

# NOW THE HARD PART

*Implementing a Districtwide ZNE Plan*



# AT A GLANCE

Dense/Urban

7<sup>th</sup> Largest

55K Students

Diverse

Low-Income



Voters

**SFUSD**

Private

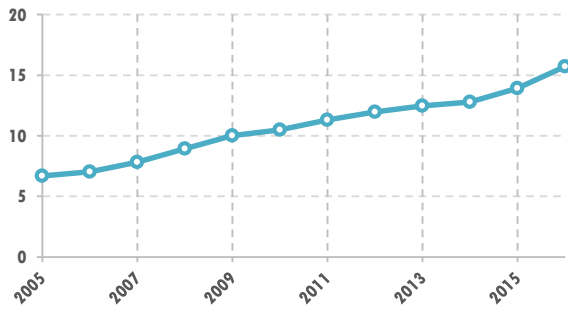


# OUR SCHOOLS

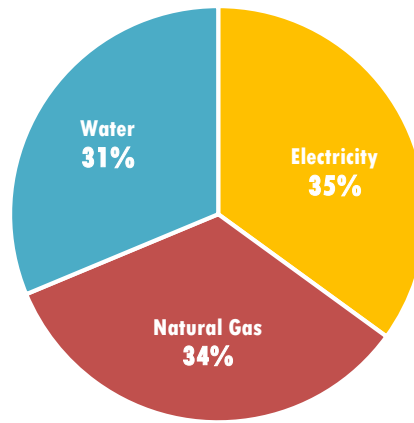


# POTENTIAL RISKS

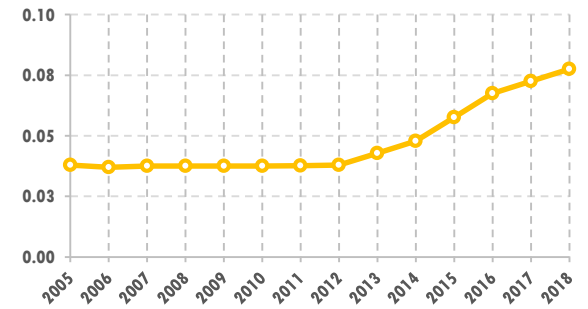
**Water Rates**  
\$/CCF



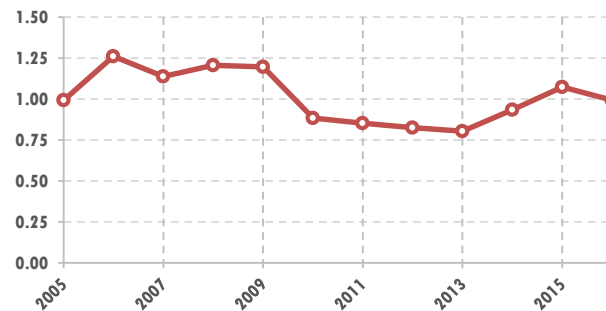
**Utility Costs By Type**  
FY 14-16: Average \$5.5M



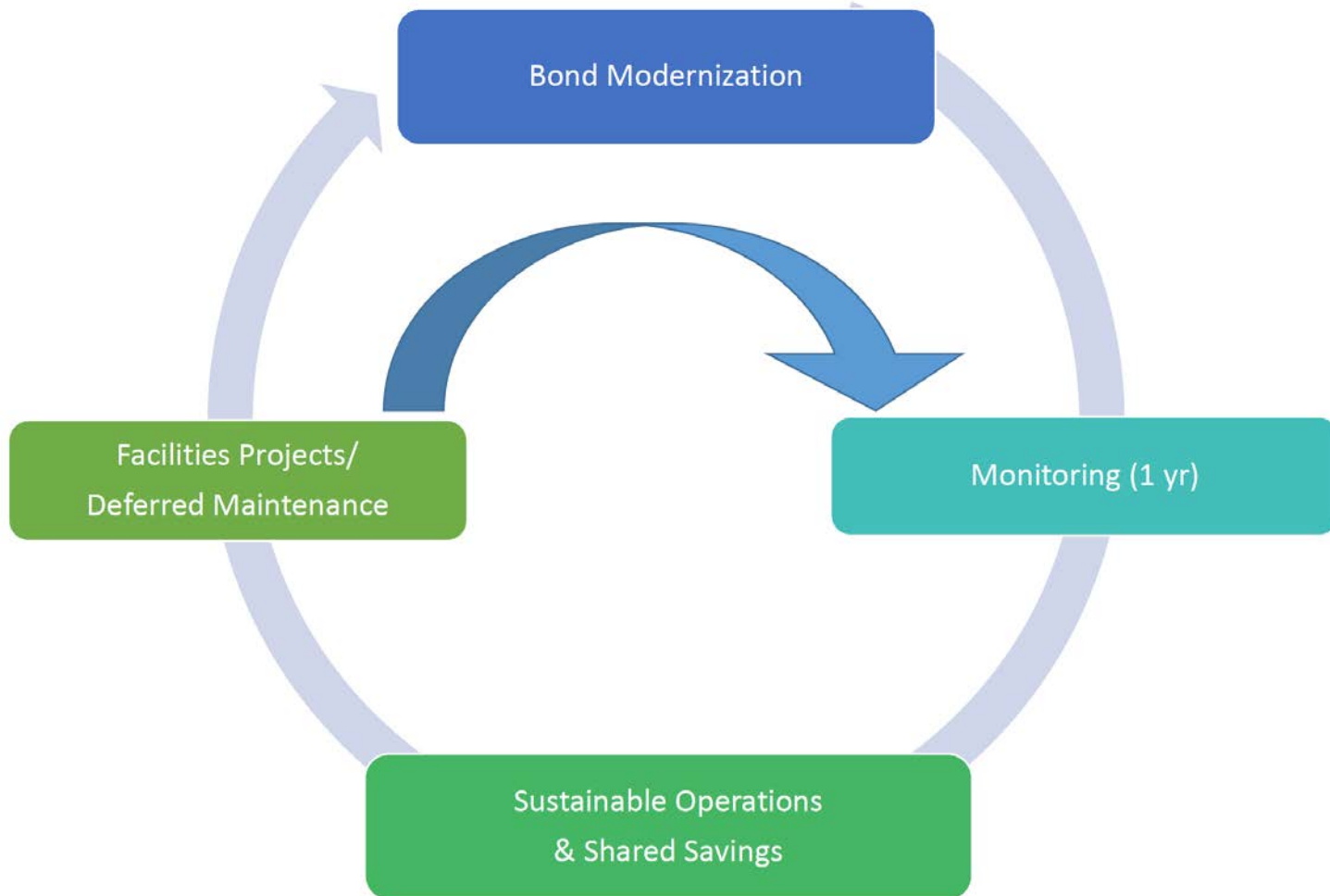
**Electricity Rates**  
\$/kWh



**Natural Gas Rates**  
\$/therm



# OPPORTUNITIES



# PROP 39 – Round 1

## VISITACION VALLEY MS:

Separation of DHW, occupancy sensors

## EL DORADO ES:

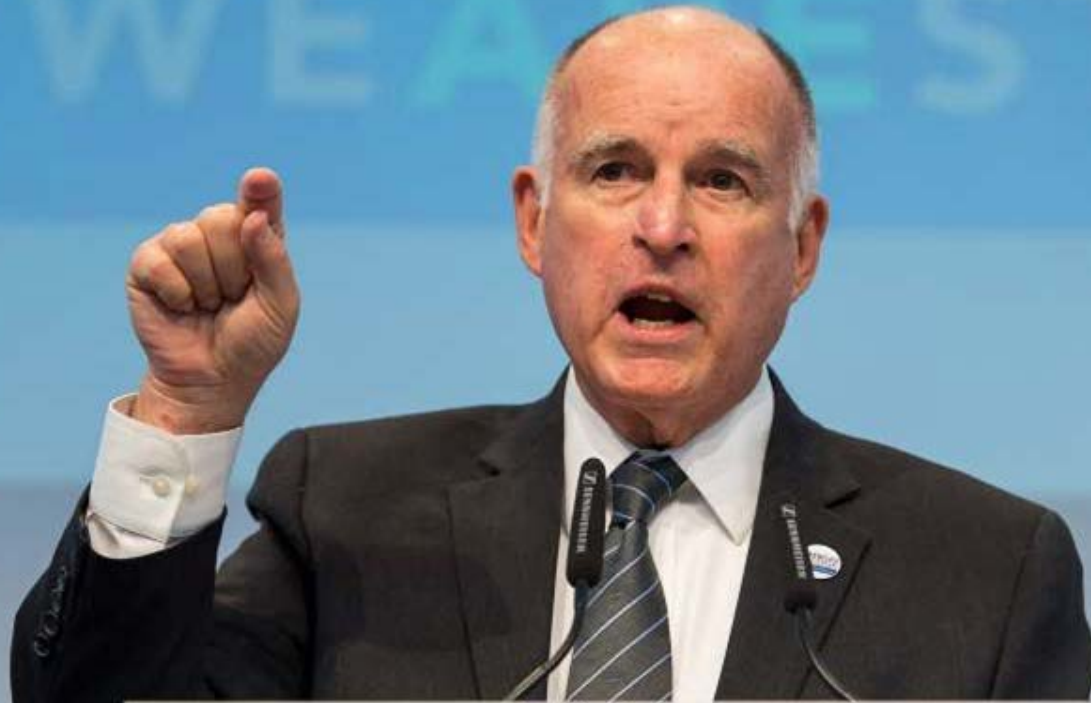
New boilers, heating system, refrigeration

## JOHN YEHALL CHIN ES:

Condensing boilers, fan coils, water heater

**SAVINGS:** 23,267 kWh, 2,186 therms, and \$3,740/yr

# BOLD LEADERSHIP



AMERICA'S  
PLEDGE

#WEARESTILLIN





# California's ZNE Building Goals

- *All new residential construction and all new commercial construction in California will be zero net energy by 2020 and 2030, respectively*
- *50% of existing commercial buildings will be retrofit to ZNE by 2030*
- *All new state buildings and major renovations shall be ZNE (2025)*
  - *50% of existing state-owned building area by 2025 shall be ZNE*
- *IOUs shall launch and ramp a ZNE K-12 Schools and Community College Pilot Program in 2015-18*



DPR Construction San Diego Corporate Office , Chip Fox, DG&E, renovation



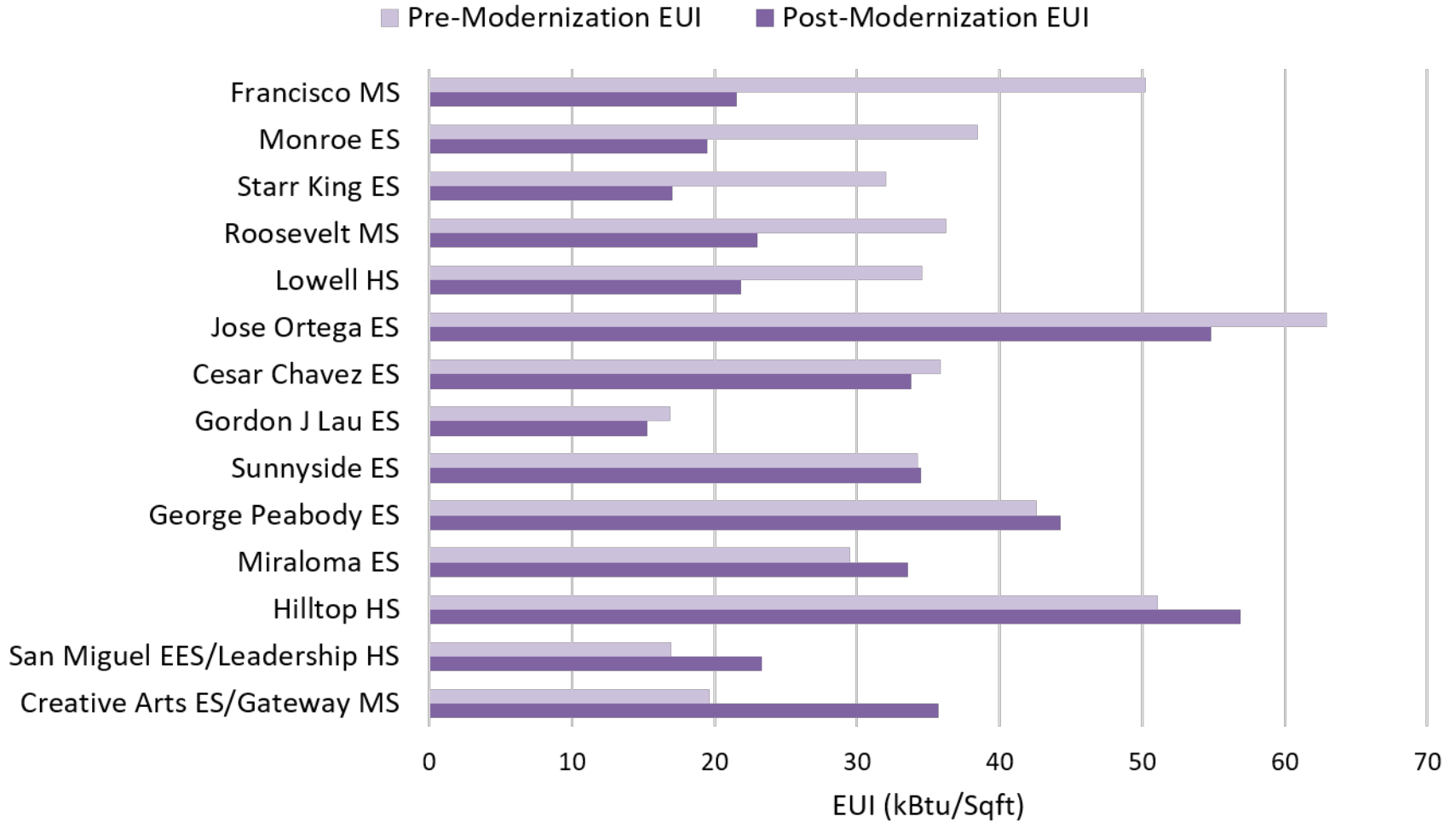
IBEW ZNE Center, San Leandro, renovation

Source: CPUC





# THERE'S HOPE



# EUI GOAL

Table 29. Energy Intensity Values for Zero Energy Schools

Climate Zone	Representative City	Primary School		Secondary School	
		Site Energy (kBtu/ft <sup>2</sup> ·yr)	Source Energy (kBtu/ft <sup>2</sup> ·yr)	Site Energy (kBtu/ft <sup>2</sup> ·yr)	Source Energy (kBtu/ft <sup>2</sup> ·yr)
1A	Miami, FL	25.9	76.4	23.1	68.5
2A	Houston, TX	24.3	71.1	21.7	63.5
2B	Phoenix, AZ	24.7	72.5	21.9	64.3
3A	Memphis, TN	23.8	69.0	21.2	61.6
3B	El Paso, TX	23.4	67.8	20.7	60.2
3C	San Francisco, CA	21.6	61.9	19.0	54.3
4A	Baltimore, MD	21.5	67.6	20.9	60.1
4B	Albuquerque, NM	21.1	66.6	20.4	58.8
4C	Salem, OR	20.4	64.2	19.7	56.4
5A	Chicago, IL	24.3	69.9	21.6	62.2
5B	Boise, ID	23.2	66.7	20.4	58.4
6A	Burlington, VT	24.5	70.1	21.6	61.9
6B	Helena, MT	23.5	66.9	20.5	58.4
7	Duluth, MN	25.9	74.1	22.8	65.1
8	Fairbanks, AL	28.7	82.5	25.0	71.5

Source: DOE

# THE ONLY WAY

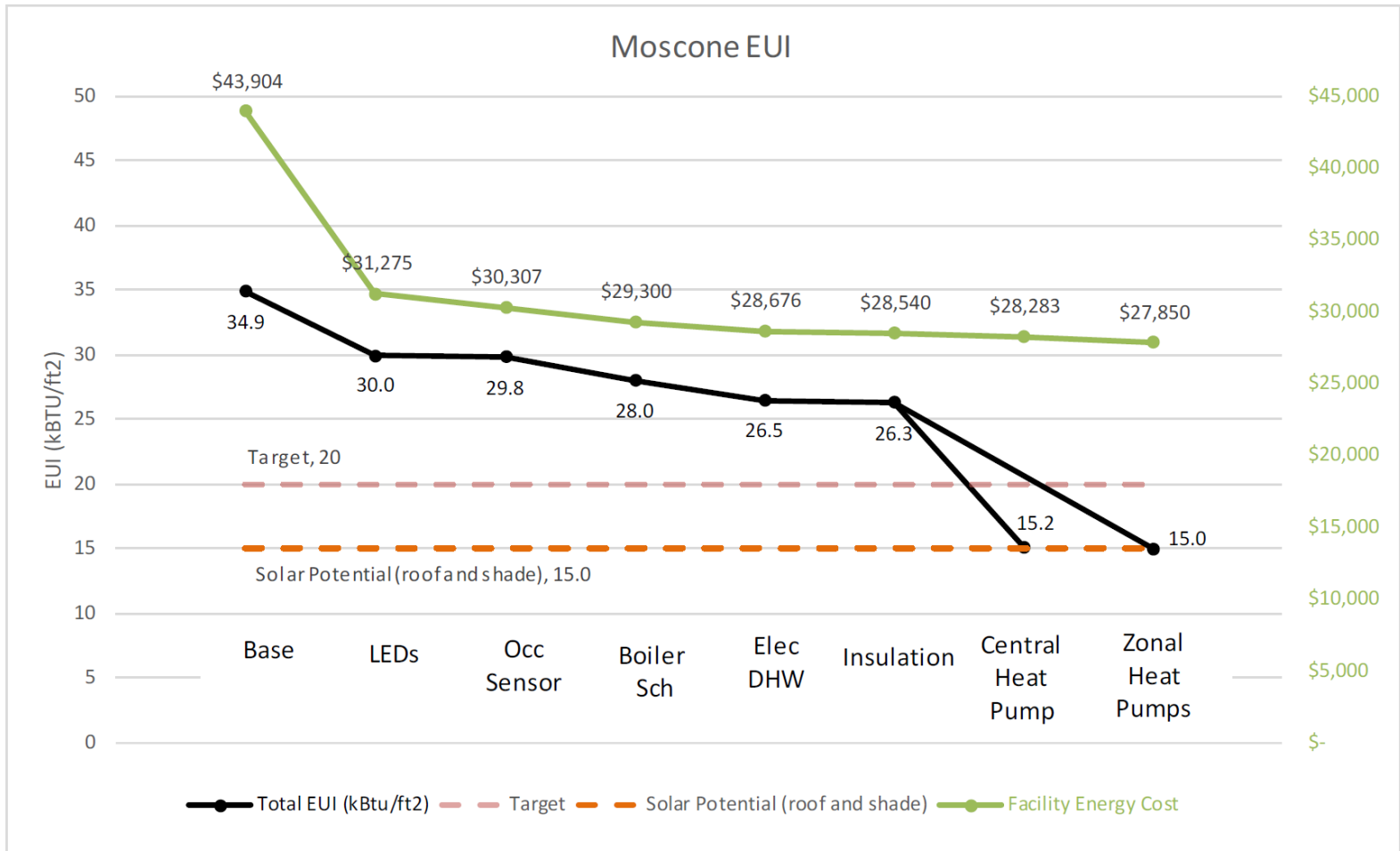
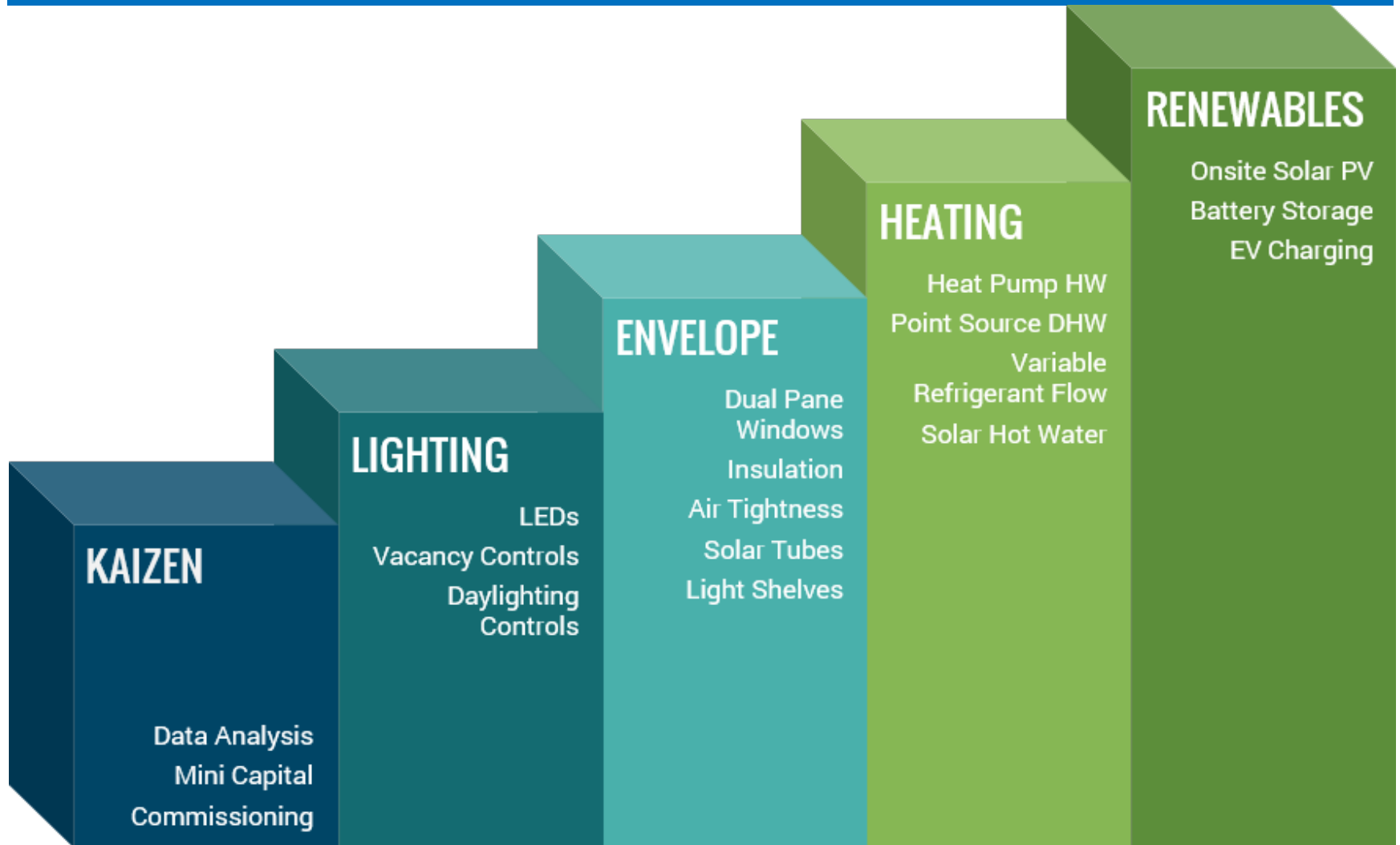


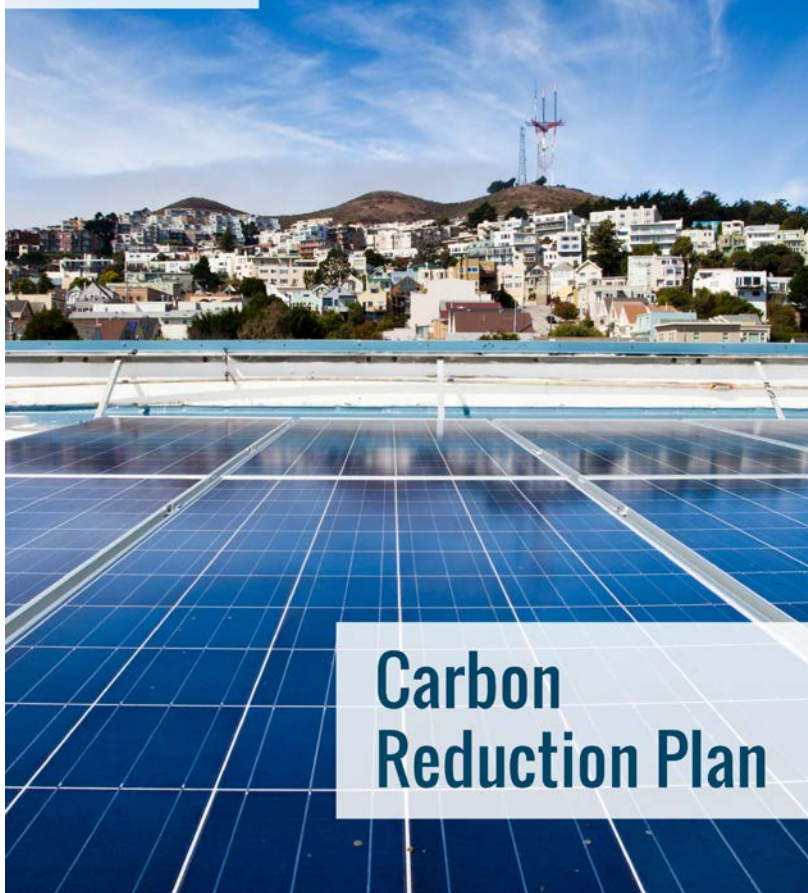
Figure 5.1: EUI and Total Energy Cost for Moscone ES



# LABOR ISSUES



# THE POLICY



**Carbon  
Reduction Plan**

NEWS FIX

## San Francisco Schools Aim for a Zero Carbon Footprint by 2040



# SMALLER PROJECTS



- LED Lighting
- Lighting Controls
- Windows
- Heat Pumps/DHW
- DHW Separation
- Pipe Insulation
- Thermostats/TCV/EMS
- Ventilation/VFD
- New Gas Boilers

**SAVINGS: 474,273 kWh, 25,989 therms, and \$58,421/yr**