

# Comparative Energy Analysis Report

Prepared for  
Antelope Valley Union High School District

Prepared by  
The Energy Coalition

On Behalf of  
The Southern California Regional Energy Network Public Agency Program

Date  
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## 1. Overview

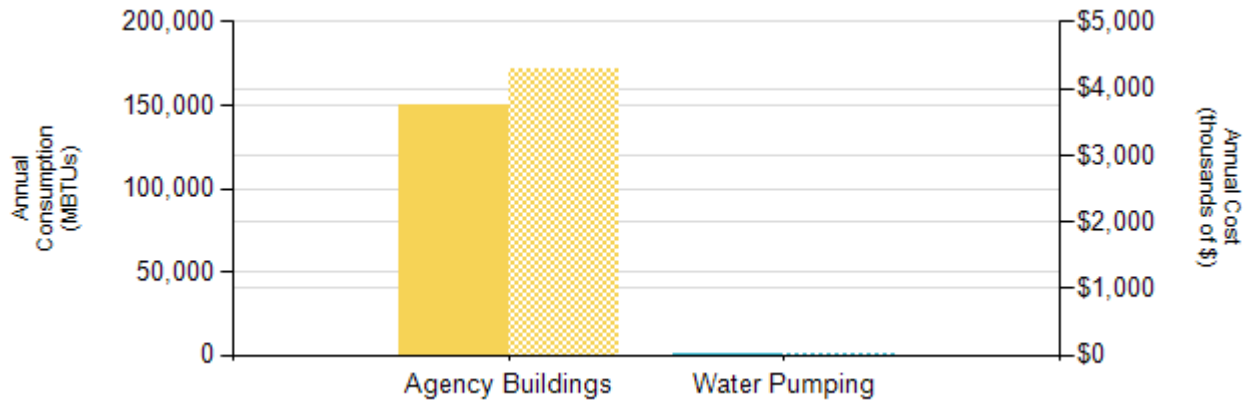
This report is intended to provide a framework for the Antelope Valley Union High School District, referred to as “Agency” herein, to identify inefficient facilities and infrastructure and prioritize further investigation and energy efficiency retrofit work. This analysis uses only total floor area and 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.com](http://www.socalren.com)). Any questions about this report can be directed to your assigned Project Manager, Julie Castro, at [jcastro@energycoalition.org](mailto:jcastro@energycoalition.org).

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## 2. Total Energy Portfolio

Your Total Annual Energy Cost is **\$4,299,031**



Key: Solid color represents consumption, hashed color represents cost

Annual Energy Costs

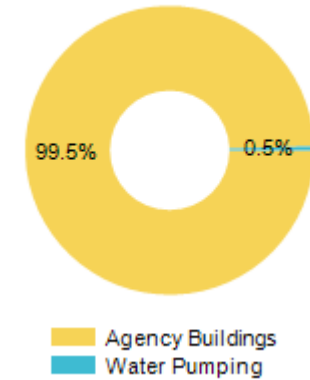


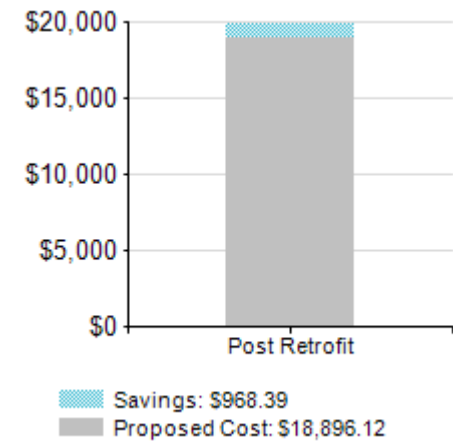
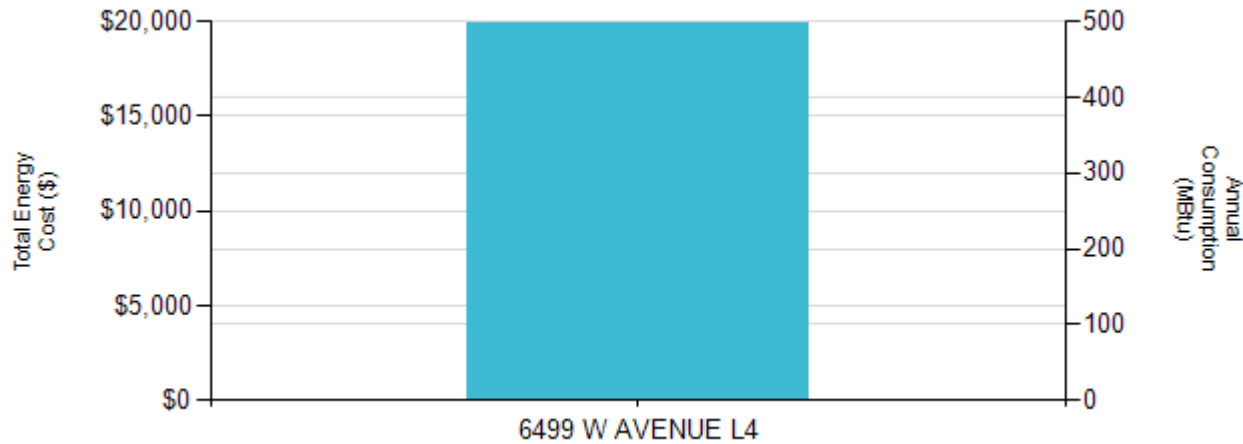
Table 1: Total Energy Portfolio (Annual)

Agency Energy Use	Electric Consumption (kWh)	Electric Cost (\$)	Gas Consumption (therms)	Gas Cost (\$)	Total Energy Consumption (MBTUs)	Total Energy Cost (\$)	GHG Emissions (lbs CO2)
Agency Buildings	29,550,406	\$3,998,290	452,775	\$280,876	150,545,343	\$4,279,166	15,277,560
Water Pumping	142,500	\$19,865	0	\$0	485,925	\$19,865	73,673

### 3. Water Pumping



Your Annual Energy Cost for Water Pumping is **\$19,865** and **0.5%** of the Total Cost.



Key: Displays the top 5 consuming pumping service accounts. Columns represent Cost, Area represents Consumption.

**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)

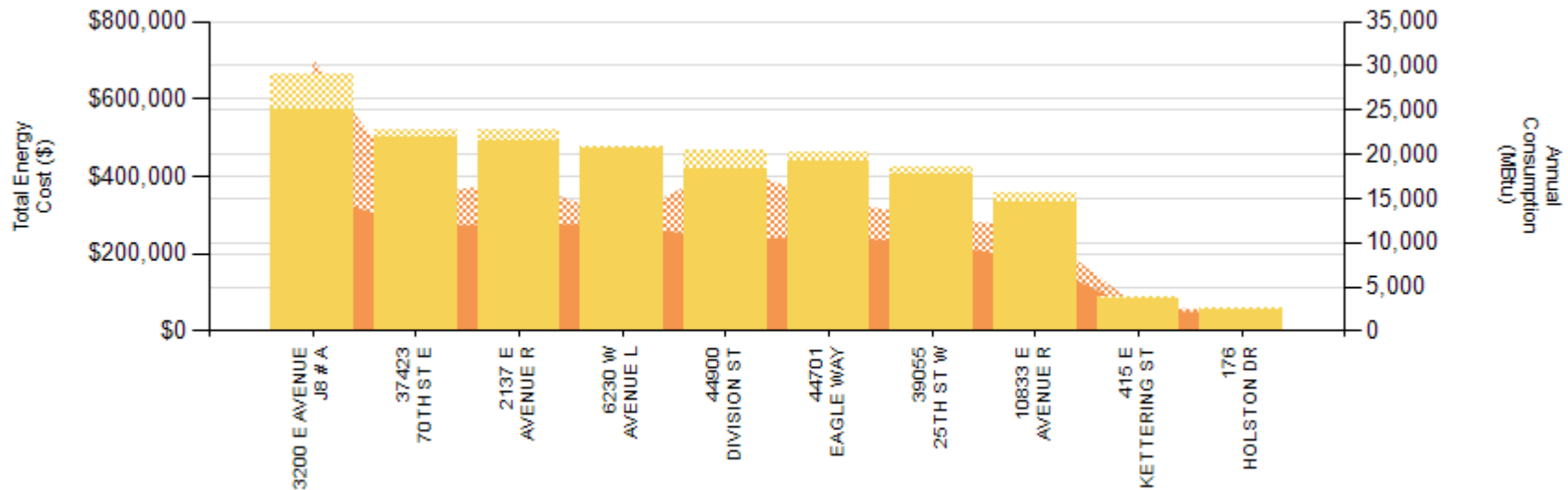
Table 2: Water Pumping (Annual)

Site Name	Address	Electric Consumption (kWh)	Electric Cost (\$)	Electric Rate (\$/kWh)
Quartz Hill High School	6499 W AVENUE L4	142,500	\$19,865	\$0.14

## 4. Building Summary



Your Annual Energy Cost for Buildings is **\$4,279,166** and **99.5%** 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 3: Building Summary (Annual)

Site Name	Address	Electric Consumption (kWh)	Electric Cost (\$)	Electric Rate (\$/kWh)	Gas Consumption (therms)	Gas Cost (\$)	Gas Rate (\$/therm)
Eastside High School	3200 E AVENUE JB	4,534,978	\$571,321	\$0.13	151,446	\$90,868	\$0.60
William J. Pete Knight High School	37423 70TH ST E	3,451,411	\$500,625	\$0.15	35,999	\$21,599	\$0.60
Palmdale High School	2137 E AVENUE R	3,545,098	\$489,233	\$0.14	47,367	\$28,415	\$0.60
Quartz Hill High School	6230 W AVENUE L	3,511,818	\$475,148	\$0.14	6,206	\$3,724	\$0.60
Antelope Valley High School	44900 DIVISION ST	3,019,179	\$418,663	\$0.14	83,949	\$50,361	\$0.60
Lancaster High School	44701 EAGLE WAY	3,124,470	\$438,158	\$0.14	40,394	\$24,236	\$0.60
Highland High School	39055 25TH ST W	2,895,984	\$404,341	\$0.14	29,621	\$17,773	\$0.60
Little Rock High School	10833 E AVENUE R	2,348,757	\$334,826	\$0.14	35,242	\$20,764	\$0.59
Desert Winds High School	415 E KETTERING ST	645,807	\$85,855	\$0.13	4,677	\$2,806	\$0.60
School District Office	176 HOLSTON DR	595,579	\$56,104	\$0.09	1,590	\$1,542	\$0.97

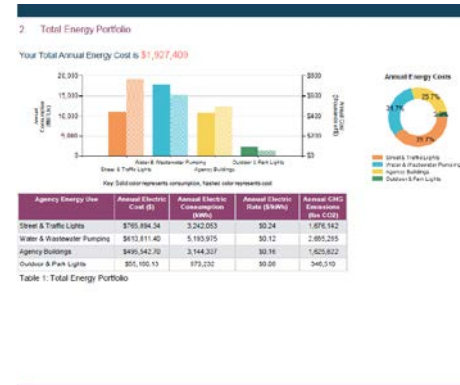
# Appendix A - Methodology

## 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 July 1, 2017 – June 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 and energy intensity, 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].
- A gas cost of \$0.60/therm was assumed for gas meters with no billing cost data available.
- One property could not be matched to gas or electricity usage data and was excluded: 44859 3<sup>rd</sup> St. E, Lancaster, CA 93535.

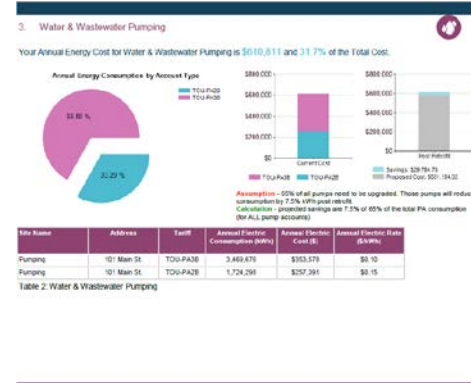
## 2. Total Energy Portfolio

- 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:
  - Water Pumping
  - Street & Traffic Lights
  - Buildings
  - Outdoor & Parks Lights



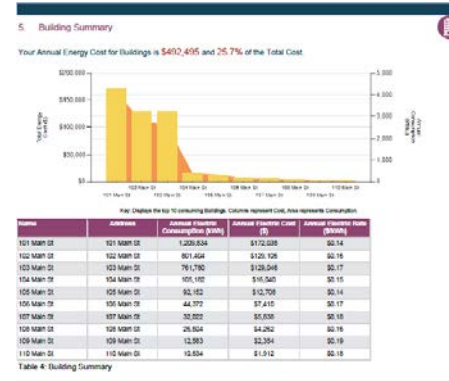
### 3. Water Pumping

- 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), GHG Emissions, and total annual energy costs based on MBtus.
- 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. 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.





## Appendix B – IOU and Solar Breakdown

Table 4: IOU and Solar Breakdown (Top 10 Facilities)

Site Name	Address	Total Electric Consumption (kWh)	Total Electric Cost (\$)	Solar Electric Consumption (kWh)	Solar Electric Cost (\$)	IOU Electric Consumption (kWh)	IOU Electric Cost (\$)
Eastside High School	3200 E AVENUE J8	4,534,978	\$571,321	2,100,472	\$351,623	2,434,506	\$219,697
William J. Pete Knight High School	37423 70TH ST E	3,451,411	\$500,625	2,012,342	\$342,032	1,439,069	\$158,593
Palmdale High School	2137 E AVENUE R	3,545,098	\$489,233	2,090,472	\$355,591	1,454,626	\$133,642
Quartz Hill High School	6230 W AVENUE L	3,511,818	\$475,148	2,140,537	\$351,584	1,371,281	\$123,564
Antelope Valley High School	44900 DIVISION ST	3,019,179	\$418,663	1,810,732	\$308,836	1,208,447	\$109,827
Lancaster High School	44701 EAGLE WAY	3,124,470	\$438,158	1,982,901	\$330,245	1,141,569	\$107,913
Highland High School	39055 25TH ST W	2,895,984	\$404,341	1,874,853	\$313,953	1,021,131	\$90,388
Littlerock High School	10833 E AVENUE R	2,348,757	\$334,826	1,591,602	\$270,867	757,155	\$63,959
Desert Winds High School	415 E KETTERING ST	645,807	\$85,855	362,770	\$61,884	283,037	\$23,971
School District Office	176 HOLSTON DR	595,579	\$56,104	N/A	N/A	595,579	\$56,104

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

[3] Based on SoCalREN previous project estimates.

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