



LAGUNA BEACH
UNIFIED SCHOOL DISTRICT

Energy Master Plan

September 26, 2024

**SUMMARY
REPORT**



PRESENTATION OVERVIEW

GENERAL SCOPE

TOP OF THE WORLD

EL MORRO

THURSTON

LAGUNA BEACH HS

DISTRICT OFFICES

FINANCING

Roadmap to Being Carbon Neutral Project 2030

What it Takes

SCOPE HIGHLIGHTS

1. Electrical Consumption
Contributes to 72% of total emissions
 - a. Energy conservation measures
 - b. Lighting upgrades
 - c. Photovoltaic (PV) Solar and Battery Storage
 - d. Electric vehicle charging stations
2. Natural Gas Consumption
Contributes to 28% of total emissions
 - a. HVAC Replacement w/ Electric Heat Pump
 - b. Domestic Water Heater Replacement
3. Project Learning Opportunities
Integrate projects where student learning opportunities can be made available



Top of the World POTENTIAL SCOPE

1. Electrical Consumption

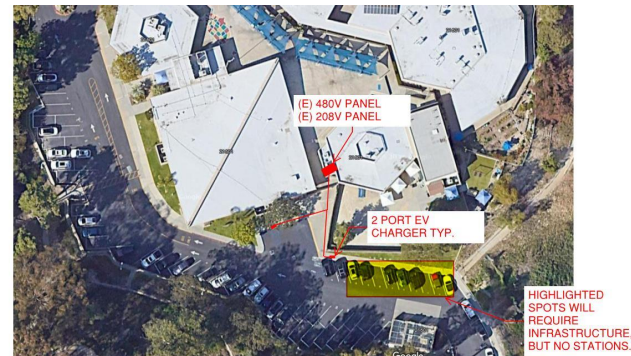
2023 Baseline Use 218,447 kWh

- Lighting upgrades: lighting controls for individual rooms and retrofit existing fluorescent ballast to controllable LED light fixtures (20% energy reduction)
- Photovoltaic (PV) Solar and Battery Storage w/ electric vehicle charging stations: Addition of 197 PV solar panels and up to 19 EV charging spaces (164,438 kWh annual generation)

2. Natural Gas Consumption

2023 Baseline Use 3,012 Therms

- HVAC Replacement w/ Electric Heat Pump: (87% reduction)
- Domestic Water Heater Replacement (13% reduction)



El Morro

POTENTIAL SCOPE

1. Electrical Consumption

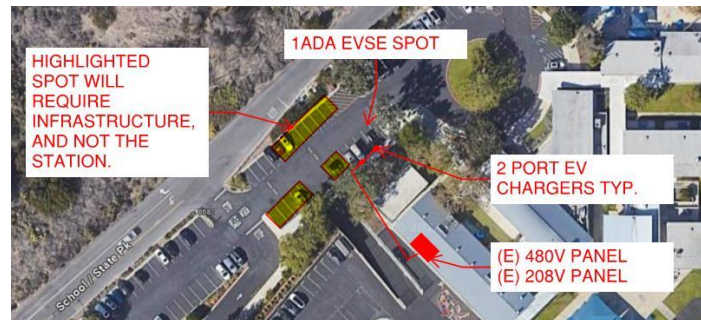
2023 Baseline Use 306,501 kWh

- Lighting upgrades: lighting controls for individual rooms and retrofit existing fluorescent ballast to controllable LED light fixtures (20% energy reduction)
- Photovoltaic (PV) Solar and Battery Storage w/ electric vehicle charging stations: Addition of 425 PV solar panels and 17 EV charging stations (343,900 kWh annual generation)

2. Natural Gas Consumption

2023 Baseline Use 3,629 Therms

- HVAC Replacement w/ Electric Heat Pump: (87% reduction)
- Domestic Water Heater Replacement (13% reduction)



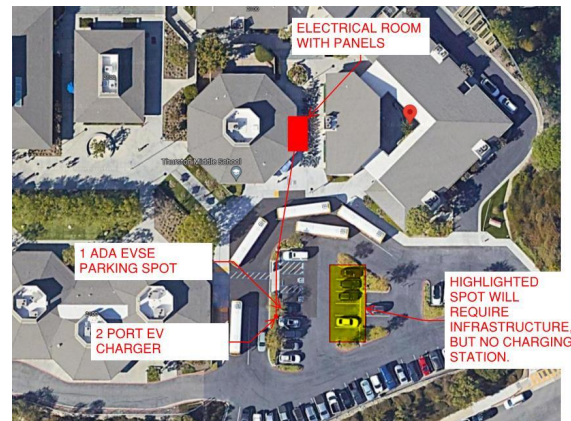
Thurston

POTENTIAL SCOPE

1. Electrical Consumption

2023 Baseline Use 394,052 kWh

- Lighting upgrades: lighting controls for individual rooms and retrofit existing fluorescent ballast to controllable LED light fixtures, installation of field LED lighting (20% energy reduction)
- Photovoltaic (PV) Solar and Battery Storage w/ electric vehicle charging stations: Addition of 550 PV solar panels and 10 EV charging stations (449,300 kWh of annual generation)



2. Natural Gas Consumption

2023 Baseline Use 10,452 Therms

- HVAC Replacement w/ Electric Heat Pump: (87% reduction)
- Domestic Water Heater Replacement (13% reduction)



Laguna Beach H.S.

POTENTIAL SCOPE

1. Electrical Consumption

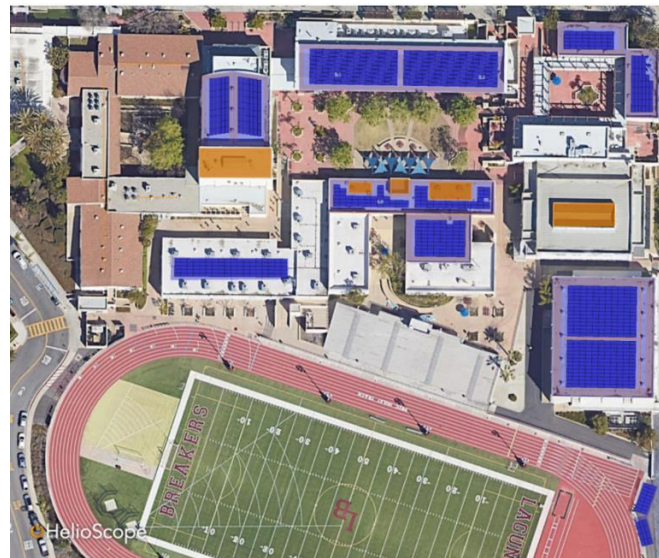
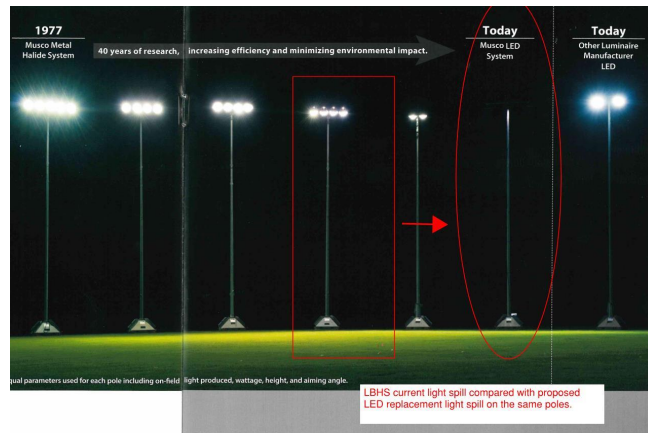
2023 Baseline Use 701,246 kWh

- Lighting upgrades: Stadium LED Conversion, lighting controls for individual rooms and retrofit existing fluorescent ballast to controllable LED light fixtures (20% energy reduction)
- Photovoltaic (PV) Solar and Battery Storage w/ electric vehicle charging stations: Addition of 1018 PV solar panels (629,200 kWh of annual generation)

2. Natural Gas Consumption

2023 Baseline Use 11,552 Therms

- HVAC Replacement w/ Electric Heat Pump: (89% reduction)
- Domestic Water Heater Replacement (11% reduction)



District Offices

POTENTIAL SCOPE

1. Electrical Consumption

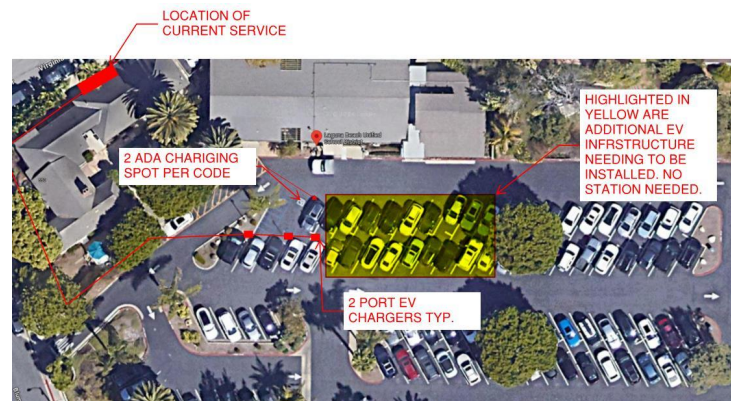
2023 Baseline Use 103,378 kWh

- Lighting upgrades: lighting controls for individual rooms and retrofit existing fluorescent ballast to controllable LED light fixtures (9% energy reduction)
- Photovoltaic (PV) Solar and Battery Storage w/ electric vehicle charging stations: Addition of 240 PV solar panels and 25 EV charging stations (203,900 kWh of annual generation)

2. Natural Gas Consumption

2023 Baseline Use 541 Therms

- HVAC Replacement w/ Electric Heat Pump: (84% reduction)
- Domestic Water Heater Replacement (16% reduction)



Warehouse & Bus Yard

POTENTIAL SCOPE

1. Electrical Consumption

2023 Baseline Use 35,014 kWh

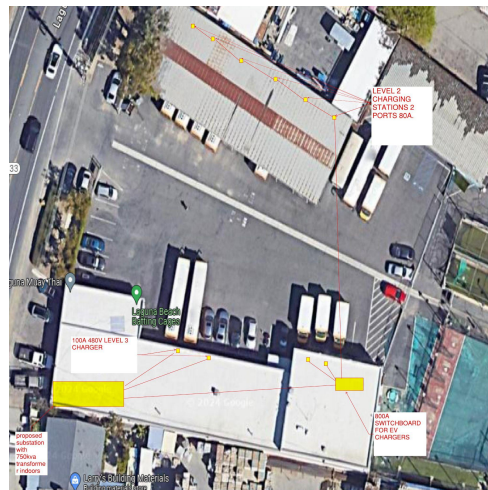
Electrification of Bus Fleet 524,620 kWh

- Lighting upgrades: lighting controls for individual rooms and retrofit existing fluorescent ballast to controllable LED light fixtures (29% energy reduction)
- Photovoltaic (PV) Solar and Battery Storage w/ electric vehicle charging stations: Addition of 428 PV solar panels and 18 EV charging stations (339,200 kWh of annual generation)

2. Natural Gas Consumption

2023 Baseline Use 98 Therms

- HVAC Replacement w/ Electric Heat Pump: (100% reduction)



Estimated Cost

RESOURCE NEEDS

Scope Recommendations	Implementation Cost Estimate
Scheduling Updates	N/A
Lighting Upgrades	\$1,572,758
Photovoltaic Installation	\$6,709,662
Electric Vehicle Charging Stations	\$356,500
Mechanical Unit Replacements	\$10,591,555
Water Heater & Appliance Replacements	\$232,000
Total Estimate	\$19,462,475

FINANCING OPTIONS

Certificate of Participation

\$20M Certificate of Participation

Estimated annual payment \$1.45M

Prefunding the Capital Improvement Program (CIP) to implement **most** of the recommendations from the Energy Master Plan

\$2.2M current annual contribution to CIP and Facility Repair & Replacement Program (FRRP). Would adjust to only making annual contribution to FRRP.

- a. Access to funding to maximize rebates
- b. Achieve operational savings that would directly benefit general fund to reduce utility costs and redirect funds for educational purposes
- c. Position our district to meet carbon neutrality goal by 2030

Definition

Certificates of Participation (COPs) are a way for California school districts, county offices of education, and community college districts to raise funds for capital improvements and real property acquisitions. COPs are an alternative financing option to general obligation bonds.

How they work

COPs use a tax-exempt lease structure to finance public facilities and improvements. Before a school district can issue COPs, they must notify the county superintendent of schools and county auditor at least 30 days in advance.

What they can be used for

Certificates of Participation (COPs) use a tax-exempt lease structure to finance the construction of public facilities or improvements

FINANCING OPTIONS

Certificate of Participation

\$15M Certificate of Participation

Estimated annual payment \$1.1M

Prefunding the Capital Improvement Program (CIP) to implement some of the recommendations from the Energy Master Plan

\$25M Certificate of Participation

Estimated annual payment \$1.8M

Prefunding the Capital Improvement Program (CIP) to implement all of the recommendations from the Energy Master Plan. Option accounts for increased costs related to design, construction management, and testing & inspection

Definition

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Certificates of Participation (COPs) use a tax-exempt lease structure to finance the construction of public facilities or improvements

FINANCING OPTIONS

Certificate of Participation

- Formal Board action at a regular meeting would be required before initiating the issuance of a Certificate of Participation.
- The COP would be treated as a prefunding for the Capital Improvement Program so that annual contributions from the general fund are reduced in proportion to the repayment schedule.
- COP would be structured to include an early call feature, allowing the district to pay off the remaining amount owed after 10-years with no penalty.

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THANK YOU

