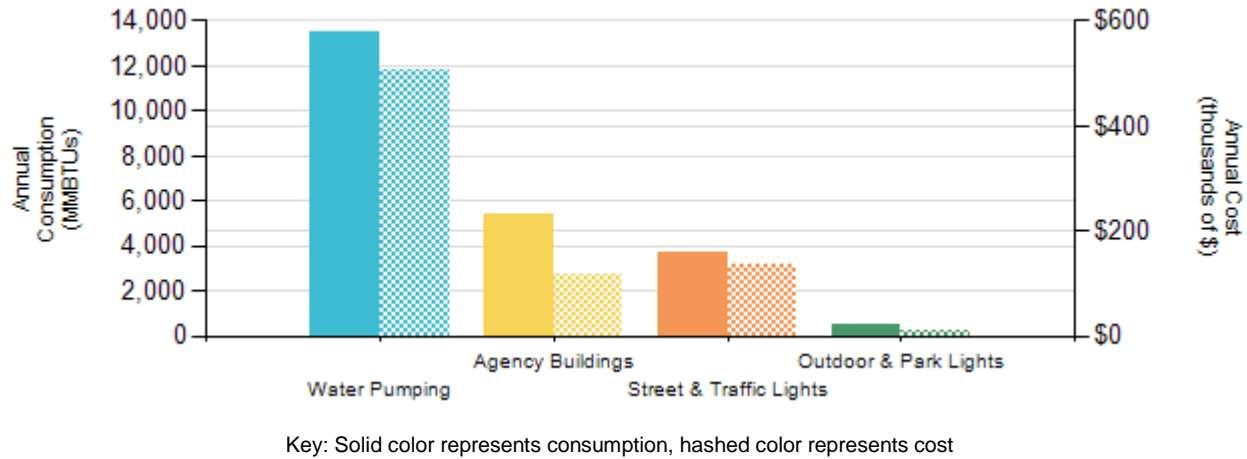
This report is intended to provide a framework for the City of South Pasadena, referred to as “Agency” herein, to identify inefficient facilities and infrastructure and prioritize further investigation and energy efficiency retrofit work. This analysis uses only energy billing data provided by the Agency 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](http://www.socalren.org)). Any questions about this report can be directed to your assigned Project Manager, Megan Ong at [mong@energycoalition.org](mailto:mong@energycoalition.org).

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## 2. Total Energy Portfolio

Your Total Annual Energy Cost is **\$766,817**



Annual Energy Costs

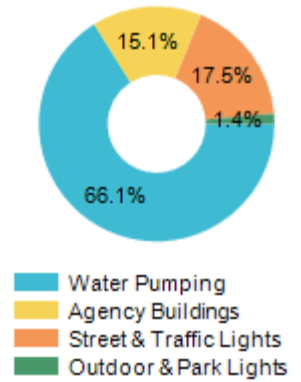


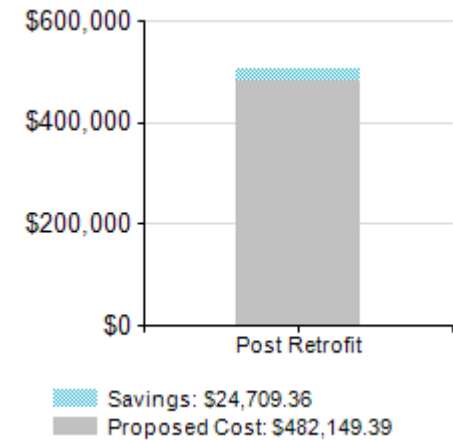
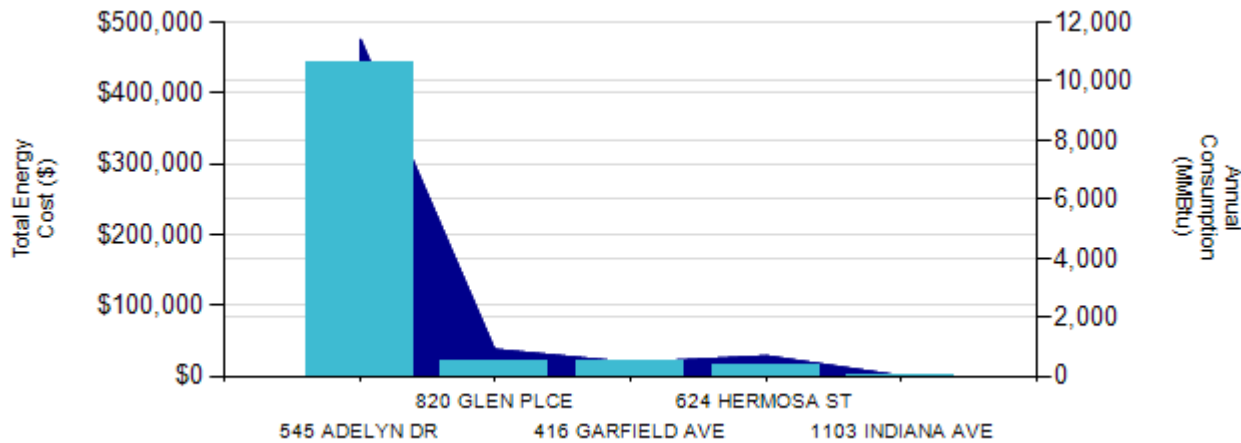
Table 1: Total Energy Portfolio (Annual)

Agency Energy Use	Electric Consumption (kWh)	Electric Cost (\$)	Gas Consumption (therms)	Gas Cost (\$)	Total Energy Consumption (MMBTus)	Total Energy Cost (\$)	GHG Emissions (lbs CO2)
Water Pumping	3,962,903	\$506,859	0	\$0	13,513	\$506,859	2,048,821
Street & Traffic Lights	1,077,937	\$133,986	0	\$0	3,676	\$133,986	557,293
Agency Buildings	962,363	\$99,298	21,504	\$16,213	5,432	\$115,512	497,542
Outdoor & Park Lights	149,613	\$10,461	0	\$0	510	\$10,461	77,350

### 3. Water Pumping



Your Annual Energy Cost for Water Pumping is \$506,859 and 66.1% 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)
WILSON RESERVOIR	545 ADELYN DR	3,347,143	\$442,827	\$0.13
820 GLEN PLCE	820 GLEN PLCE	267,354	\$22,003	\$0.08
GARFIELD RESERVOIR	416 GARFIELD AVE	137,703	\$20,793	\$0.15
624 HERMOSA ST	624 HERMOSA ST	202,988	\$17,396	\$0.09
1103 INDIANA AVE	1103 INDIANA AVE	5,537	\$2,943	\$0.53

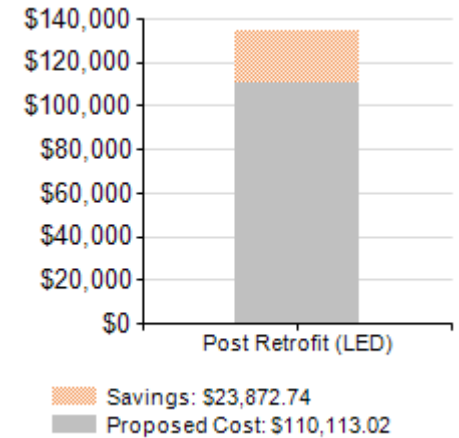
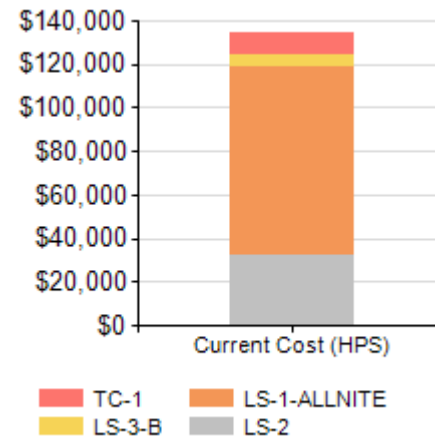
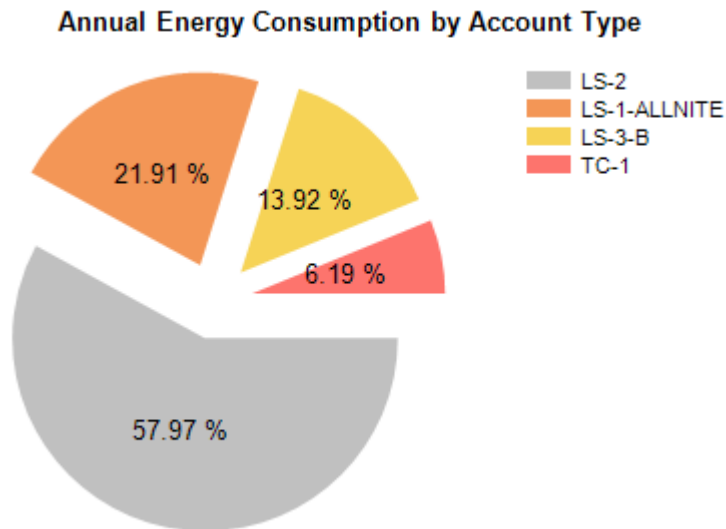
**Assumption** - 65% of all pumps need to be upgraded. Those pumps will reduce consumption by 7.5% kWh post retrofit.

**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 **\$133,986** and **17.5%** 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.

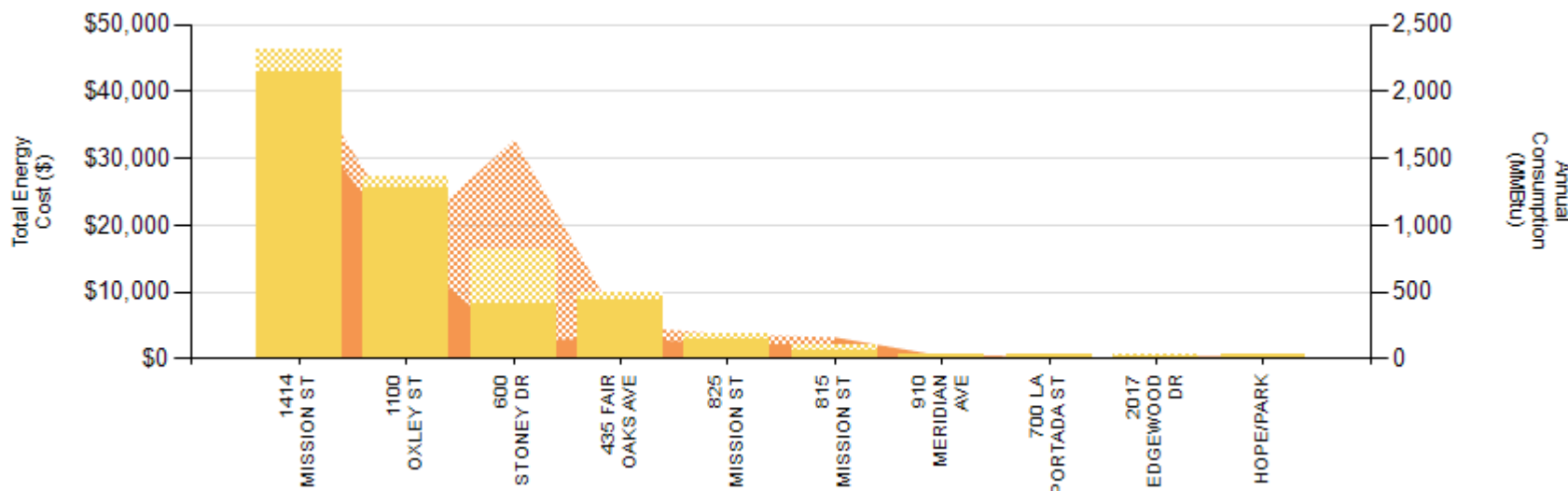
Table 3: Street & Traffic Lights (Annual)

Tariff	Tariff Description	Electric Consumption (kWh)	Electric Cost (\$)	Electric Rate (\$/kWh)
LS-1-ALLNITE	Street Lights (SCE Owned)	236,174	\$86,240	0.37
LS-2	Street Lights (Agency Owned - unmetered)	624,924	\$32,760	0.05
TC-1	Traffic Signal Lights (Agency Owned)	66,763	\$9,242	0.14
LS-3-B	Street Lights (Agency Owned - metered)	150,076	\$5,744	0.04

## 5. Building Summary



Your Annual Energy Cost for Buildings is **\$115,512** and **15.1%** 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.  
 . Facilities over 50,000 sq/ft are required to be in compliance with the California Energy Benchmarking Public Disclosure Program (AB 802).

Table 4: Building Summary (Annual)

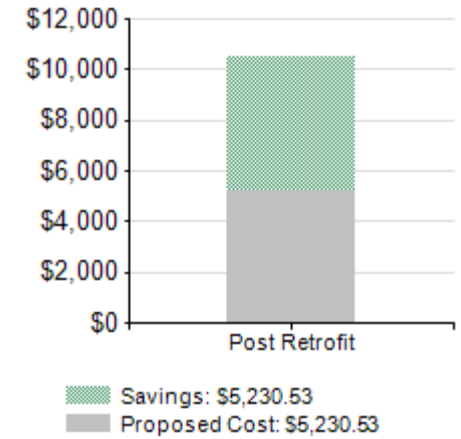
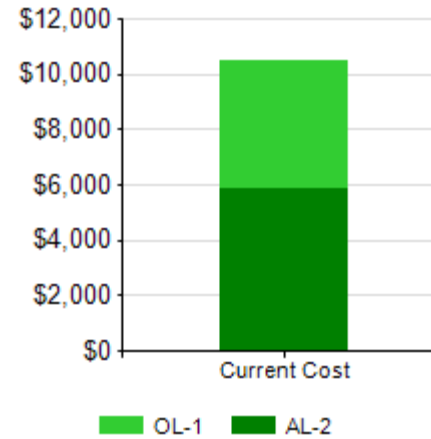
Site Name	Address	Electric Consumption (kWh)	Electric Cost (\$)	Electric Rate (\$/kWh)	Gas Consumption (therms)	Gas Cost (\$)	Gas Rate (\$/therm)
CITY HALL	1414 MISSION ST	545,885	\$42,907	\$0.08	3,051	\$3,300	\$1.08
PUBLIC LIBRARY	1100 OXLEY ST	228,905	\$25,610	\$0.11	1,324	\$1,649	\$1.25
ARROYO PARK	600 STONEY DR	37,214	\$8,348	\$0.22	15,055	\$8,065	\$0.54
WAR MEMORIAL BUILDING	435 FAIR OAKS AVE	45,079	\$8,683	\$0.19	829	\$1,129	\$1.36
WATER DEPARTMENT	825 MISSION ST	31,034	\$2,778	\$0.09	748	\$1,111	\$1.49
ORANGE GROVE PARK	815 MISSION ST	31,608	\$1,211	\$0.04	477	\$752	\$1.58
910 MERIDIAN AVE	910 MERIDIAN AVE	5,181	\$625	\$0.12	0	\$0	\$0.00
WATER TOWER	700 LA PORTADA ST	2,750	\$596	\$0.22	0	\$0	\$0.00
EDDIE PARK	2017 EDGEWOOD DR	1,978	\$354	\$0.18	20	\$208	\$10.57
HOPE/PARK	HOPE/PARK	4,248	\$537	\$0.13	0	\$0	\$0.00

## 6. Outdoor & Park Lights



Your Annual Energy Cost for Outdoor & Park Lights is **\$10,461** and 1.4% of the Total Cost.

**Annual Energy Consumption by Account Type**



**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	123,417	\$5,891	\$0.05
Area Lighting	Various	OL-1	26,196	\$4,570	\$0.17



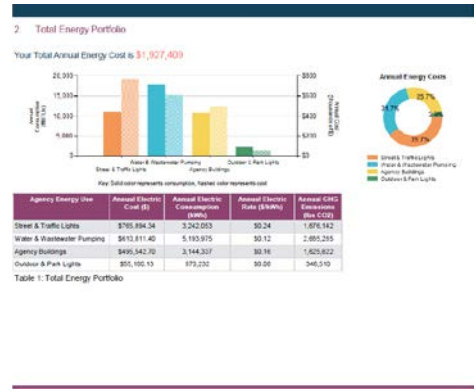
# Appendix A - Methodology

## 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 November 1, 2018 – October 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].

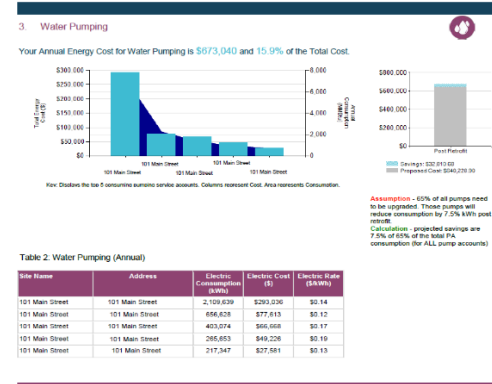
## 2. Total Energy Portfolio

- 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



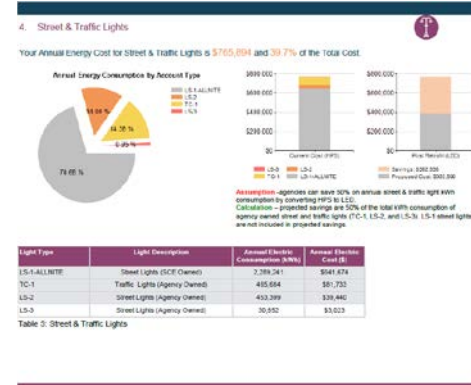
### 3. Water Pumping

- 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].



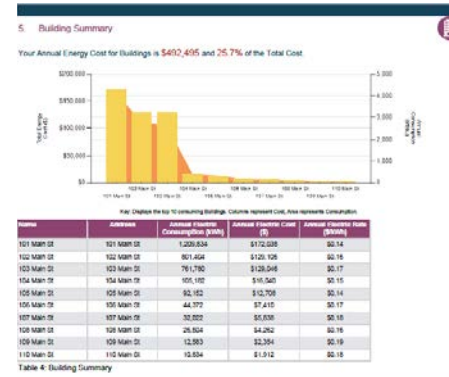
### 4. Street & Traffic Lights

- 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].



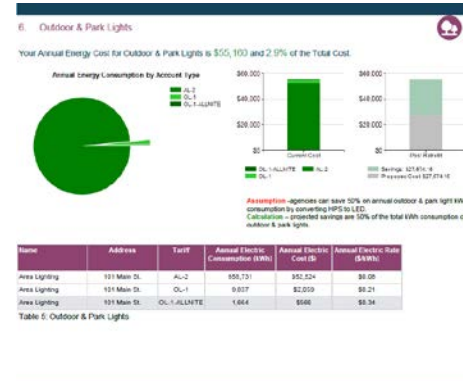
### 5. Building Summary

- 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 could not be matched to gas or electricity usage data and were excluded:

Address	SCE Service Account
1508 EL CENTRO ST	712563
815 MISSION ST	996952
1 BILLIKE HILL TANK	1181186
1 GARFIELD CLARK PLACE	1181198
2225 S EL MOLINO AVE	1181234
820 GLEN PLACE	2447312
650 STONEY DR	45804541

- Certain prop
- Elec
  - Gas
- Certain prop
- Elec
  - Gas

## 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](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](https://www.arb.ca.gov/cc/scopingplan/document/appendices_volume2.pdf)

[3] Based on SoCalREN previous project estimates.

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