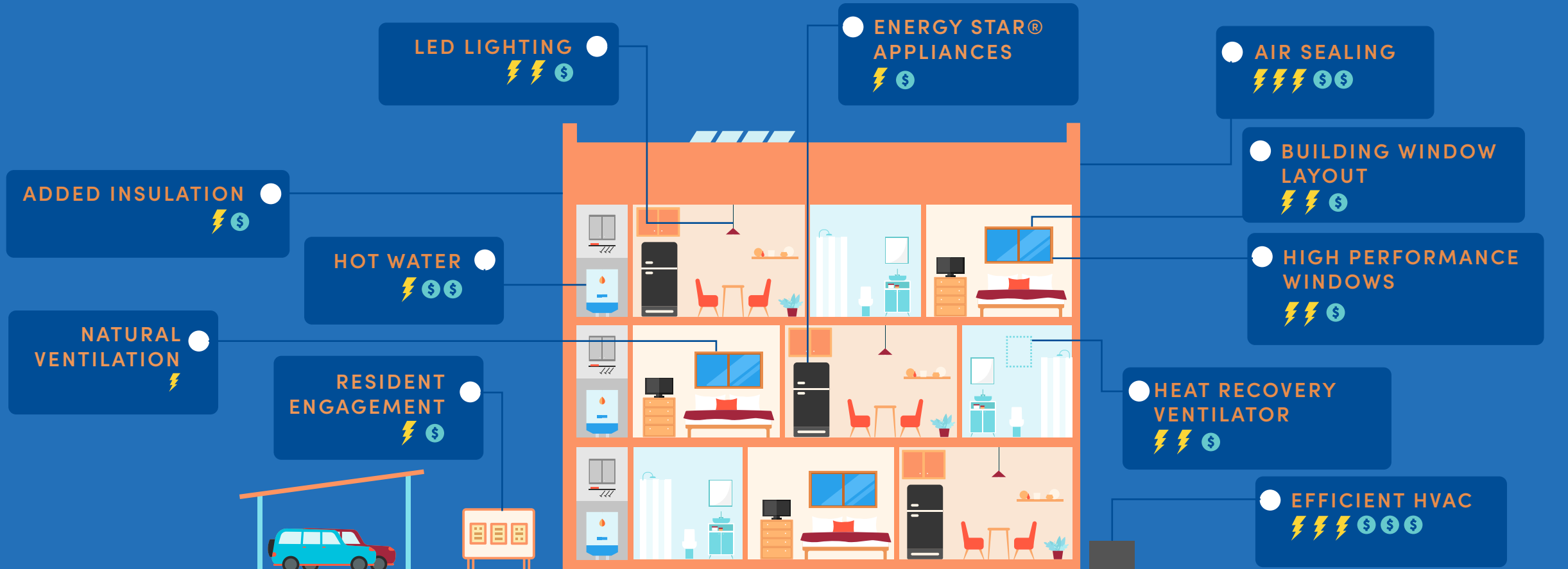
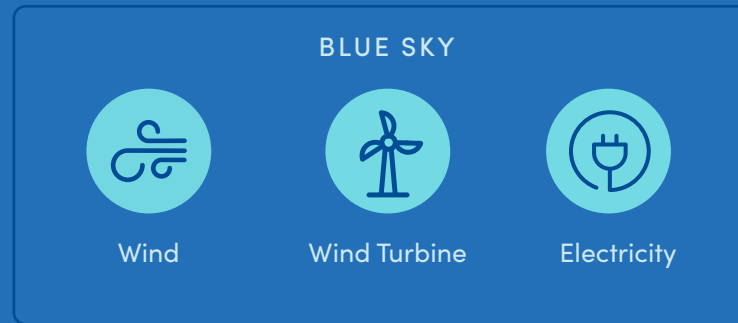
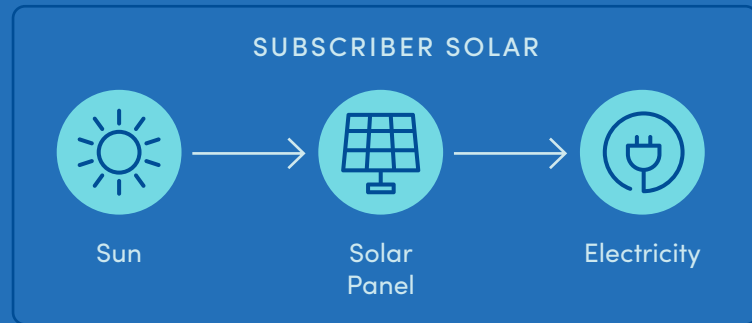


# Guide to Zero Net Energy

## MULTIFAMILY ALL-ELECTRIC



## What is Zero Net Energy (ZNE)?

According to the New Buildings Institute, “a zero energy (ZE) building is an extremely energy-efficient building that is designed and operated to produce as much energy as it consumes over the course of the year.” Effectively, what this means is the building combines high efficiency with renewable energy to meet its own annual energy consumption needs.

### How ZNE Works

Wherever possible, ZNE buildings use cost-effective measures to reduce the energy needs of the building. During construction, there are further cost savings because an all-electric building does not require natural gas lines. Once built, renewable energy systems produce enough energy to meet any remaining energy needs. ZNE buildings are performance based, not prescriptive, so a builder can be creative in how they achieve targets.

### ZNE Benefits

There are a number of advantages for ZNE buildings, such as lower environmental impacts, lower operating and maintenance costs, better resiliency to power outages and natural disasters and improved energy security. ZNE buildings have tremendous potential to transform the way buildings use energy.

### NEW BUILDING INSTITUTE:

[https://newbuildings.org/wp-content/uploads/2017/10/GtZ-ZEProjectGuide\\_NBI.pdf](https://newbuildings.org/wp-content/uploads/2017/10/GtZ-ZEProjectGuide_NBI.pdf)

### ZNE CERTIFICATIONS

- ENERGY STAR®
- International Living Future Institute
- LEED
- New Buildings Institute
- Passive House

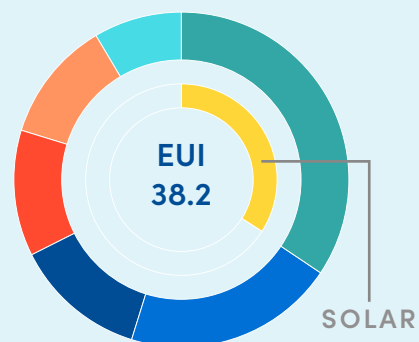
### SPONSORS:



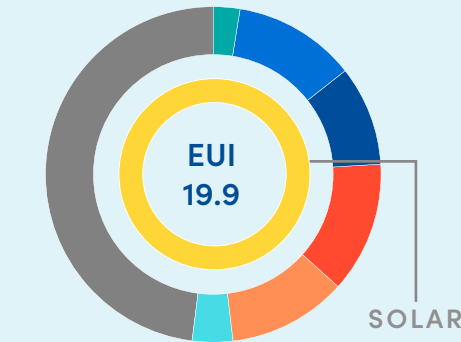
The baseline energy model shows the annual energy consumption and how much is covered by renewable energy in the inner ring, compared to the proposed energy model that shows how much less energy is consumed by the ZNE building.

- HEATING
- LIGHTS
- HOT WATER
- EQUIPMENT
- COOLING
- FANS
- ENERGY SAVED

### Baseline Energy Model



### Proposed Energy Model



### ELECTRICITY

Indicates the electricity savings over the baseline

### COST

Indicates the relative cost of the energy efficiency measures

### Steps to a ZNE Building

#### 1 SET PROJECT PRIORITIES

The team is formed and meets to review design and set priorities.

#### 2 DEFINE ZNE

The team defines how they plan on achieving zero net energy, through energy efficiency measures and on- or off-site renewable energy generation.

#### 3 SET EUI TARGET

The team sets the target Energy Use Intensity (EUI) as the performance goal. EUI refers to the energy use per square foot in the building.

#### 4 DESIGN THE PROJECT

The team carefully considers natural climate resources such as daylighting and building orientation, and building systems such as lighting and HVAC in the project design.

#### 5 TRACK PERFORMANCE

The operations and maintenance team tracks the building energy consumption over one year to verify performance.

#### 6 CERTIFICATION(S)

After one year of building operations, the team completes zero net energy certification.