Energy Analysis Report

Prepared for
City of Long Beach

Prepared by
The Energy Coalition

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

Date
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Southern California
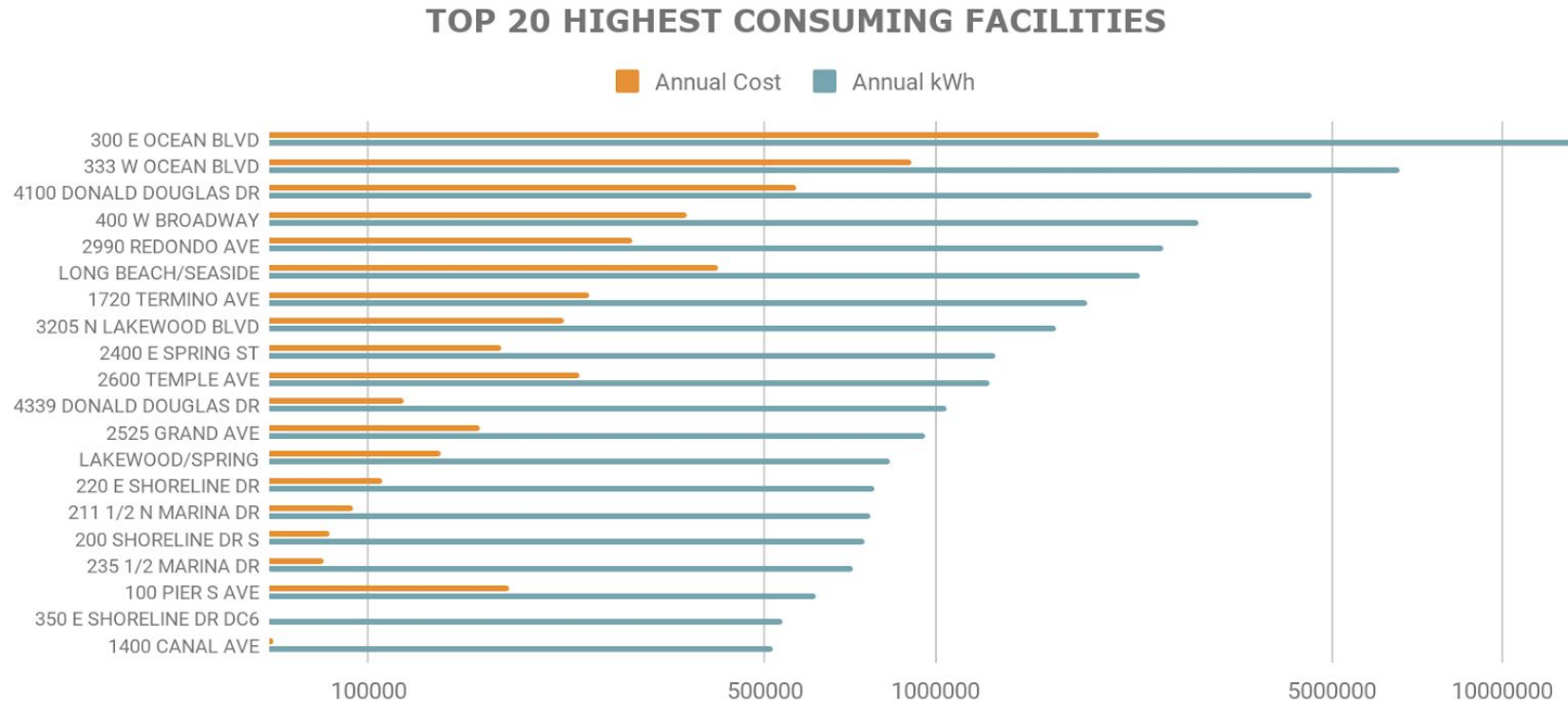REGIONAL ENERGY NETWORK

1. Overview

The City of Long Beach enrolled with the Southern California Regional Energy Network (SoCalREN) to take advantage of its no-cost services available to help the City identify and execute energy efficiency projects. This report is intended to provide a framework for the City to identify inefficient facilities and infrastructure and prioritize further investigation and energy efficiency retrofit work. This analysis uses only Southern California Edison (SCE) billing data and ENERGY STAR Portfolio Manager® data to benchmark electricity use from 2017-2018 to analyze use across sectors and facilities to help identify opportunities 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 of operation, plug loads, and climate.

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 Shawn Thompson at sthompson@energycoalition.org.

2. Electricity Portfolio Overview

This section is intended to provide an overview of the City of Long Beach's electricity consumption and costs in 2018.

The City's total annual electricity consumption was 83.3 million kWh in 2018, enough to power about 15,000 homes annually. The City's total electricity costs were $12.2 million in 2018. The chart below illustrates the electricity usage and cost of the City's 20 highest electricity consuming facilities.
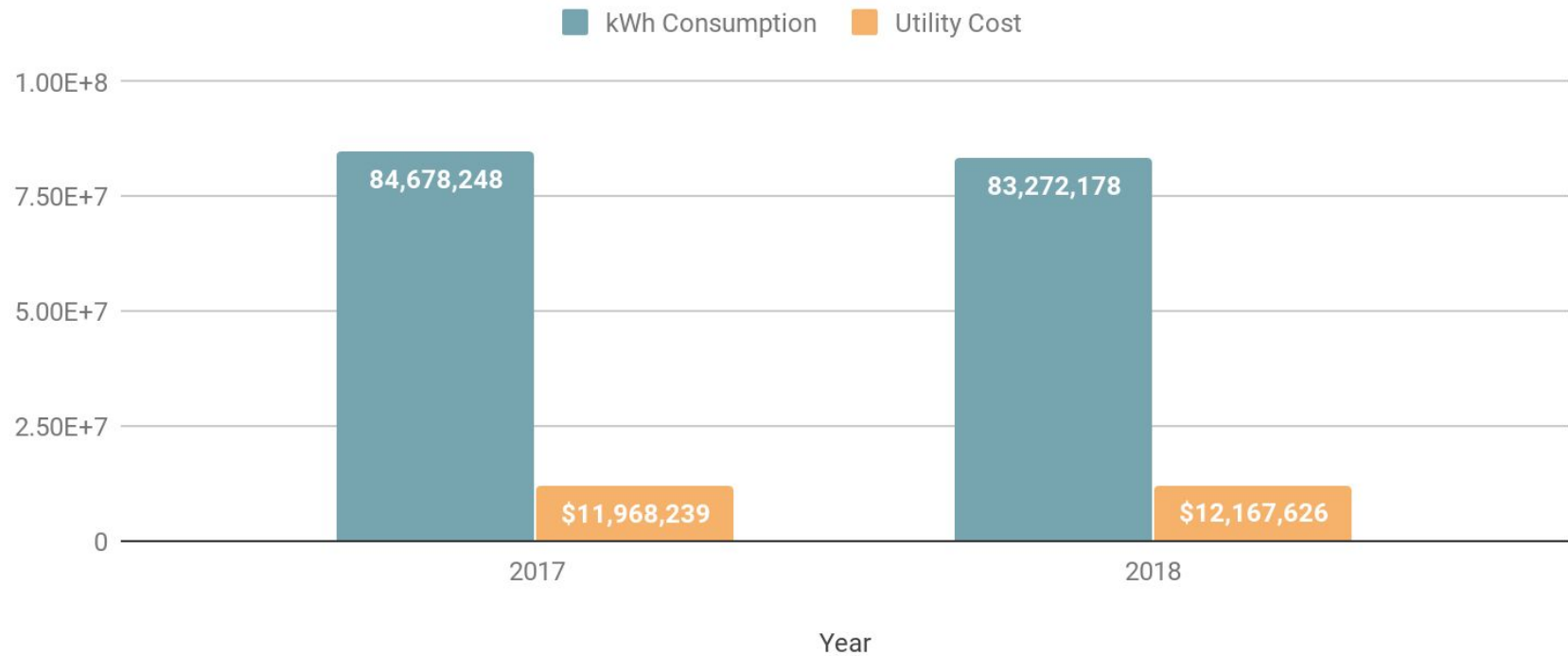
TOP 20 HIGHEST CONSUMING FACILITIES

■ Annual Cost ■ Annual kWh

Facility	
300 E OCEAN BLVD	
333 W OCEAN BLVD	
4100 DONALD DOUGLAS DR	
400 W BROADWAY	
2990 REDONDO AVE	
LONG BEACH/SEASIDE	
1720 TERMINO AVE	
3205 N LAKEWOOD BLVD	
2400 E SPRING ST	
2600 TEMPLE AVE	
4339 DONALD DOUGLAS DR	
2525 GRAND AVE	
LAKEWOOD/SPRING	
220 E SHORELINE DR	
211 1/2 N MARINA DR	
200 SHORELINE DR S	
235 1/2 MARINA DR	
100 PIER S AVE	
350 E SHORELINE DR DC6	
1400 CANAL AVE	

Axis values: 100000, 500000, 1000000, 5000000, 10000000

City of Long Beach Top 20 Highest Consuming Facilities

Facility Address	Facility Name	SCE Service Account	Annual Cost	Annual kWh
300 E OCEAN BLVD	Convention Center	11300357	$1,937,287	13,542,996
333 W OCEAN BLVD	City Hall	4406205	$904,632	6,558,463
4100 DONALD DOUGLAS DR	Long Beach Airport	42185505	$565,870	4,616,607
400 W BROADWAY	Police Department	1418588	$364,880	2,914,451
2990 REDONDO AVE	Fire Support Services	21451291	$292,619	2,513,896
LONG BEACH/SEASIDE	Seaside Park	11551711	$413,240	2,285,531
1720 TERMINO AVE	Community Hospital	48377355	$245,892	1,844,832
3205 N LAKEWOOD BLVD	Fire Department	31949479	$220,461	1,625,154
2400 E SPRING ST	LB Gas & Oil	1418685	$171,982	1,274,137
2600 TEMPLE AVE	Fleet Services	17058781	$235,288	1,245,528
4339 DONALD DOUGLAS DR	Airport Parking Garage B	36710460	$114,950	1,047,372
2525 GRAND AVE	Long Beach Health Dept	4647086	$157,401	958,247
LAKEWOOD/SPRING	Airport Fire Station	161836	$134,400	833,228
220 E SHORELINE DR	Shoreline Marina	13789440	$105,576	781,005
211 1/2 N MARINA DR	Alamitos Bay Marina	40384721	$94,144	768,362
200 SHORELINE DR S	Shoreline Marina	13933718	$85,121	747,571
235 1/2 MARINA DR	Alamitos Bay Marina	43438222	$83,564	712,853
100 PIER S AVE	Southeast Resource Recovery	1419424	$177,535	616,304
350 E SHORELINE DR DC6	Shoreline Marina	1418548	$66,785	537,813
1400 CANAL AVE	Police Department	18572864	$67,975	516,543

The graph below provides a comparison of the City of Long Beach's overall electricity consumption and costs for 2017 and 2018. From 2017 to 2018, City-wide electricity consumption decreased by about 1.4 million kWh, or 1.7%. At the same time, City-wide electricity costs have increased by about $200,000, or 1.7%. This increase in costs is likely due either to changes in utility tariffs, the shift in peak hours, or adjustments in tariff type.

2017 -2018 ENERGY COST COMPARISON

■ kWh Consumption   ■ Utility Cost

|	2017	2018
kWh Consumption	84,678,248	83,272,178
Utility Cost	$11,968,239	$12,167,626

Year

3. Electric Use Analysis By Facility Type

The City of Long Beach maintains hundreds of facilities across many departments and building usage types. This section provides a comparison of energy use intensity (EUI), or kWh used per square foot, for facilities within a given usage type.
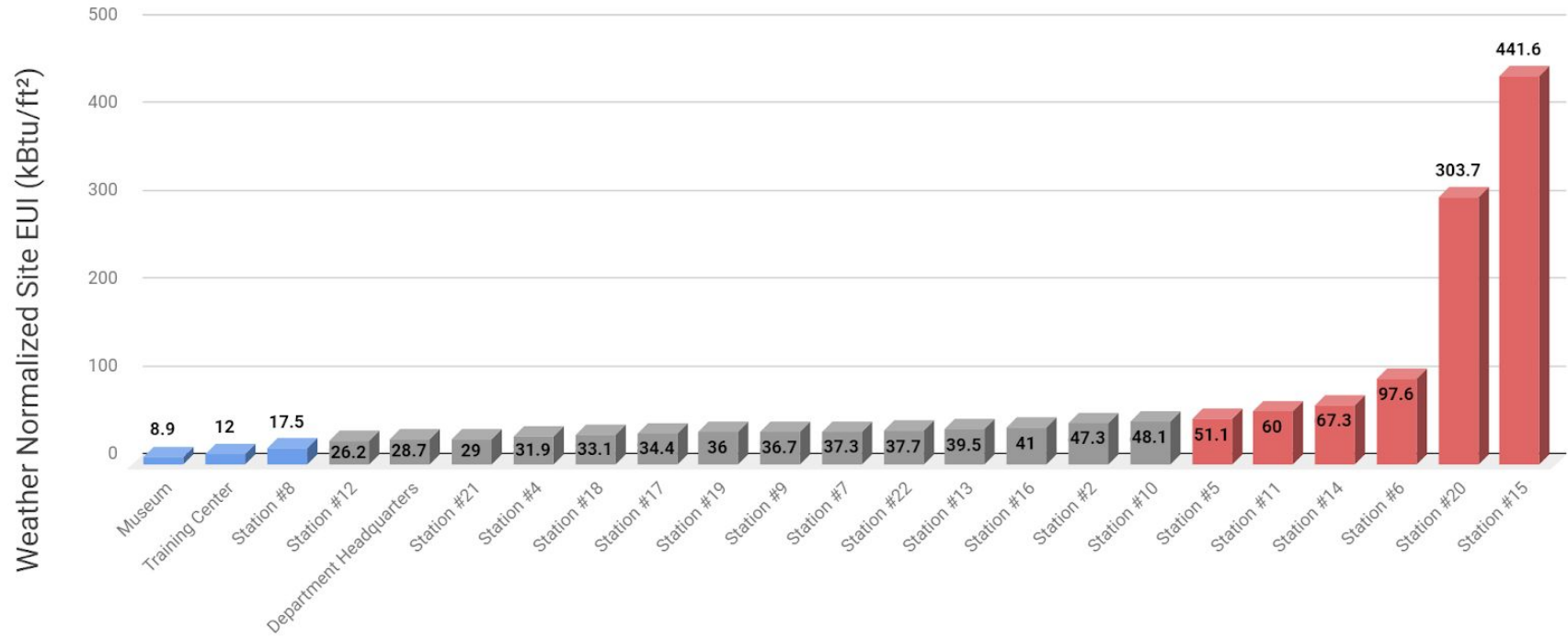
Long Beach Neighborhood Libraries EUI Comparison
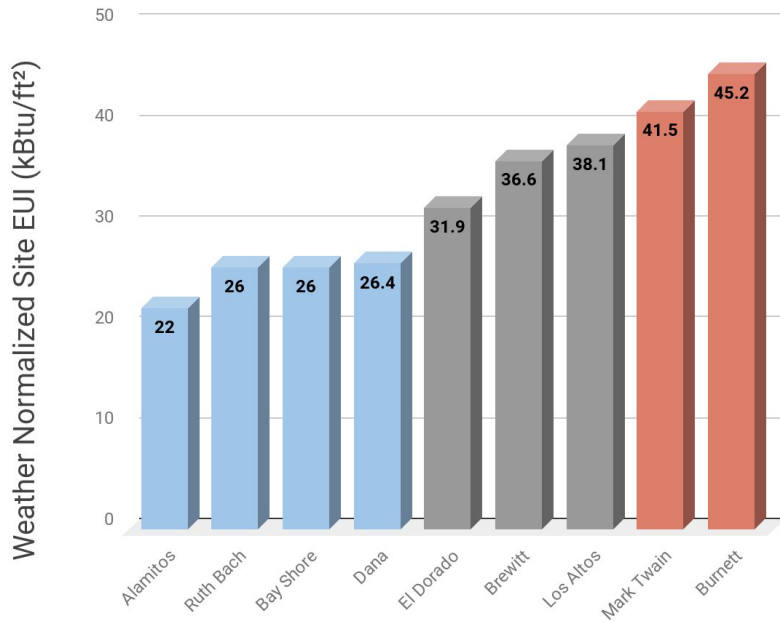
Long Beach Neighborhood Libraries

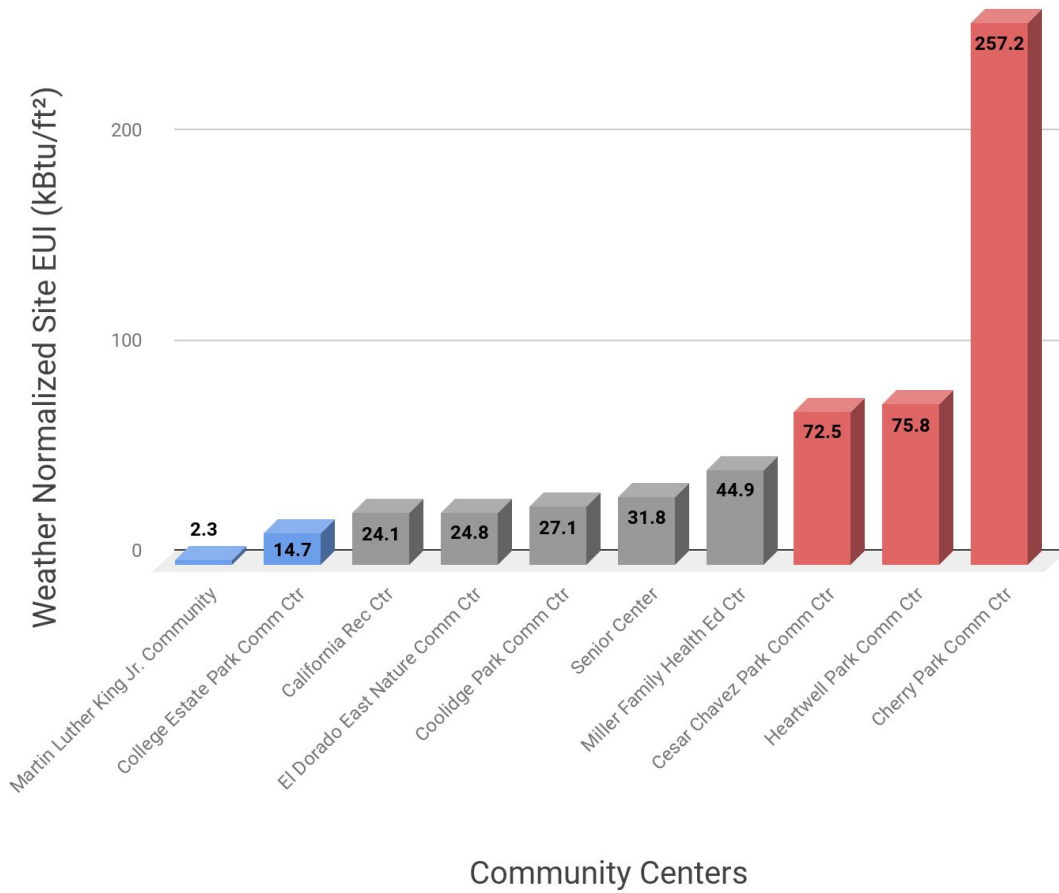### Long Beach Social Services Facilities EUI Comparison
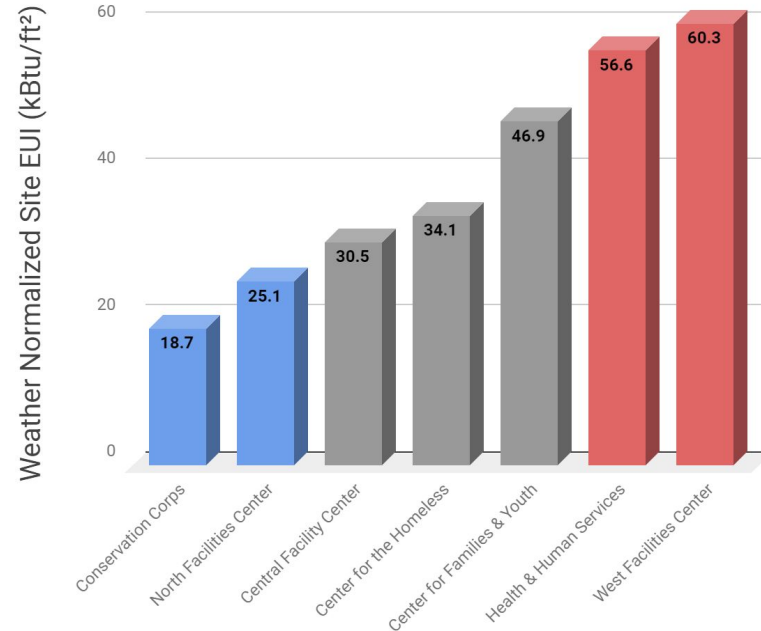
Social Services Facilities

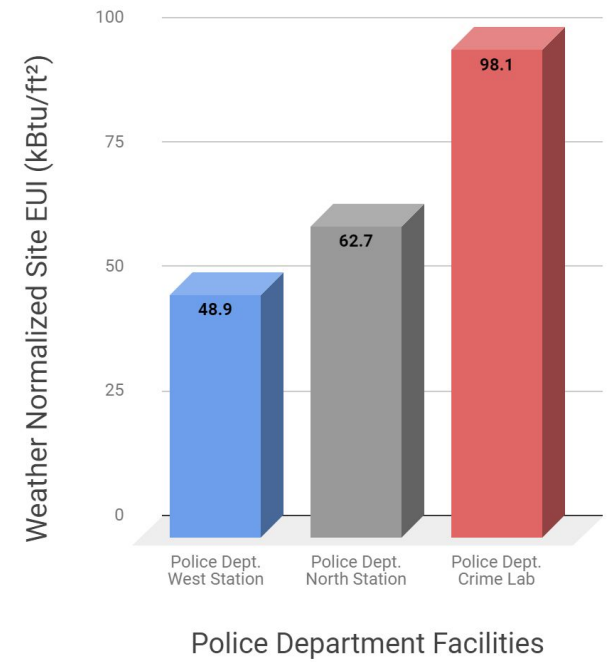Long Beach Fire Stations EUI Comparison

Long Beach Community Centers EUI Comparison

Long Beach Police Department EUI Comparison

4. Long Beach Disadvantaged Community (DAC) Overview

The California Environmental Protection Agency (CalEPA) defines disadvantaged communities (DACs) as those communities located in census tracts in the top quartile with both high amounts of pollution and low income populations as shown in CalEPA's CalEnviroscreen 3.0 tool (https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30). The City of Long Beach spans 19 zip codes; 9 contain designated DAC census tracts.

Long Beach Zip Codes with DACs: 90745, 90746, 90755, 90802, 90804, 90805, 90806, 90810, 90813
Long Beach Zip Codes without DACs: 90803, 90807, 90808, 90814, 90815, 90822, 90831, 90833, 90834, 90835

SoCalREN's Pathway to Zero Program

The Pathway to Zero program was created to maximize energy efficiency opportunities in disadvantaged communities while increasing the integration of distributed energy resources (DERs) and other sustainability strategies and supporting public agencies on a path towards zero net energy (ZNE).

The program provides a customized, high-level review of DER options and other sustainability strategies, giving the City the information it needs to get started choosing the DERs that are right for its facilities and assets located within the 9 zip codes with DACs. Because Pathway to Zero is offered as an add-on to any energy efficiency programs, SoCalREN can also offer project management support throughout your project, including support with incentive applications, assessing and applying for financing, and obtaining the technical assistance the City needs to complete projects.

Pathway to Zero Strategies Reviewed
Demand Response
Electric Vehicle Charging Infrastructure
Solar Water Heating
PV and Battery Storage Systems
Green Rate Options
Permanent Load Shifting
Water Efficiency

5. Methodology and Sources

- Building information, energy usage and cost data used in this analysis were derived from ENERGY STAR Portfolio Manager® and SCE consumption and billing data provided by the City.
- Utility consumption billing data used in this analysis are governed by SCE electricity tariffs
- For more information about the utility tariffs included in this analysis refer to:
  - [Southern California Edison tariffs](https://www.sce.com/regulatory/tariff-books/rates-pricing-choices); https://www.sce.com/regulatory/tariff-books/rates-pricing-choices
- This report does not include information on the City's natural gas consumption from Long Beach Gas & Oil.
- All electricity results were based on usage during the period from January 1, 2017 – December 31, 2018.
- This report utilizes weather normalized Site Energy Use Intensity (EUI) to compare energy use across facilities.
    - Energy Use Intensity (EUI) refers to the energy use per square foot at a given facility
- CalEnviroscreen Disadvantaged Community (DAC) Designation
  - CalEnviroscreen was created by CalEPA to direct Greenhouse Gas Reduction Fund dollars by census tract. SoCalREN uses the tool to direct utility funds to promote energy efficiency and distributed energy resources in disadvantaged communities.
  - SoCalREN can provide support to any facility in a zip code that contains a CalEnviroscreen designated Disadvantaged Community
- For more information about ENERGY STAR Portfolio Manager refer to:
  - [General Information](https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/use-portfolio-manager); https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/use-portfolio-manager
  - [Resources](https://www.energystar.gov/buildings/owners_and_managers/existing-buildings/find_resources_your_property_type); https://www.energystar.gov/buildings/owners_and_managers/existing-buildings/find_resources_your_property_type