

A close-up, low-angle shot of a person's feet in dark brown hiking boots with red laces and soles, walking on a rocky trail. The ground is covered with dry, golden-brown grass and small grey rocks. The background shows a blurred, hilly landscape under a bright sky.

Reducing Your Carbon Footprint

Greater Niles Village

Sustainability

Sustainability is most often defined as meeting the needs of the present without compromising the ability of future generations to meet theirs. It has three main pillars: **economic, environmental, and social**. These three pillars are informally referred to as people, planet and profits

What's a carbon footprint

A carbon footprint is the total amount of greenhouse gases (including carbon dioxide and methane) that are generated by our actions. Source *The Nature Conservancy*

Why Are Greenhouse Gasses Important

Greenhouse gasses, such as carbon dioxide and methane, trap heat in the atmosphere.

They then release that heat back down to Earth.

This environmental process is necessary for our survival, for Earth would be too cold to live on without it.

However, in recent centuries, we have been emitting *excessive* amounts of carbon dioxide, and other GHGs, into the atmosphere.

This huge influx of greenhouse gases is causing climate change.

Source | UF | IFAS University of Florida

How to calculate your carbon footprint

- [The Nature Conservancy](#)
- Environmental Protection Agency [EPA Carbon Footprint Calculator](#)
- UF | IFAS University of Florida [Ecological Footprint Quiz](#) downloads a pdf.

What's a Carbon Footprint

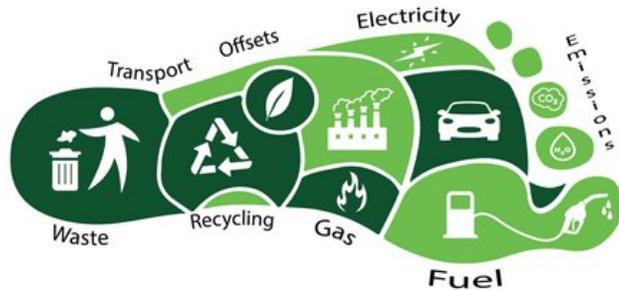
Eco Matcher

Direct Emissions or Primary Footprint

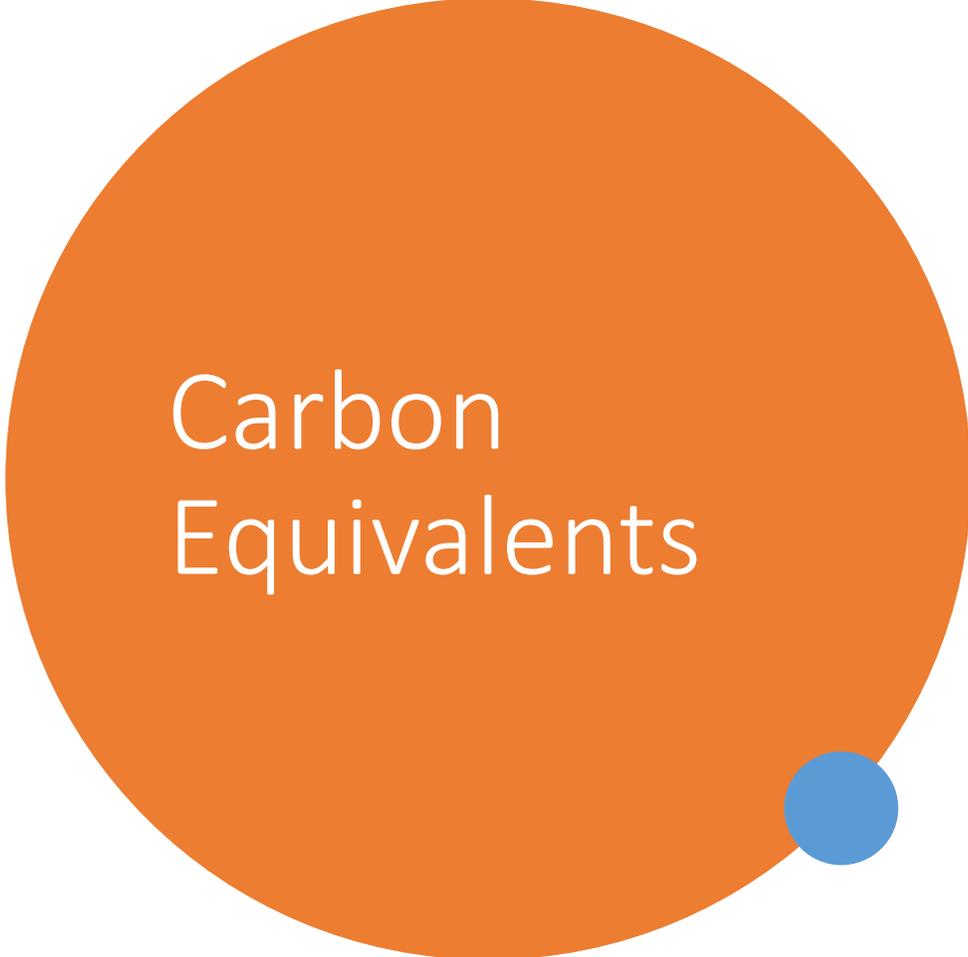
- This category of carbon footprint results from activities that lead to the emission of Carbon Dioxide and other supplemental greenhouse gases, through direct combustion of fossil fuels.
- For example, CO2 emissions from driving a car, flying an airplane, or even using electronic devices fall under this category.

Indirect Emissions or Secondary Footprint

- This category of carbon footprint is used to denote emissions that are a consequence of an indirect relation with certain activities pertaining to human consumption, such as purchasing an internationally manufactured T-shirt.

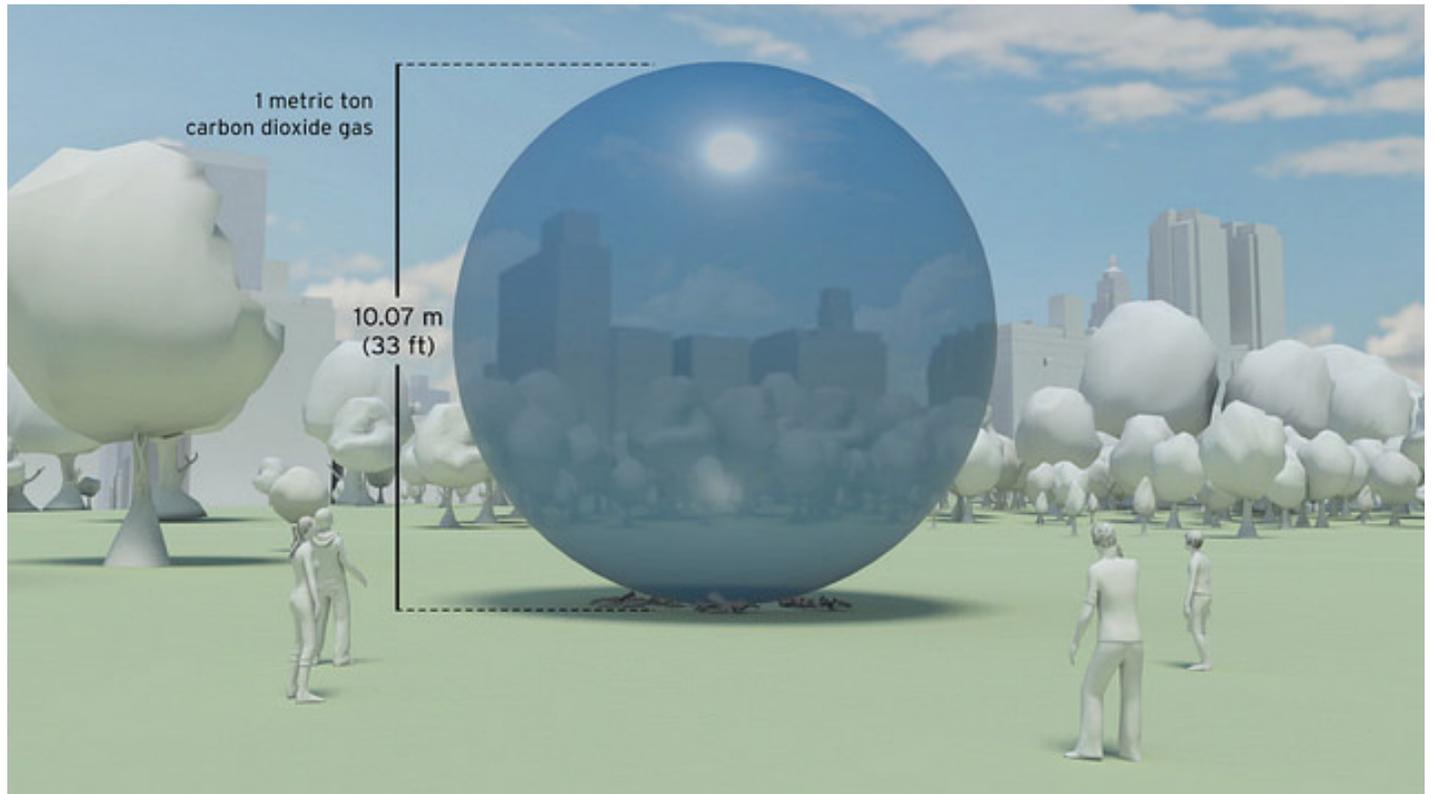


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- Departure SFO - San Francisco International Airport (San Francisco, United States)
 - Arrival ATH - Eleftherios Venizelos International Airport (Athens, Greece)
 - Distance (each way): **6,800 miles or 10,944 km**
 - Round-trip emissions per passenger: **4 metric tons CO2 equivalent**
 - Avoiding this trip is as climate friendly as being vegetarian for: **7.3 years**
 - Avoiding this trip is as climate friendly as carpooling for: **3.9 years**
 - This many people in the world emit fewer greenhouse gases in one year: **3.5 billion**
 - These emissions melt this much Arctic sea ice: **127.6 square feet or 11.9 square meters**
 - Cost to purchase [Carbon Offsets](#) **\$106 / person round trip**



Carbon
Equivalents

1 metric ton
or 2204
pounds



Greta Thunberg

- Greta Thunberg is a Swedish environmental activist who is known for challenging world leaders to take immediate action for climate change mitigation.[Wikipedia](#)
- “Hope doesn't come from words. Hope only comes from actions.”
— Greta Thunberg





How To Reduce Your Carbon Use

- Turn off Electrical Appliances when not in use
- Replace incandescent lights with LED's
- Upgrade old electrical appliances to Energy Star Appliances
 - the [old refrigerator](#) in the garage
 - Replace / convert electrical cook tops to Induction cooking
- Convert / replace gas appliances to electrical appliances
 - Gas water tank to heat pump water heater
 - Gas furnace to heat pump furnace
- Don't waste gas energy
 - Use setback thermometer on furnace

How To Reduce Your Carbon Use

- Programs to Consider
 - [East Bay Community Energy](#)
 - [City of Fremont's Green Challenge](#)
 - [BAYREN](#)
 - [SunShares 2021 Program](#)



How To Reduce Your Carbon Use

East Bay Community Energy

- In 2018, the County of Alameda and 11 of its cities launched EBCE as a not-for-profit public agency that governs this Community Choice Energy service.
- East Bay Community Energy (EBCE) exists to provide more renewable energy at competitive rates to their customers.
- EBCE supply electricity to all accounts (residential, business, and municipal) and PG&E delivers it to you.
- Check out the [Resilient Home Program](#)

City of Fremont Green Challenge

How To Reduce Your Carbon Use

- The Fremont Green Challenge platform offers Fremont residents all the information they need to get started on saving resources and money, all while reducing their impact on climate change.
- Being green at school, at work, and at home doesn't have to be difficult; there are many ways to protect the planet and still enjoy the modern conveniences of daily life.
- Get started by signing up today at www.FremontGreenChallenge.org! Together, we can make Fremont a clean, vibrant, and healthy community for generations to come!

How To Reduce Your Carbon Use

The Bay Area Regional Energy Network BAYREN

Is a collaboration of the nine counties that make up the San Francisco Bay Area.

It provides regional-scale energy efficiency programs, services, and resources.

BayREN is funded by utility ratepayer funds through the California Public Utilities Commission, as well as other sources

It is Portal to finding great state and federal rebates on energy efficient appliances, services, and resources.

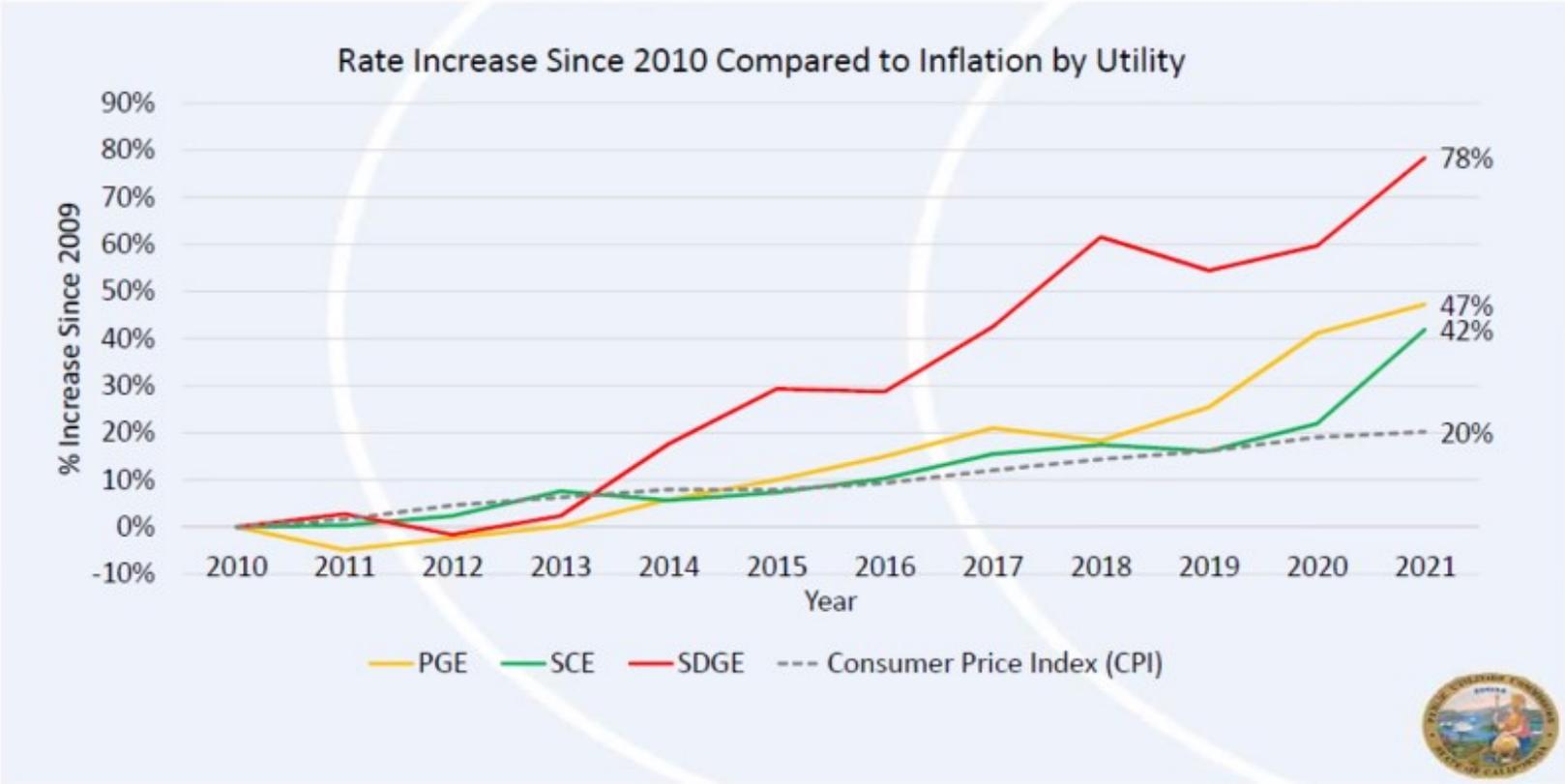
How To Reduce Your Carbon Use

SunShares Program

- SunShares pools the buying power of all 9 Bay Area counties to negotiate significant discounts on solar + storage.
- In addition to significant discounts, SunShares provide educational resources and events to make it easier to understand your clean energy options and decide what's best for you.
- For a limited time, each year (**Sept. 1 - Nov. 30**), SunShares offer significant discounts on solar + storage from vetted installers that serve the entire Bay Area.
- There is no obligation to buy anything.

Montecito History

SCE Rates Are Increasing



Montecito History

PG&E Rates for Tier plan

	2007 kWh	2017 kWh	% increase
Tier 1	11¢	18¢	65%
Tier 2	13¢	24¢	87%
Tier 3	23¢	40¢	75%

Montecito History

PG&E Rates for Time of Use plan

Summer	2013 rates kWh	2021 kWh
Peak	\$0.1238	\$0.26927
Partial Peak	\$0.705	\$0.12977
Off Peak	\$0.0412	\$0.06521
Renewable 100	na	\$0.01

EV-A Rate Schedule		
Peak	4 pm to 9 pm	
Partial Peak	7 am to 4 pm 9 pm to 11 pm	
Off Peak	11 pm to 7 am	

Montecito History

2010 – 2011 PG&E electric \$1443*

2018 – 2019 True Up -\$116.25**

2019 – 2020 True Up -\$92.78**

2020 – 2021 True Up -\$78.96**

*Pre Solar days. On Tier plan

** does not reflect \$10/ monthly fee called the Non-Bypassable Charges”.

Montecito History

- Electric Vehicle Cost

- Gas [\\$3.50 / gal](#) , and Prius v 40 mpg and Lifetime is ownership of vehicle
 - Toyota Rav4 ev 37,943 mi gas | (\$3320)
 - Kia Soul ev 18,509 mi | (\$1619)
 - Tesla Model 3 17,935 mi | (\$1568)
 - No [maintenance costs](#) were used. Prius v . Suggest \$458 / yr.
 - Maintenance costs for 2 ev's \$0.0 | Tesla \$117

Montecito History

Cost without Solar

- 8 yr of PG&E at \$1443/ year (2010 rates) = \$11,544
 - savings in gas \$6507 *
 - Total Expenses (2010 rate) w/o solar = \$18,051
- *Adjusting PG&E for 20% rate increase since 2013 | \$13,852*
 - *Total Expenses w/o solar (20% rates) \$20,359*
- **\$23,607 (Investment) - \$20,359* (savings) = \$3248 bal.**
 - **Expect ROI 6.0% in 12 years.**
 - Missing savings in maintenance ~ \$4500



Yesterday

- 3.7 kWh cost **\$13,759*** or \$3.71 /w (2013)

* After rebate 30% FIC

Today

- 3.7 kWh cost ~ \$11,100** or \$3 /w (2021)

** Before rebate 26% FIC or \$2886 or

\$8,214

Montecito Future

28 Panel 6.1kW NEM-PAIRED STORAGE ACCOUNT
Tesla Battery Monitoring App
Tesla Batteries (2) 13.5 kWh
Swimming Pool Solar Heater Panels (7)
Variable Speed Pool Pump
Gas Water Tank => heat pump replacement*
Electric Washer
Gas Dryer => electric replacement*
Electric Cook Top and Range => induction cook top*
Gas Furnace* / Electric AC both high efficiency 96%
Microwave
All Lighting LED or CFL's
Spa, high efficiency electric



KNBR Frank Dill
and the water
drought in the
70's

- 1 gal per day x 360 days x 40 years =
- 14,440 gals

Next Steps

- Make sure you are subscribing to East Bay Community Energy
- Sign up for the City of Fremont's Green Challenge
- Check out the BAYREN site for Green Rebates
- Think about an investment in solar for your home
 - Increases the value of your property; county assessment immune.
 - Give you opportunity to control your energy costs
 - If new roof needed, some roof costs can be included in the solar install
 - 26% Federal Investment Tax Credit for solar; California rebates on high efficiency appliances and insulation and battery storage,
- If your average monthly electric bill is over \$150 look into Solar

AND

My Best Reason to Invest in Solar

The best investment is in our
children's and grandchildren's
future.

Underwrite your kid's investment
in Solar.

