Zero Net Energy, Solar & Butte County

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Summary:

GRID will be discussing the importance of renewable energy, climate change, and resiliency here in Butte County. We will look at:

- **Rebuilding with energy and equity at the heart of resiliency.**
- **Implications of the new 2019 Energy Code**
- **Benefits of Zero Net Energy for affordable housing and its impact on:**
  - Tenants in our community
  - The environment here in the North Valley

Our Objectives and Presenter

People. Planet. Employment.

Objectives

Building Common Understanding

- **GRID Alternatives mission and values**
- **Importance of Buildings and Electricity in Climate Change**
- **Impact of 2019 Energy Code Changes**
- **Zero Net Energy construction**
- **GRID Alternatives' Climate Action Solutions**
  - **Programs & Policy**
  - **Workforce Training**

Steve Geiger

- Training Officer and Technical Academy Manager at GRID Alternatives (served on Board of Directors)
- Professor and Chair of the Construction & Energy Technology Department at Sierra College
- Solar professor at Cosumnes River and American River Colleges
- BPI (Building Performance Institute) Building Analyst Professional certified energy efficiency auditor
- Construction Pre-Apprenticeship Instructor for the Dept. of Labor

Our Mission

To make renewable energy technology and job training accessible to underserved communities

Triple Bottom Line: People. Planet. Employment.

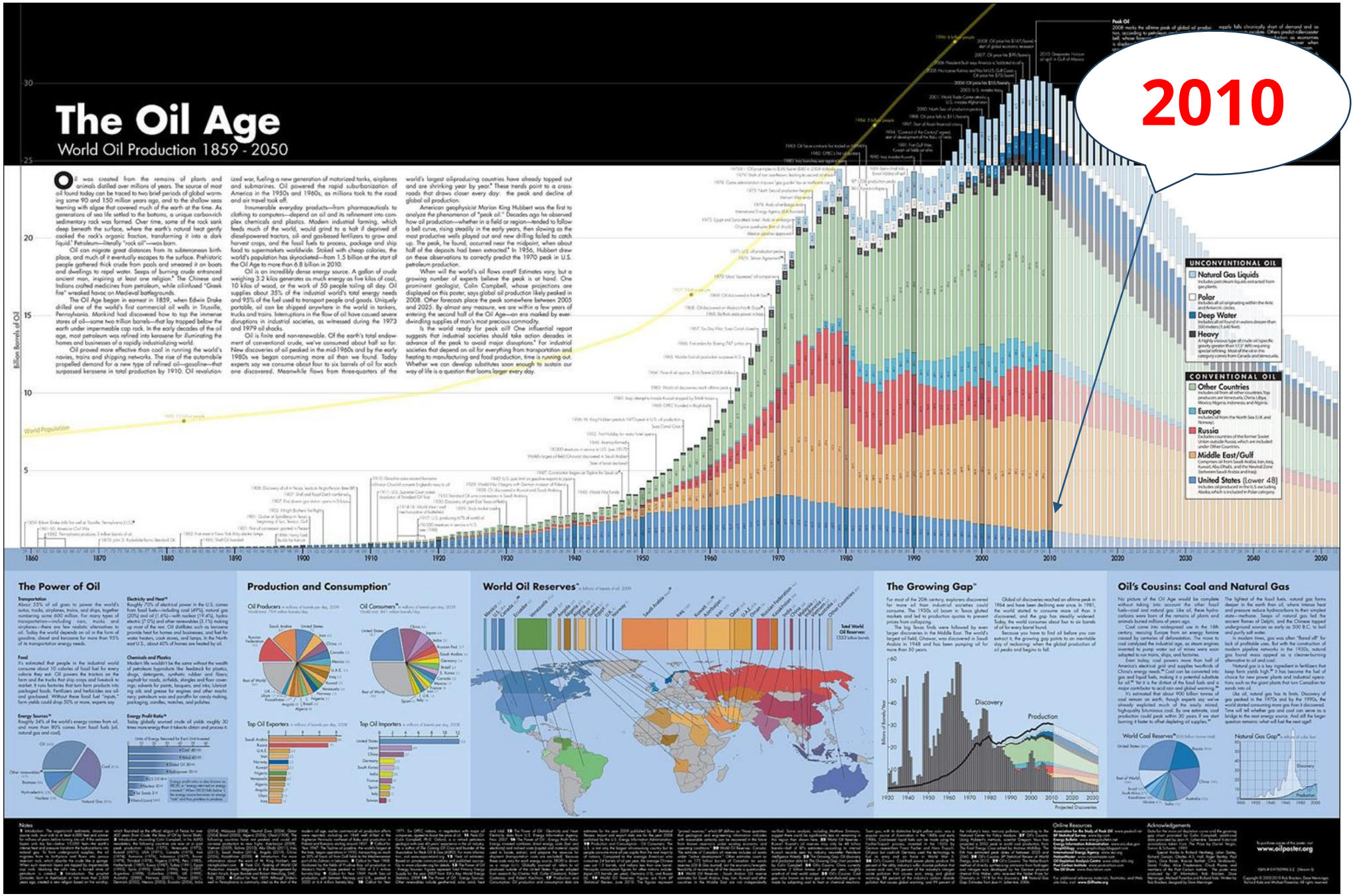
- Environmental benefits by preventing greenhouse gas emissions
- and building support for solar power as a mainstream solution for all our communities;
- Training and hands-on experience for local workers in a growing field of solar installation.
- Low-income communities are disproportionately impacted by pollution and climate change
- Low-income families spend 4x more of their income on energy
- Low-income families are being underserved by the growing solar industry
- 22 million single-family owner-occupied units, 6 million units of multifamily affordable housing

Climate Change

Impacts of Buildings and Energy

Climate Change?

Is this even a question anymore?

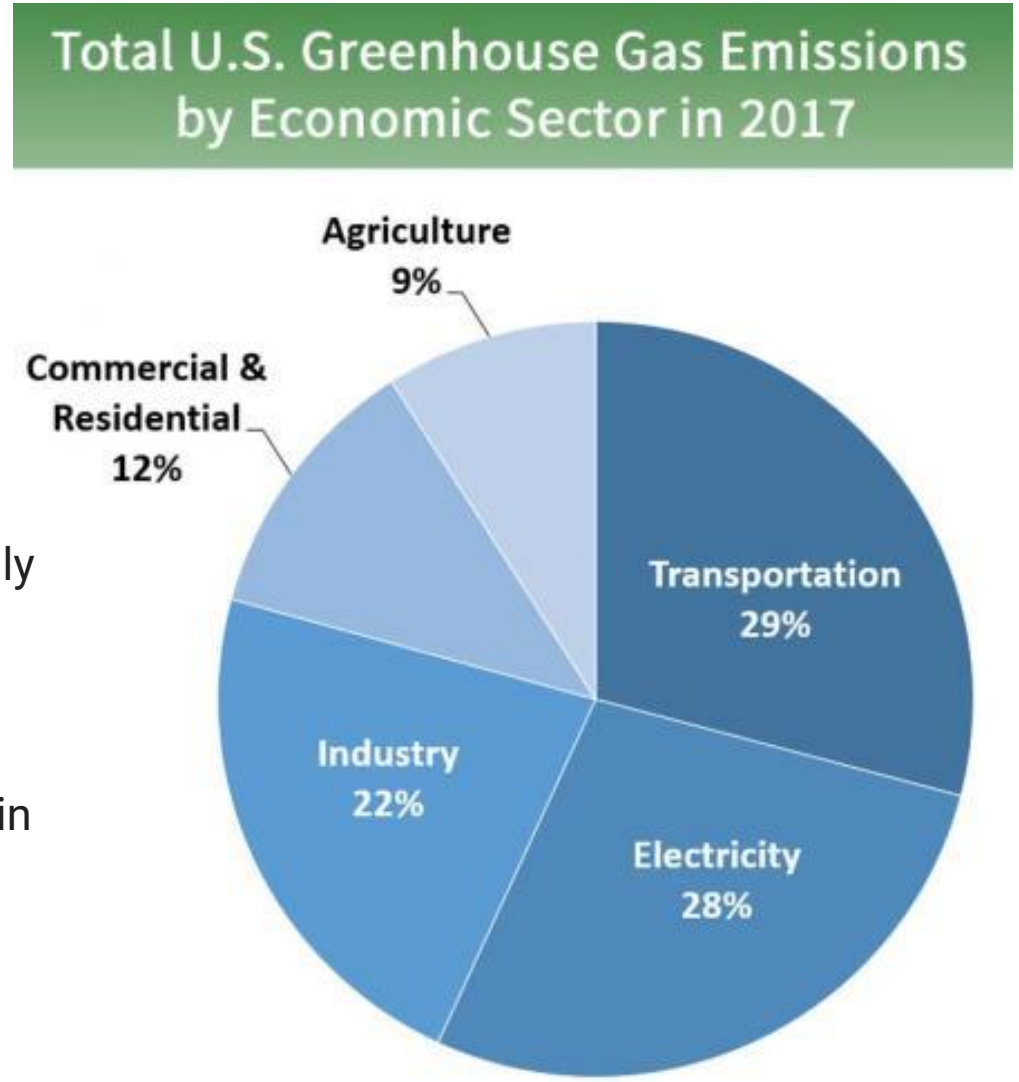


Importance of Buildings & Electricity in US Emissions

A significant increase in the rate of existing building energy efficiency renovations and the generation and procurement of renewable energy is required to meet emissions reduction targets set by the Paris Agreement.

- Electricity production (27.5 percent of 2017 greenhouse gas emissions) – Electricity production generates the second largest share of greenhouse gas emissions. Approximately 62.9 percent of our electricity comes from burning fossil fuels, mostly coal and natural gas.3

- Commercial and Residential (11.6 percent of 2017 greenhouse gas emissions) – Greenhouse gas emissions from businesses and homes arise primarily from fossil fuels burned for heat, the use of certain products that contain greenhouse gases, and the handling of waste.



https://architecture2030.org/buildings_problem_why/

2019 Energy Code

People. Planet. Employment.

Title 24 - CA Building Standard

2019 Energy Code is designed to reduce home energy use

- 7% through energy efficiency
- 53% with solar PV

The impact is the estimated reduction of GHG by 700,000 metric tons over three years, equivalent to taking 115,000 fossil fuel cars off the road.

Nonresidential buildings will use about 30 percent less energy due mainly to lighting upgrades.

On average, the standards will increase the cost of constructing a new home by about $9,500 but will save $19,000 in energy and maintenance costs over 30 years.

Long Term Savings

Based on a 30-year mortgage, the Energy Commission estimates that the standards will add about $40 per month for the average home, but save consumers $80 per month on heating, cooling and lighting bills.

New Minimum Solar Standards

- All residential mid rise buildings must have solar
- Some exceptions
  - Insufficient space
  - Shading/orientation
- Can satisfy requirement through community solar

Other 2019 Code Highlights:

- Standards encourage demand responsive technologies including ***battery storage*** and ***heat pump water heaters,*** and electric appliances

- Improving the building's thermal envelope through high performance attics, walls and windows

- In nonresidential buildings, the standards update indoor and outdoor lighting making maximum use of LED technology.

- Highly efficient air filters to trap hazardous particulates from both outdoor and indoor air.

For more information:
https://www.energy.ca.gov/

Zero Net Energy construction

What is ZNE?

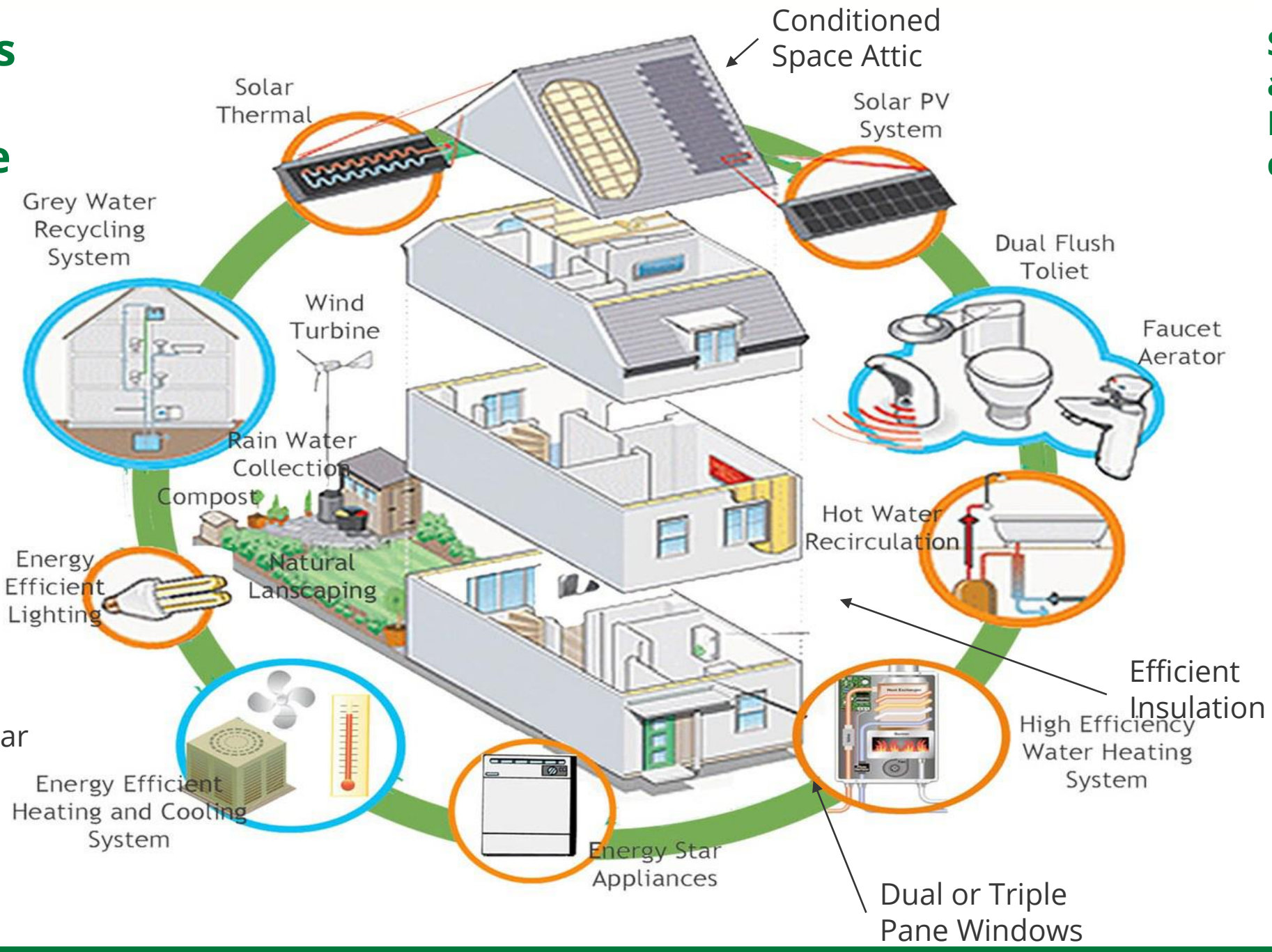
A building with Zero Net Energy consumption means the total amount of energy used by the building on an annual basis is roughly equal to the amount of renewable energy created on the site.

New definition: the net amount of energy produced by on-site renewable energy resources is equal to electricity consumed annually by the building.

- Still draws energy from the grid, but produces less greenhouse gases, reducing overall carbon footprint.

- Buildings producing a surplus of energy over the year may be called "energy-plus buildings"

Options to achieve ZNE



Microgrid – "Island" Distributed Generation Power Sources

Passive Solar Design

Solar is a key aspect of Zero Net Energy construction!

GRID & Butte County

Key Programs and Initiatives:

- Low Income Solar
- Workforce Development

DAC-SASH:

Disadvantaged Community- Single Family Affordable Solar Housing Program

DAC-SASH:

$120M available for single-family low-income solar from 2019-2030

$10M per year

low-income owner-occupants in a CalEnviroScreen-designated disadvantaged community.

$0.85/Wh EB Eligibility:

Customers qualify if they live in any shaded area on map ----->

- All DACs and Tribal Communities
- Top 5% of Pollution Burden on CES
- 80% or below of statewide median income
- AB 693 deed-restricted and 80% of tenants are below 60% AMI
- PUC 2852 definitions of low-income households and low-income communities

SGIP eligibility is waived if customers qualify for:

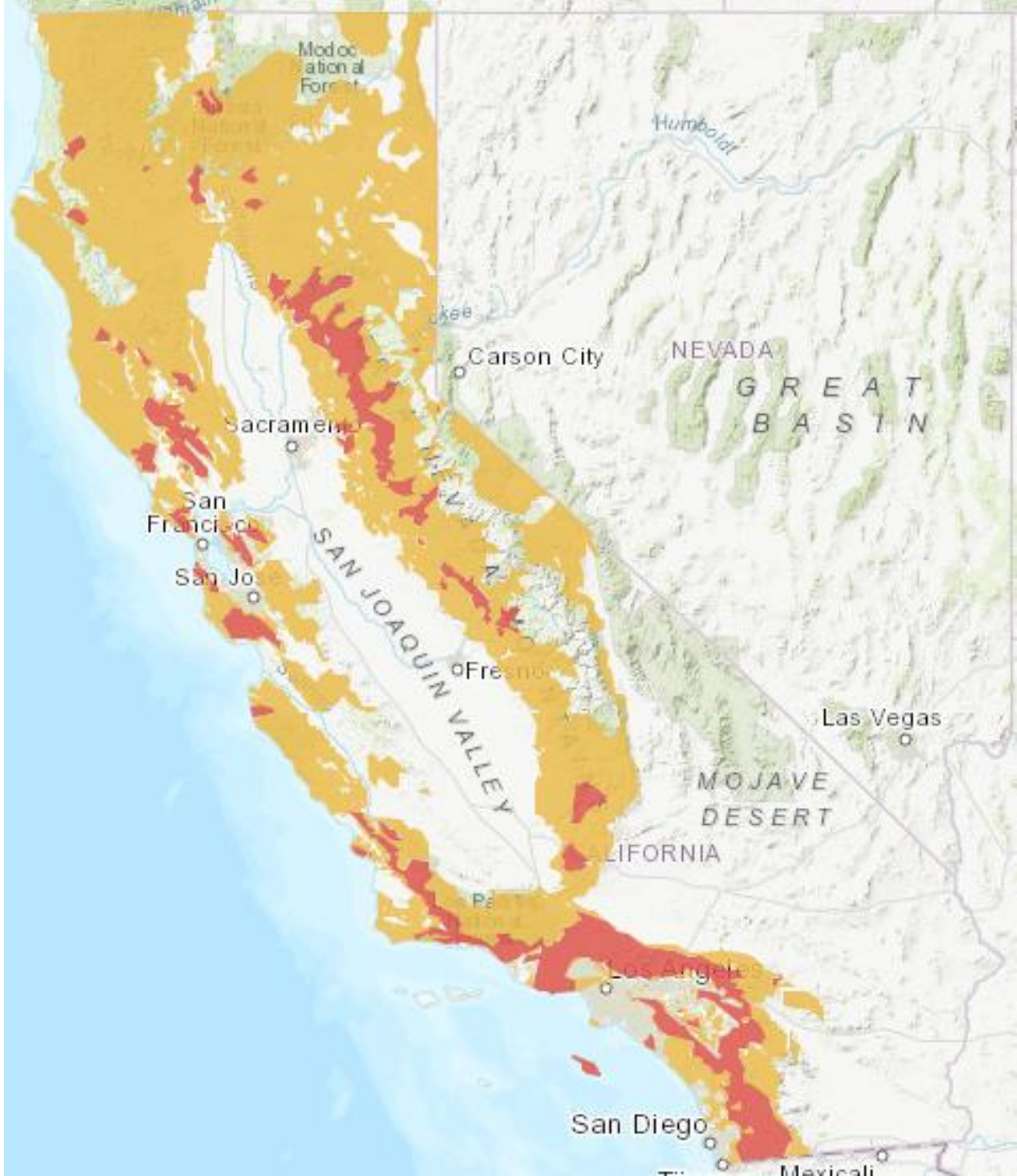
SASH, DAC-SASH, MASH, or SOMAH

$1.00/Wh ERB Eligibility:

Any shaded area on map, and;

a. EB eligible, or
b. SASH/DAC-SASH eligible*, or
c. Medical Baseline, or
d. Customer notified utility of serious medical condition requiring electricity

These customers are called “critical resiliency needs customers”



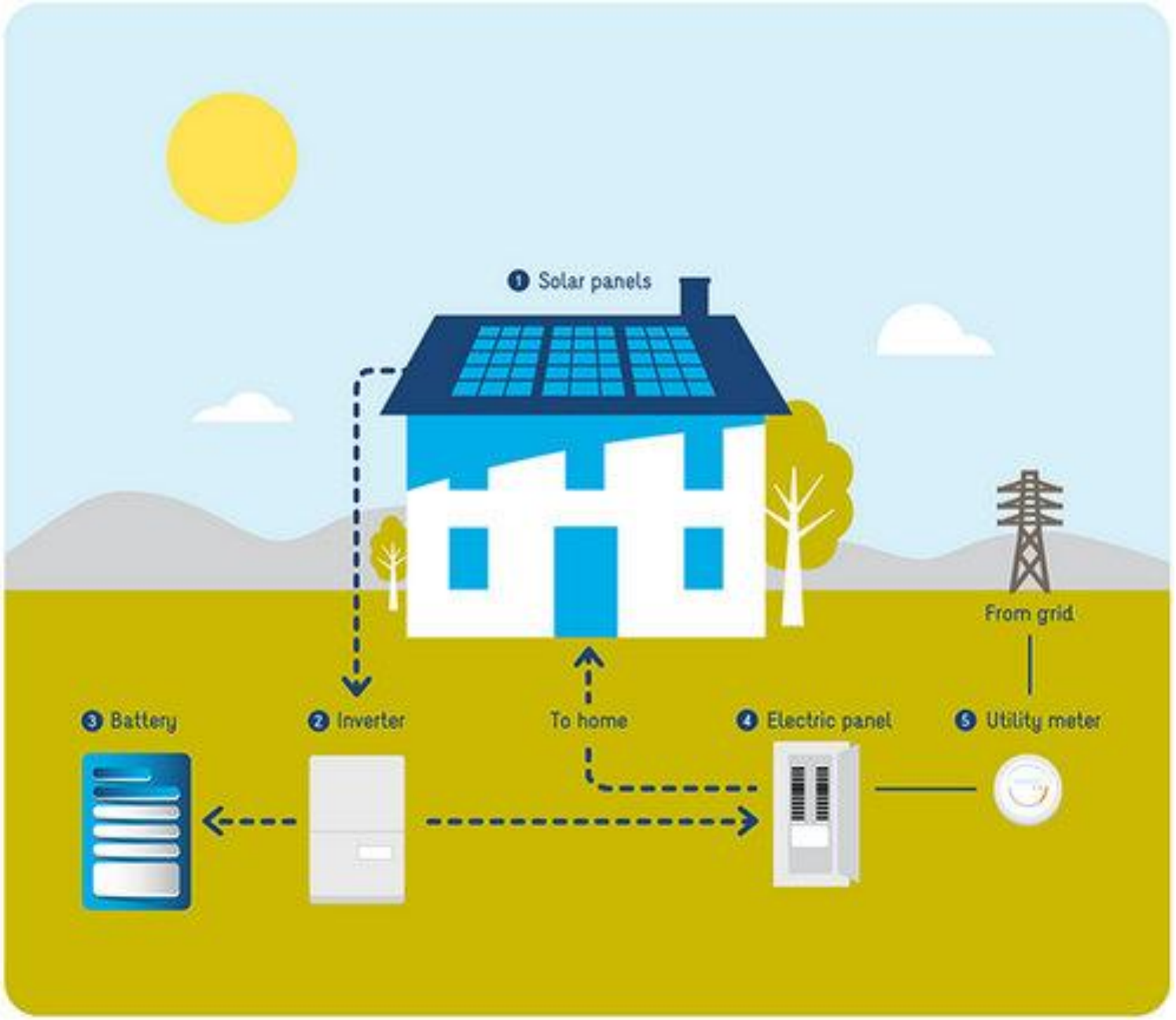
SOMAH

- SOMAH incentivize developers of multifamily affordable housing to install solar in order to decrease the utility burden of their renters by at least 51%.
- The remaining offset can be used for their common spaces
- Tenants must be 60% below area median income
- Funding for workforce training
- Overall, the solar will benefit a wider population.

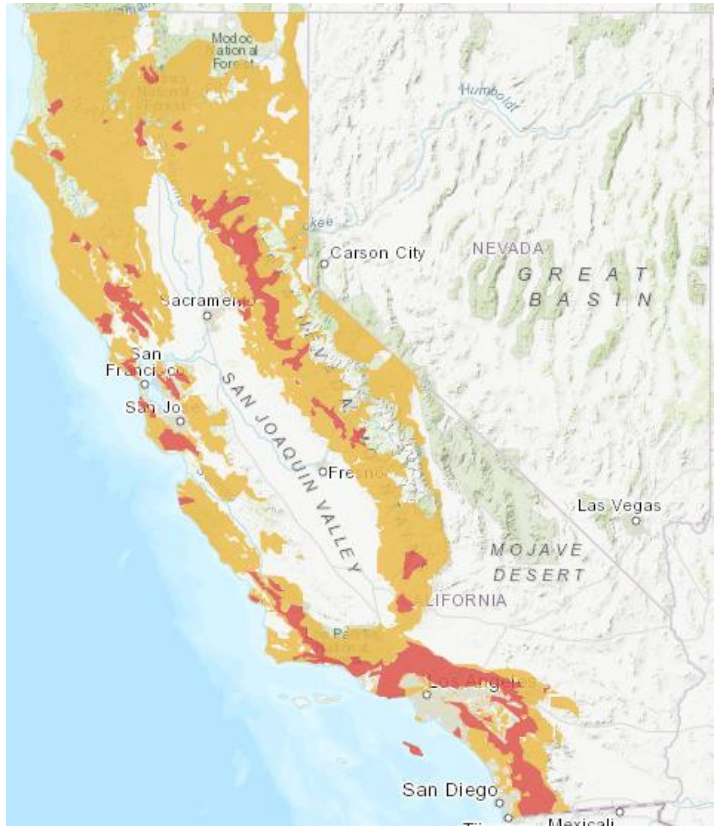
A State incentive through Greenhouse Gas Auction proceeds and provides up to $100 million annually over the 20 years

Storage

- If power outage, Solar will turn off.
- Adding storage can keep the lights on.
- Storage systems include extra components such as batteries and charge controllers.



SGIP:
Self-Generation Incentive Program



Equity Program:*

$100M proposed

Expected to be available Jan. 2020

Set-aside aimed at low-income, medically compromised or otherwise disadvantaged residents

<- Higher incentives for vulnerable households, critical service facilities and low income solar program customers in high-fire threat districts

*The market-rate residential program budget has been fully exhausted for the current cycle.

Workforce

IBT 200
SOLAR INSTALLATION BASICS TRAINING

- IBT-200 (Installation Basics Training 200 Hours)
- Classroom instruction
- Nearly 30 hands on labs
- 2 weeks of live installation work
- OSHA 10, CPR
- Soft skills training
- Employment readiness and placement assistance
- Skills for living wage careers

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Thank you!

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Get Involved.

gridalternatives.org