



THE BAYLANDS

Agenda

Intro and Overview (TT) - 5 minutes

Building Load Study (TT) - 15 minutes

Energy Infrastructure (GI) - 15 minutes

Battery Storage in the Context of Sustainability Goals (GI) - 10 minutes

Q&A

Guiding Documents

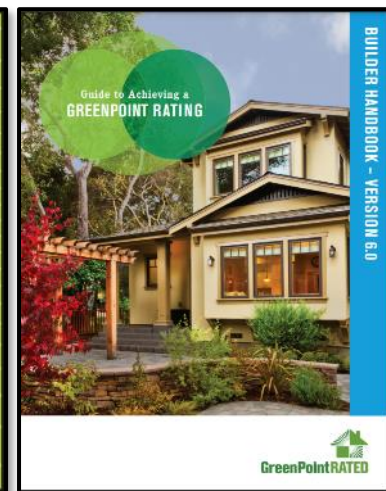
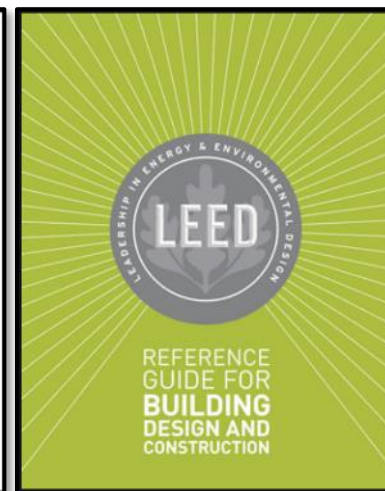
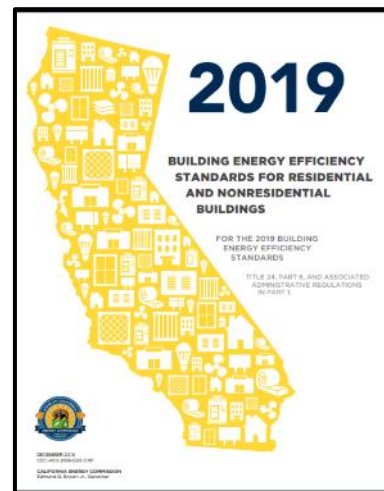
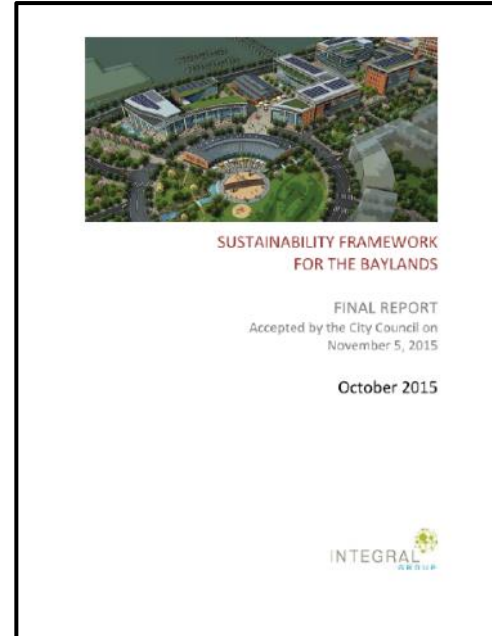
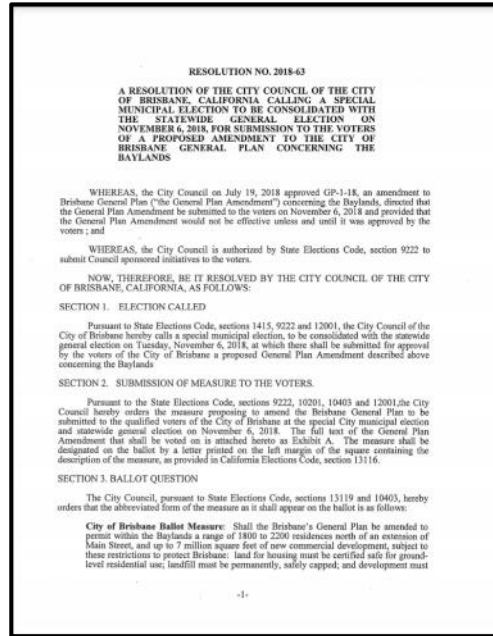
Measure JJ
Sustainability
Framework for
the Baylands

Bioregional 10
One Planet
Principles

California
Energy Code

LEED
Reference
Guide

GreenPoint
Rating Guide



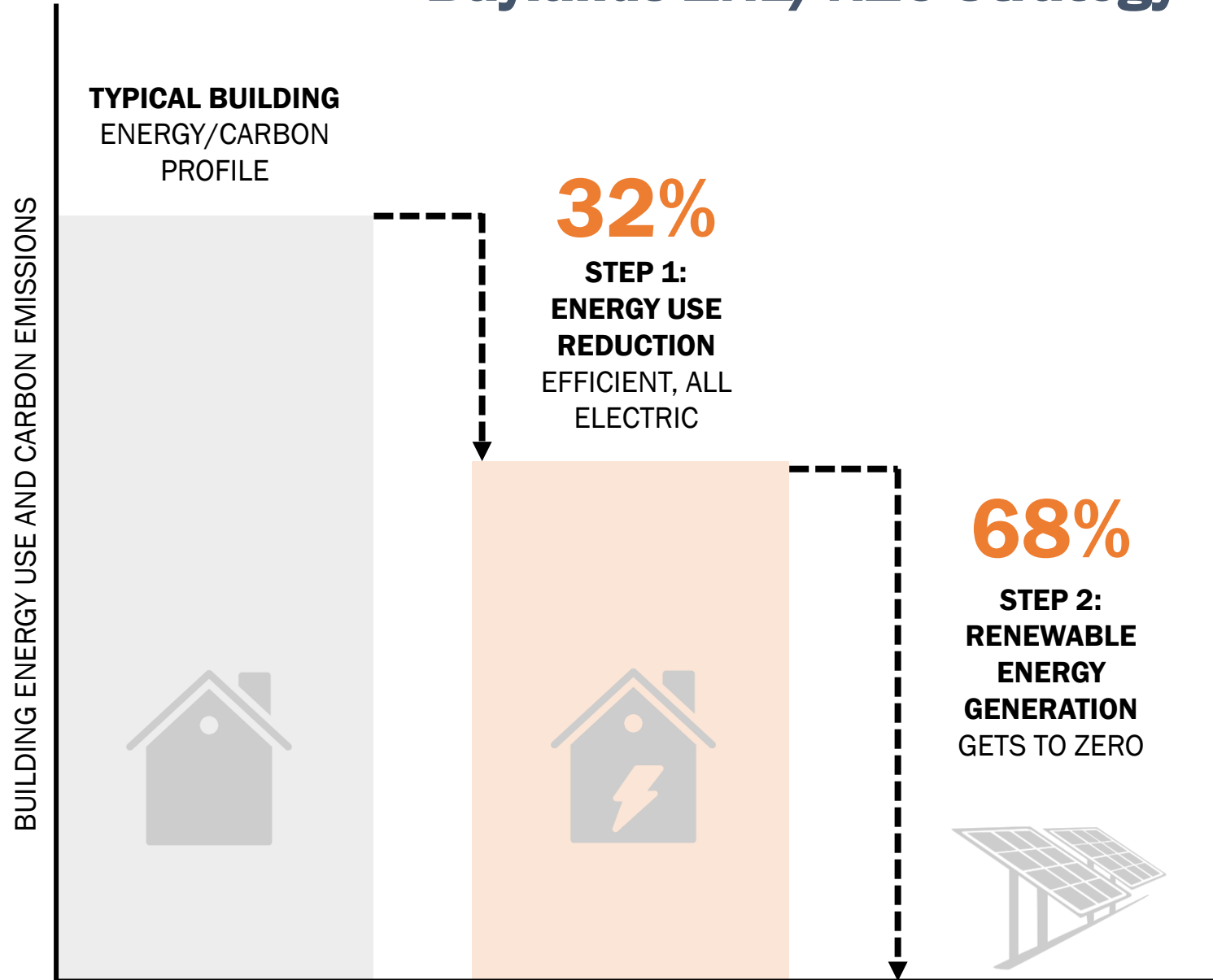
NZE/NZC Strategy Overview

KEY MEASURES

- 1. All-Electric Community** to Eliminate On-Site Combustion and Reduce Carbon Emissions
- 2. Efficient/High-Performance Building Design** to Minimize Energy Load
- 3. Maximizing On-Site Solar Energy Generation** to Meet our Energy Loads
- 4. Proposing an Innovative Microgrid** for Resiliency and Self-Reliance
- 5. Pursuing Utility-Scale Battery Storage** to Support CA Effort to Decarbonize the Grid

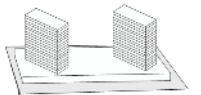
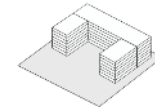
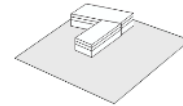
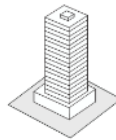
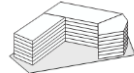
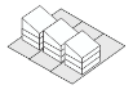
Making buildings and manufacturing energy efficient and supplying all energy with renewables

Baylands ZNE/NZC Strategy



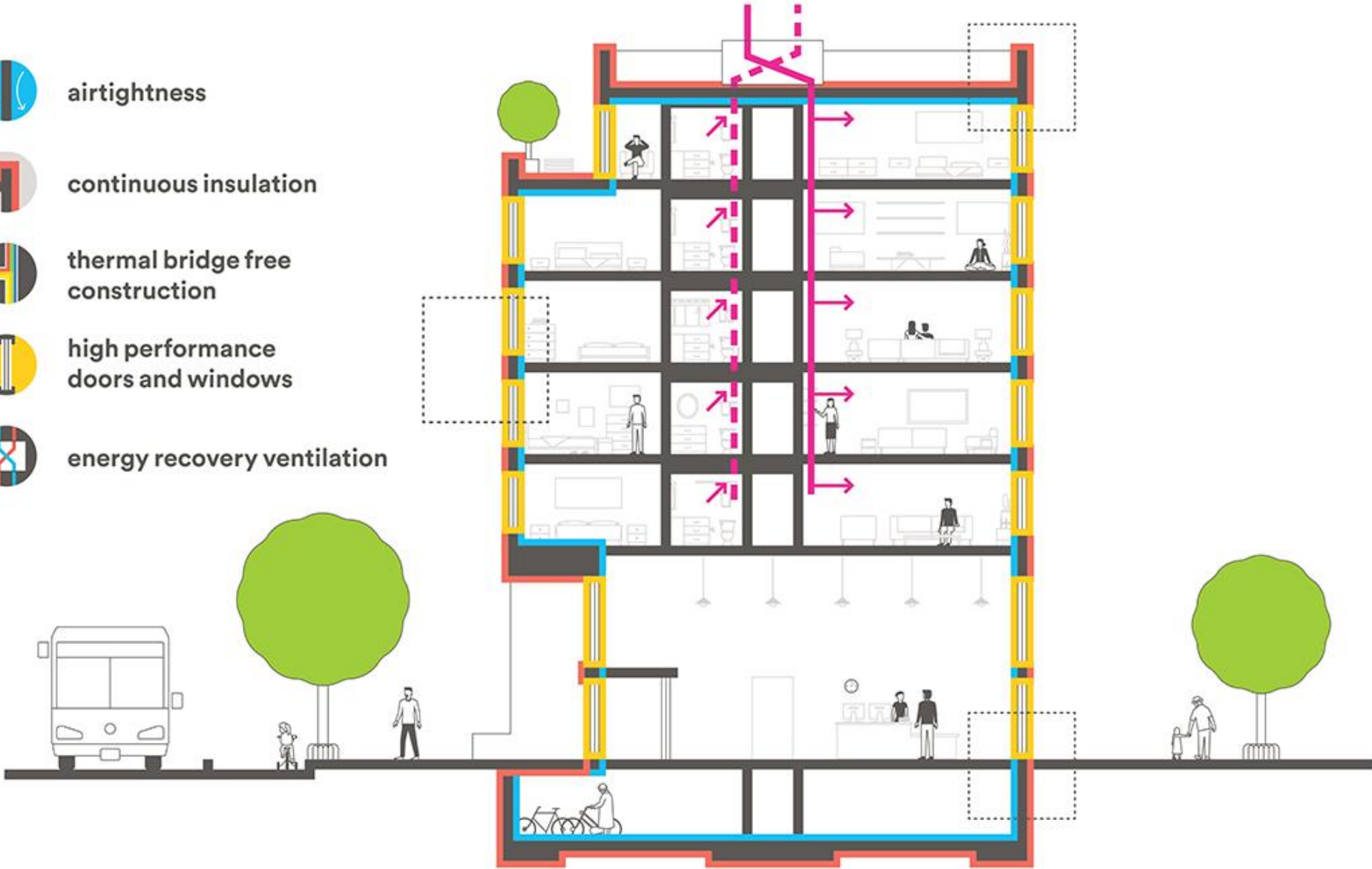
Energy Modeling Results

Building Energy Use Intensity (EUI)

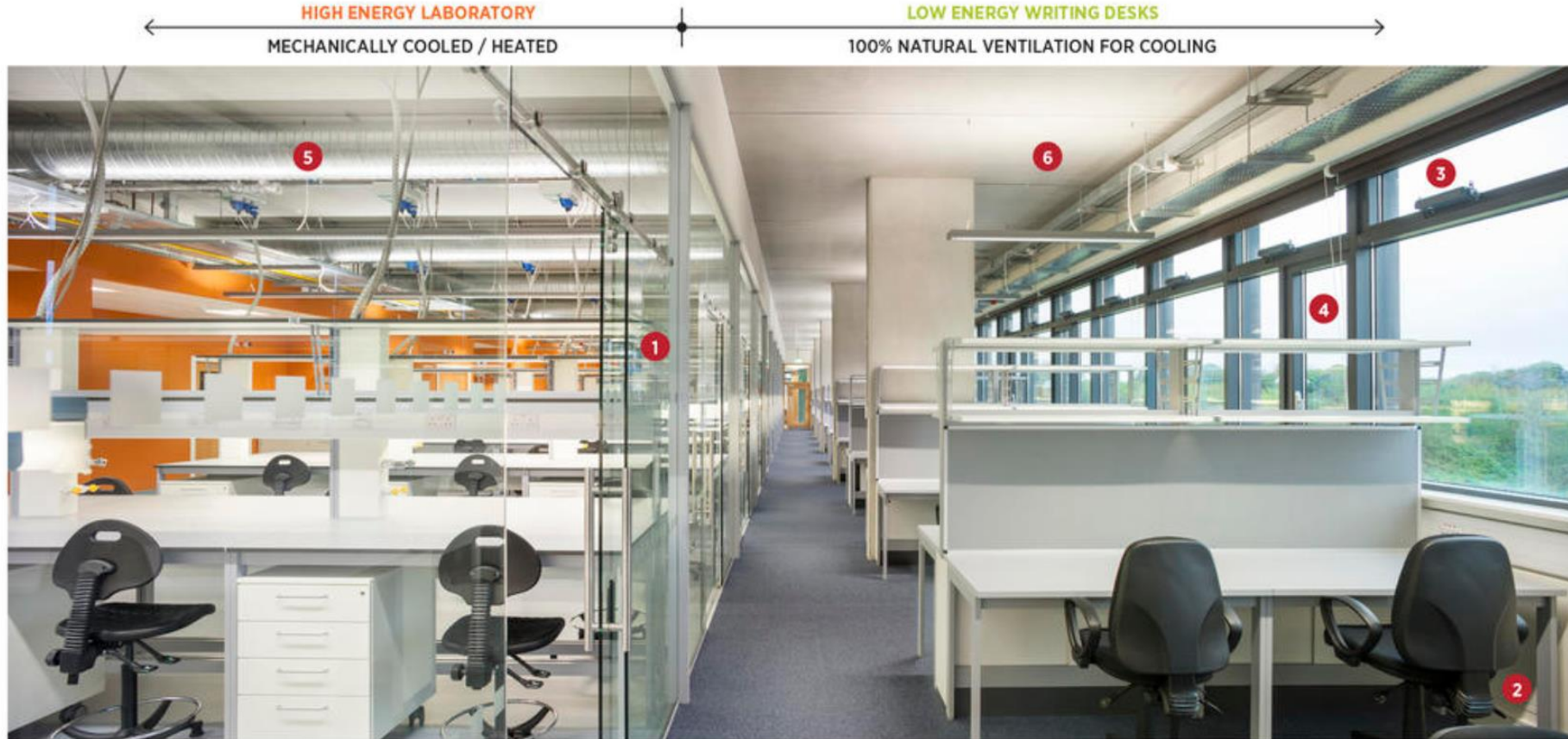


Building Strategies

-  airtightness
-  continuous insulation
-  thermal bridge free construction
-  high performance doors and windows
-  energy recovery ventilation



Building Strategies



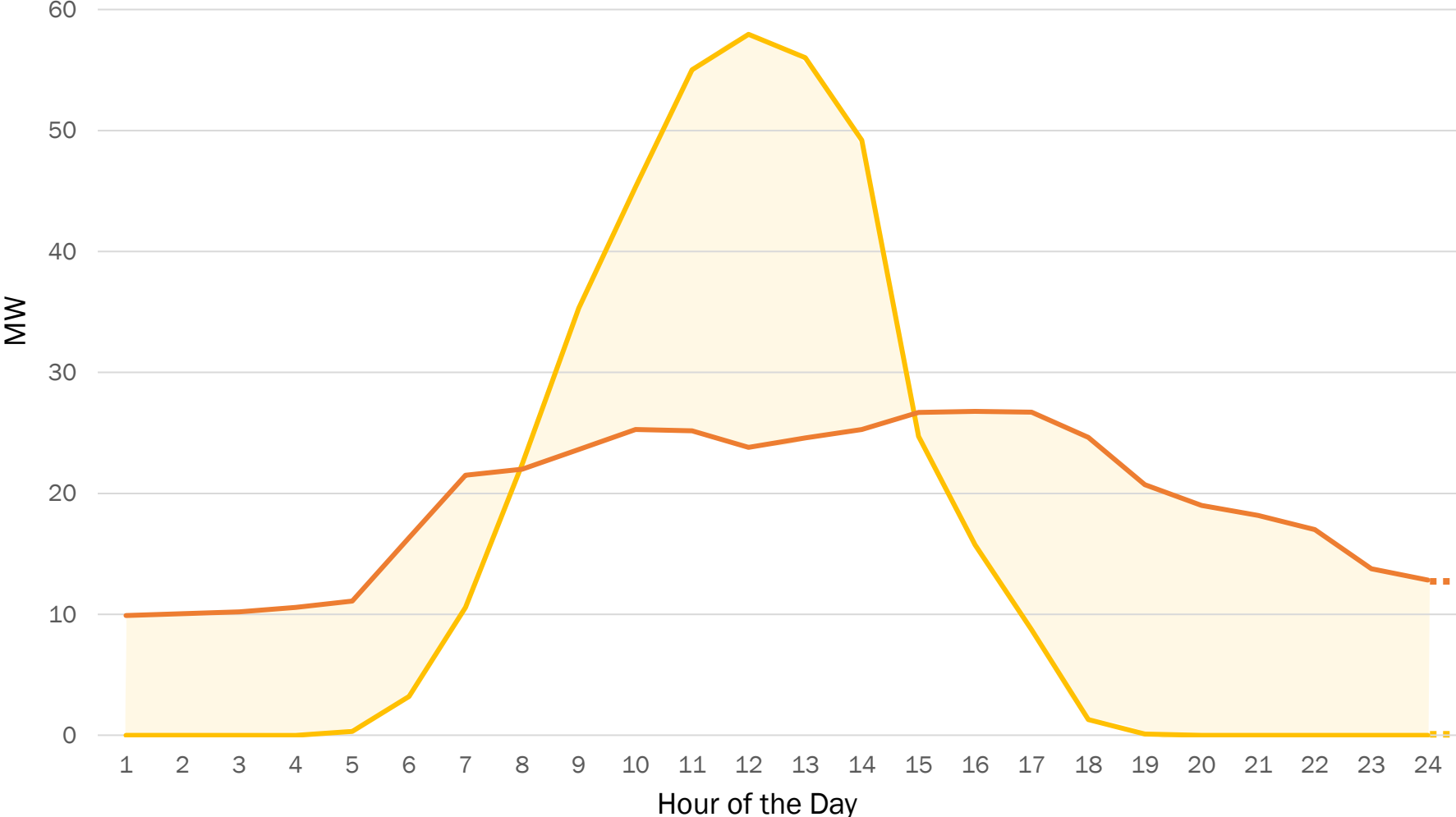
Typical Research Laboratory: The layered zoning of the laboratory highlights the minimalist interior palette of the building where all assemblies are exposed and only essential functional components define the architecture and in turn, the building's sustainable strategy, which reflects the desire for transparency and light through a layered laboratory module.

- 1 TEMPERED GLASS MEMBRANE – SEPARATES LOW ENERGY ZONE FROM HIGH ENERGY MECHANICALLY HEATED AND COOLED ZONE
- 2 RADIANT HEATING – ONLY NEEDED 9% OF THE YEAR
- 3 UPPER WINDOWS – BUILDING AUTOMATED OPERABLE WINDOWS
- 4 USER CONTROLLED OPERABLE WINDOWS
- 5 MECHANICAL DUCTWORK FOR HEATING AND COOLING

Photo Credit: Payette

Energy Generation Potential

Building Energy Use and Solar Energy Generation on Average by Time of Day



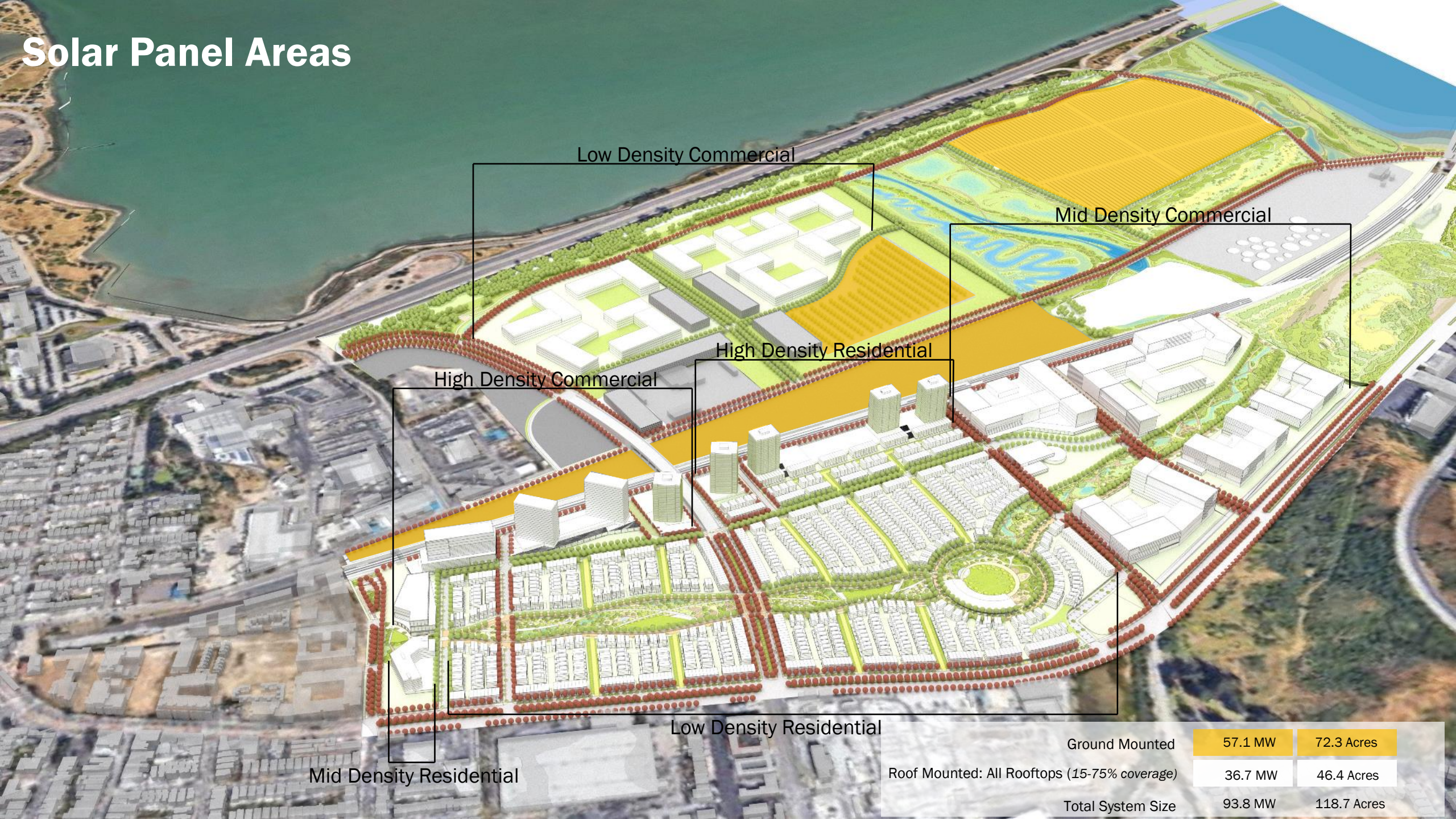
Total Annual Energy Use
125,294 MWh



Total Annual Energy Generation
125,295 MWh

— Solar Output — All Buildings Energy Use

Solar Panel Areas



Low Density Commercial

Mid Density Commercial

High Density Residential

High Density Commercial

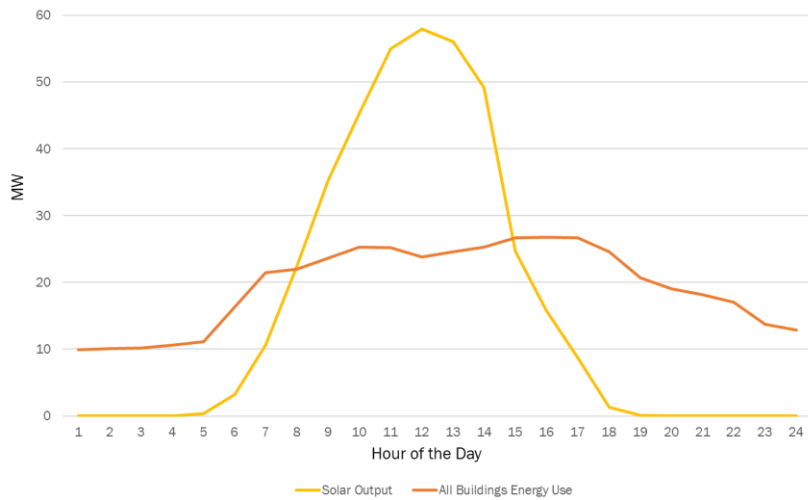
Low Density Residential

Mid Density Residential

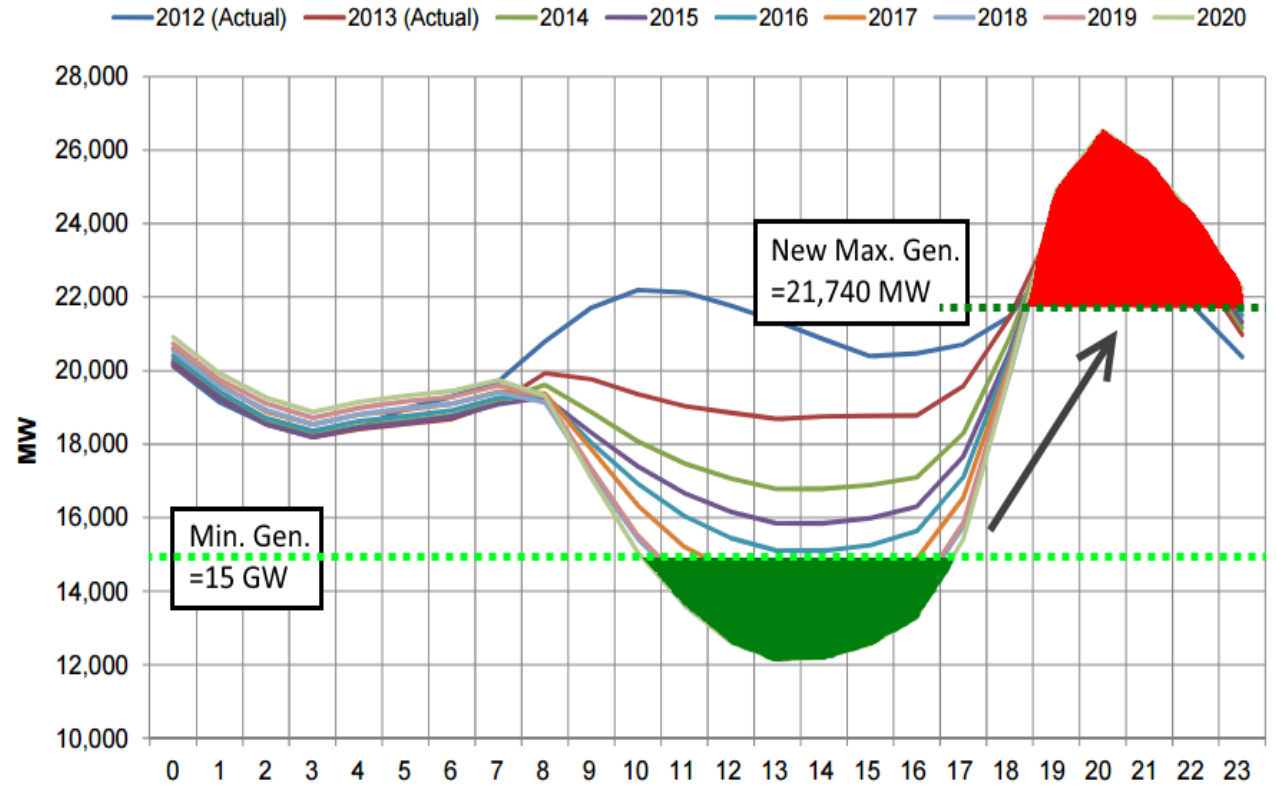
Ground Mounted	57.1 MW	72.3 Acres
Roof Mounted: All Rooftops (15-75% coverage)	36.7 MW	46.4 Acres
Total System Size	93.8 MW	118.7 Acres

Solar PV at Baylands

Baylands Solar PV Load Curve



California Generation Load Curve



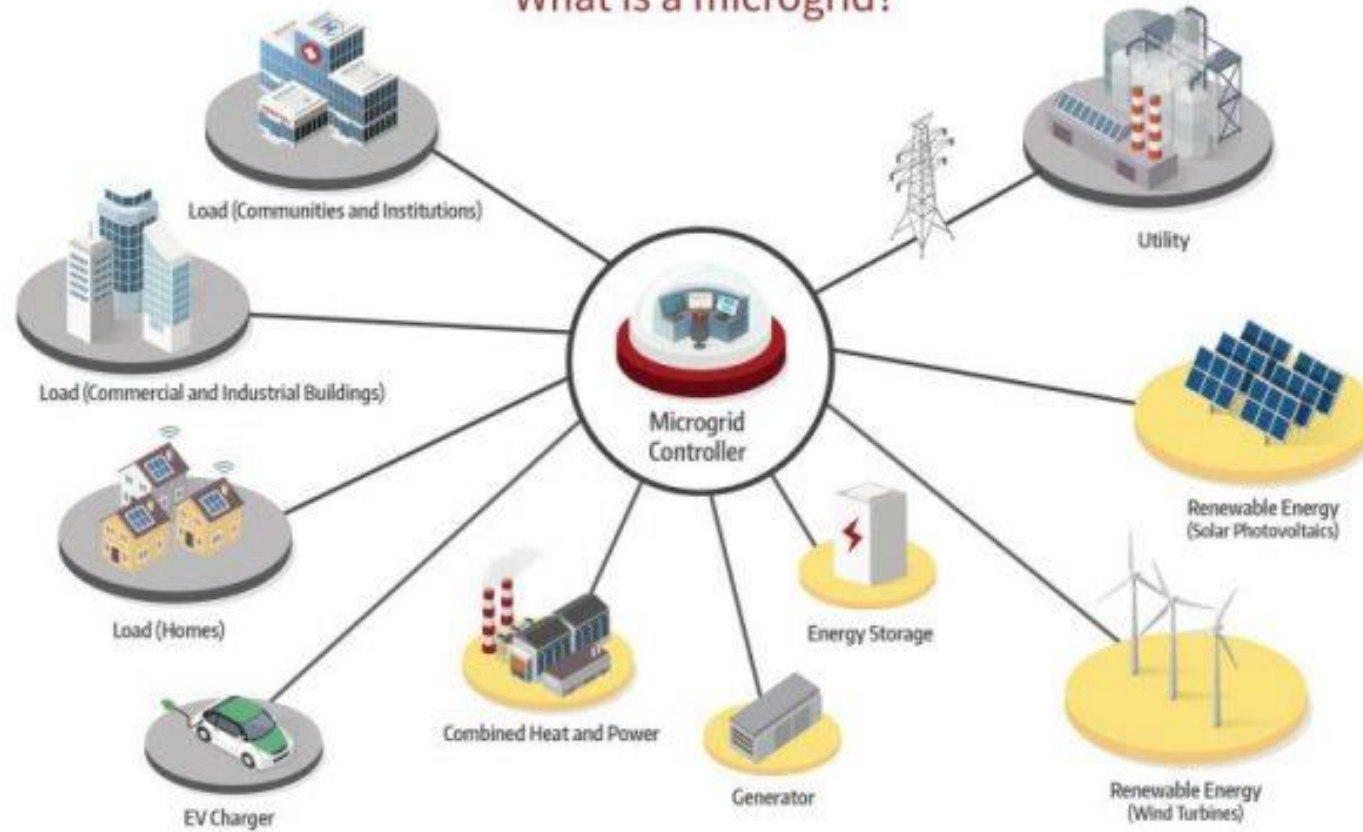
Retrieved from: <http://large.stanford.edu/courses/2015/ph240/burnett2/>

Microgrid at Brisbane Baylands



Microgrid 101

What is a microgrid?



Mission Blue Battery at Baylands

A large, utility scale BESS to be sited within the Baylands and will be connected to the local PG&E substation

- 250 MW / 1 GWh stationary BESS
- Interconnected at Martin Substation
- Energy discharged from the large-scale BESS may be considered as a contribution towards the site's net-zero energy plan



Resiliency & Microgrids

SB 1339, enacted in 2018, directs CPUC to develop policies related to microgrid development

