

**RESILIENT
CENTRAL
COAST**

**EVERYDAY
OPPORTUNITIES
FOR LOCAL
CLIMATE ACTION**

Home Electrification Workshop

January 2024



Agenda

6:30-6:40pm: Introductions & Home Electrification Overview

6:40-7:10: Guest speakers from QuitCarbon and G2e Home Energy Advisors LLC

7:10-7:30: Learn how to stack incentives with our guest speaker from 3C-REN

7:30-7:45: QA with all presenters



Resilient Central Coast

- 6-county collaborative effort from Santa Cruz to Ventura
- Utilizing the nationally recognized BrightAction platform customized for each County: resilientcentralcoast.org
- 100 household actions, Eng/Sp
- Local, state and federal rebates and incentives (including those discussed tonight!)
- National FEMA disaster response actions & emergency preparedness trainings/resources
- Immediate feedback about savings while connecting with others



Benefits

Once you electrify:

- Your home will be more comfortable
- Your indoor and outdoor air quality will be healthier
- Your monthly bills will be lower



Homeowners & Renters

While some incentives are geared towards homeowners, there are still lots of ways for renters to go electric:

- Buy a new or used EV
- Get a portable induction cooktop
- Cut your energy bill with community solar
- Talk with your landlord about upgrades
- Check out rewiringamerica.org for their new Renter and Homeowner Guides





Home Energy Advisors

Helping People Electrify Their Lives

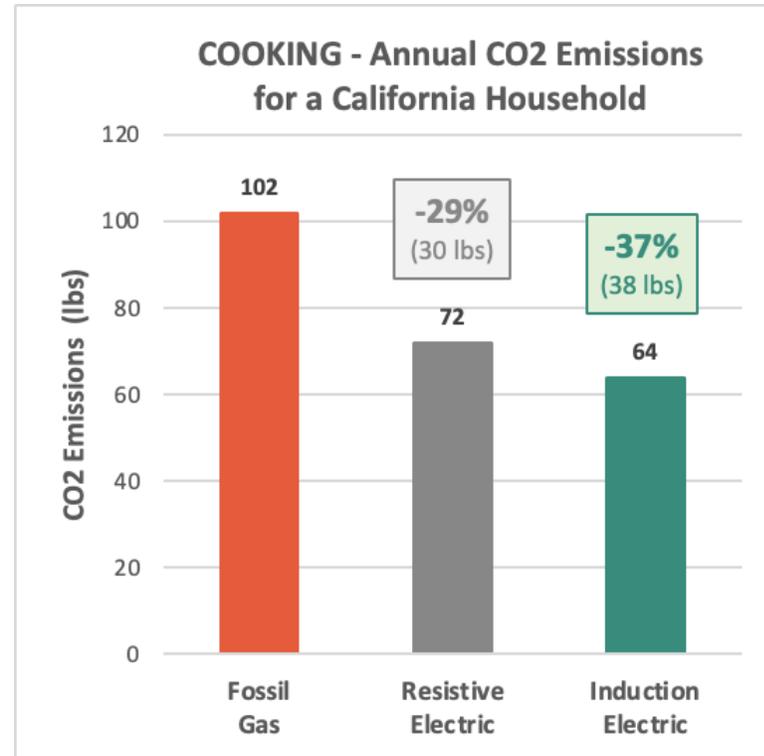
Living Electric: Six Ways to Reduce Your Carbon Footprint

Mark Woods

January 23, 2024



Use Induction for Cooking

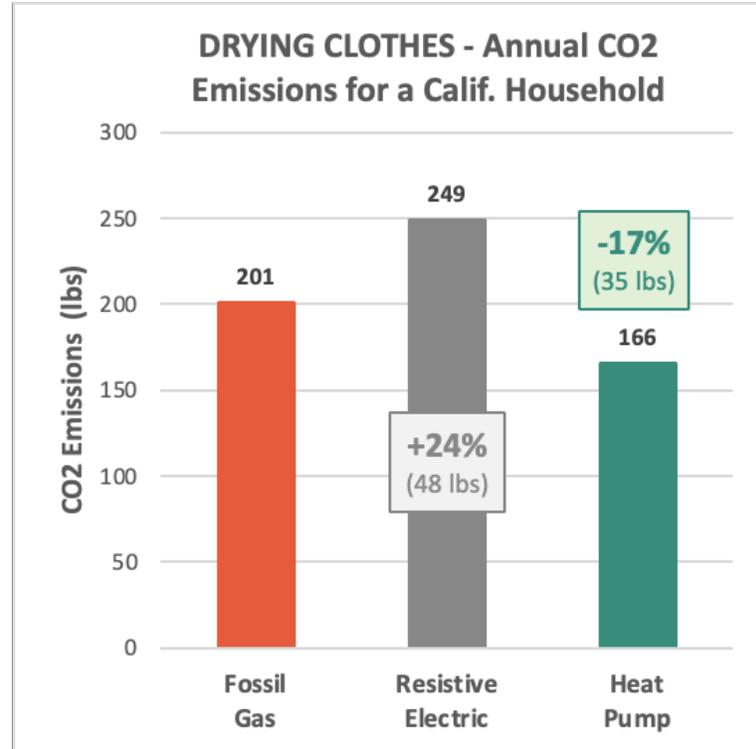


Notes: Calculations assume (1) use of two “burners” for 15 minutes at medium heat to cook an evening meal 300 days per year in a California kitchen. (2) Efficiency of heat transfer to the cooking pan is 40% for gas, 75% for resistive electric, and 85% for induction electric “burners”. (3) EPA estimated CO2 per kWh electricity for the overall fuel mix used to generate electricity in California.

G2e Advice

- Induction cooking reduces CO2 emissions by a small amount
- Safer than gas or resistive electric cooktops
- Healthier indoor air
- Superior way of cooking:
 - fast and precise
 - no venting required
- Countertop models available for less than \$100
- Warning: Can cause pacemakers to malfunction (stay 2 feet away)

Get a Heat Pump Clothes Dryer

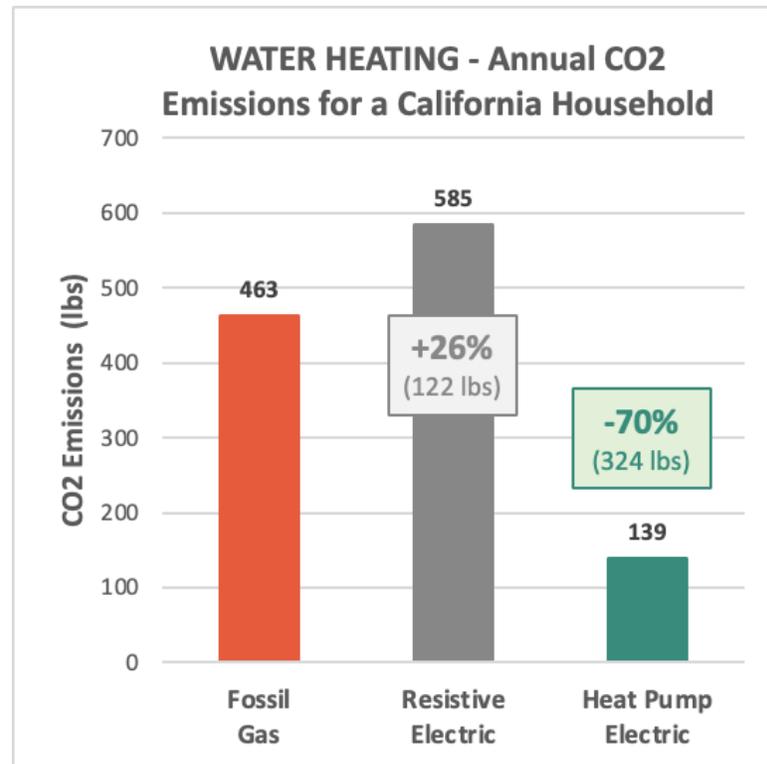
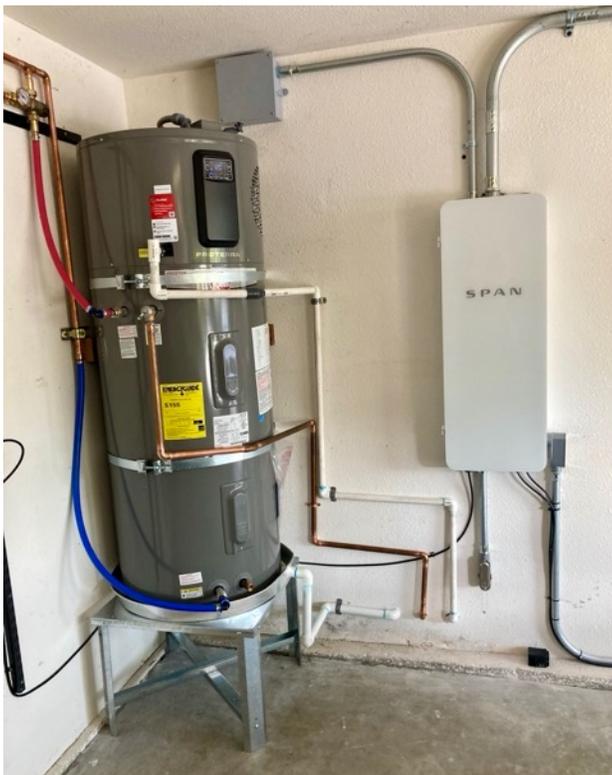


Notes: Calculations assume (1) Five loads of clothes per week with 3 lbs. water to remove from each load. (2) Estimates for energy needed to remove 1 lb. water from National Resources Defense Council (NRDC) study. (3) EPA estimated CO2 per kWh electricity for the overall fuel mix used to generate electricity in California.

G2e Advice

- Heat pump clothes dryers reduce CO2 emissions by a small amount
- Resistive electric dryers can be worse than gas when low efficiency does not offset CO2 emissions of grid electricity
- Easy transition from resistive electric to heat pump dryer with existing 240V receptacle

Replace Your Water Heater with a Heat Pump Model

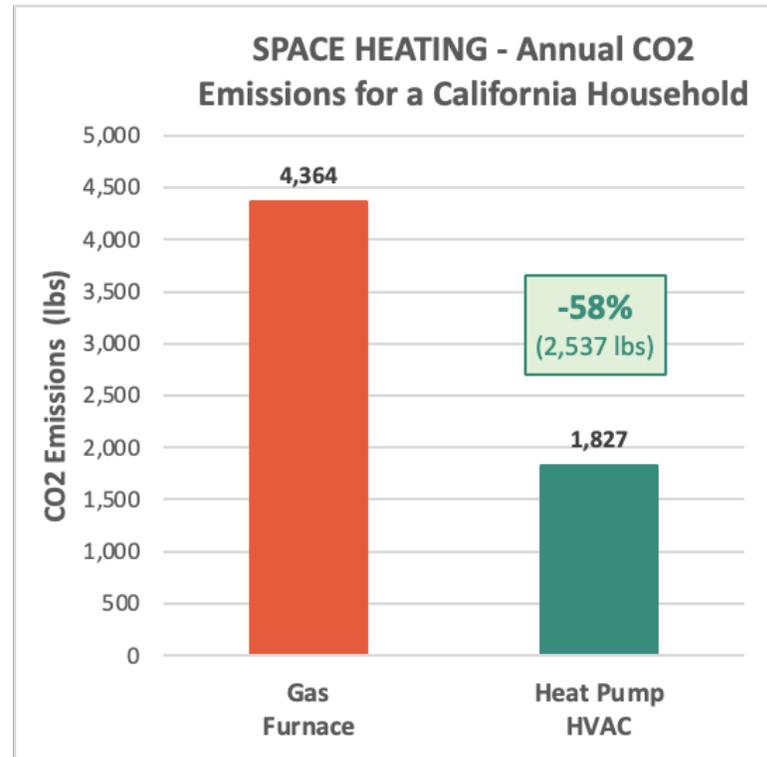


Notes: Calculations assume (1) 80 gallons hot water consumed per day per household. (2) Highest efficiency water heaters of each type: 90% for gas, 95% for resistive electric and 400% for heat pump electric. (3) EPA estimated CO2 per kWh electricity for overall fuel mix used to generate electricity in CA.

G2e Advice

- Heat pump water heaters reduce CO2 emissions by a substantial amount
- 120V models available for an easy transition but can be slow to heat water
- Resistive electric models can be worse than gas when low efficiency does not offset CO2 emissions of grid electricity
- Easy transition from resistive electric to heat pump model with existing 240V receptacle

Replace Your Gas Furnace with a Heat Pump HVAC System

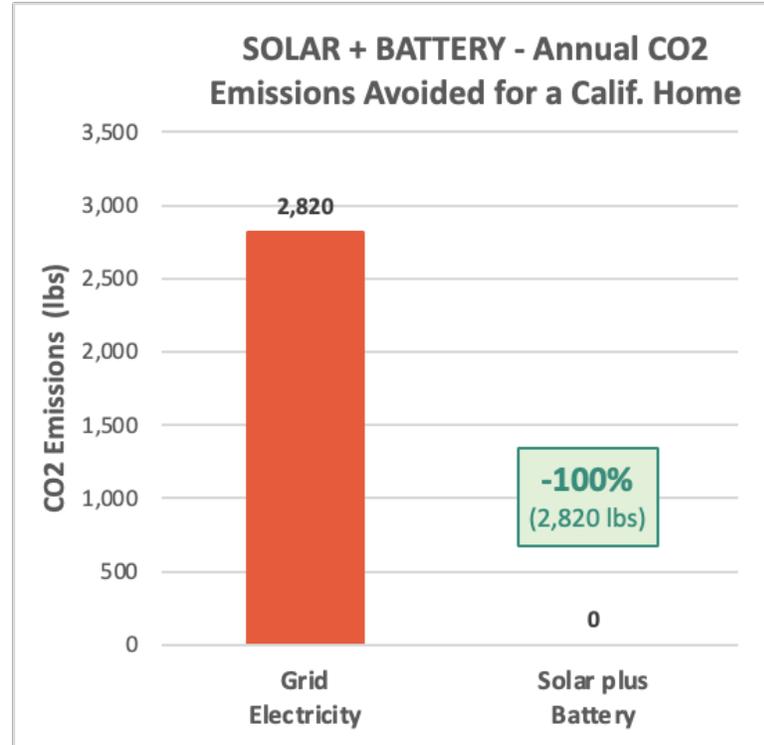


Notes: Calculations assume (1) 1,850 sq. ft. home using 375 therms of gas for heating annually. (2) High efficiency gas furnace (97%) and heat pump (308%). (3) EPA estimated CO2 per kWh electricity for the overall fuel mix used to generate electricity in California.

G2e Advice

- Heat pump HVAC reduces CO2 emissions by a large amount
- Bonus: air conditioning
- Easy to create comfort zones with different temperatures
- Not many HVAC contractors are properly trained to do more than a simple installation
- Oversizing a heat pump HVAC system can cause problems in comfort and equipment life

Invest in Solar Panels + Battery

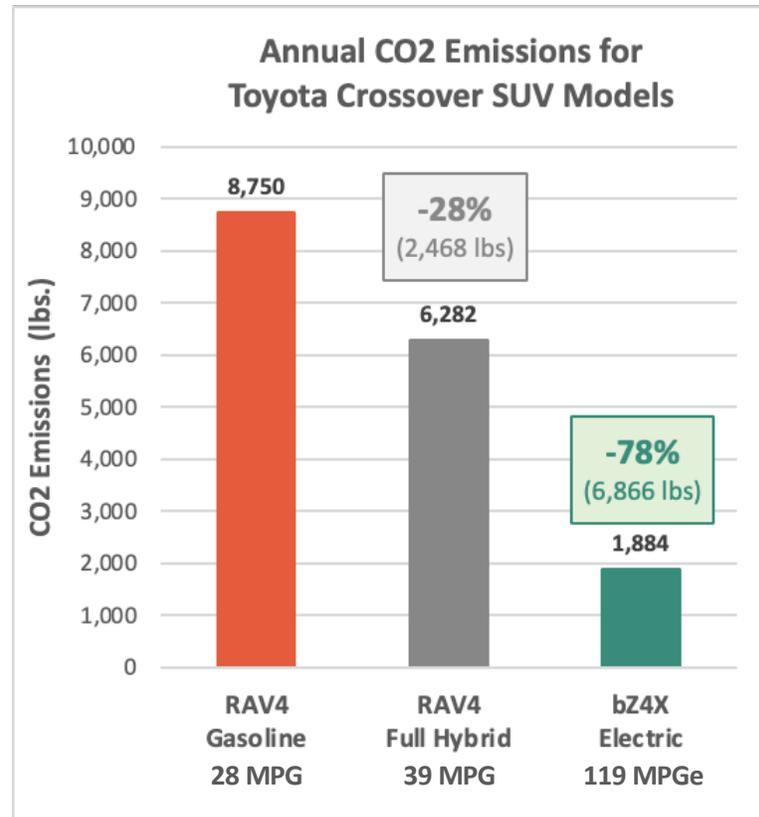


Notes: (1) 10-panel, 4000-kW solar energy system that produces 5,300 kWh electricity per year. (2) Battery captures production not used during day for use during hours of darkness. All generation is self-consumed. (3) Calculation uses EPA estimated CO2 per kWh electricity for the overall fuel mix used to generate grid electricity in California

G2e Advice

- There's no cleaner source of electricity for your home
- New CPUC rules make getting a battery necessary for a good financial return
- "Solar annuity" with higher returns as rates increase
- Size for 100% consumption
- Export nothing unless participating in a VPP (virtual power plant) program

Drive an Electric or Hybrid Vehicle

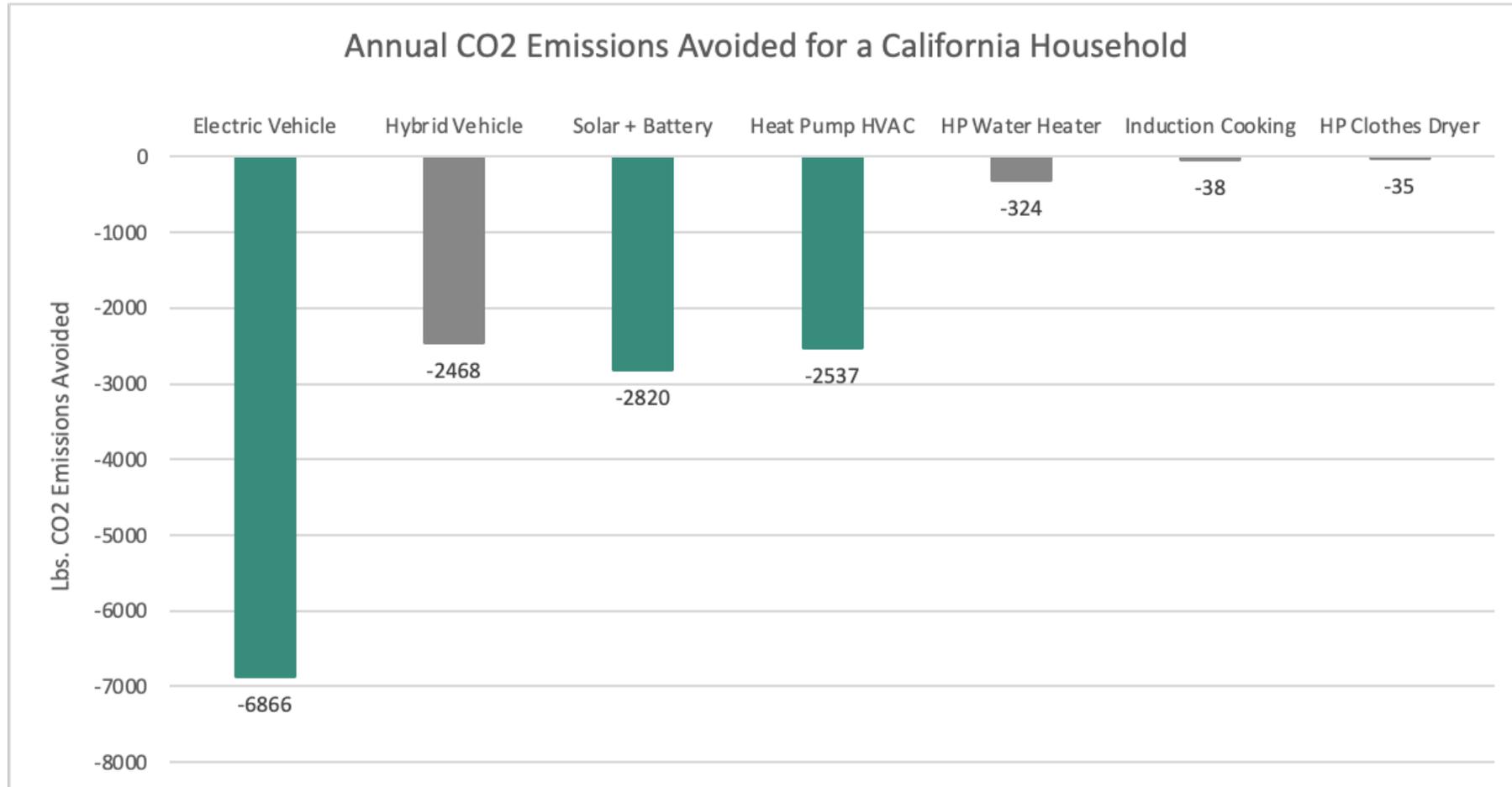


Notes: Calculations use (1) EPA estimates for MPG and MPGe are combined highway and city. (2) FHA estimate of 12,500 annual miles per passenger vehicle in California. (3) EPA estimated CO2 per kWh electricity for overall fuel mix used to generate grid electricity in CA.

G2e Advice

- One electric vehicle can cut CO2 emissions as much as a fully electric home
- An electric bike is even better!
- Hybrid electric vehicles are a good alternative if not ready for a fully electric model
- Temporary issue with number of models that get tax credits
- Plan ahead to maximize rebates and tax credits; your income is a factor

Summary: The Biggest CO2 “Losers”



Note: See other slides in this presentation for details of the avoided CO2 emissions represented here.

Three Ways G2e Advisors Can Help



Planning Assistance

- Product knowledge and technical expertise
- Financial analysis
- Maximize rebates and tax credits



Electrical System Checkup

- Calculate the electrical load of your home and room for growth
- Determine whether upgrades are needed to your electrical panel or service to add new loads



Working with Contractors

- Prepare you to ask informed questions and evaluate answers
- Review complicated quotes
- Recommend and/or meet with contractors

Visit g2e-advisors.com for more information. Contact me at mark@g2e-advisors.com



QuitCarbon

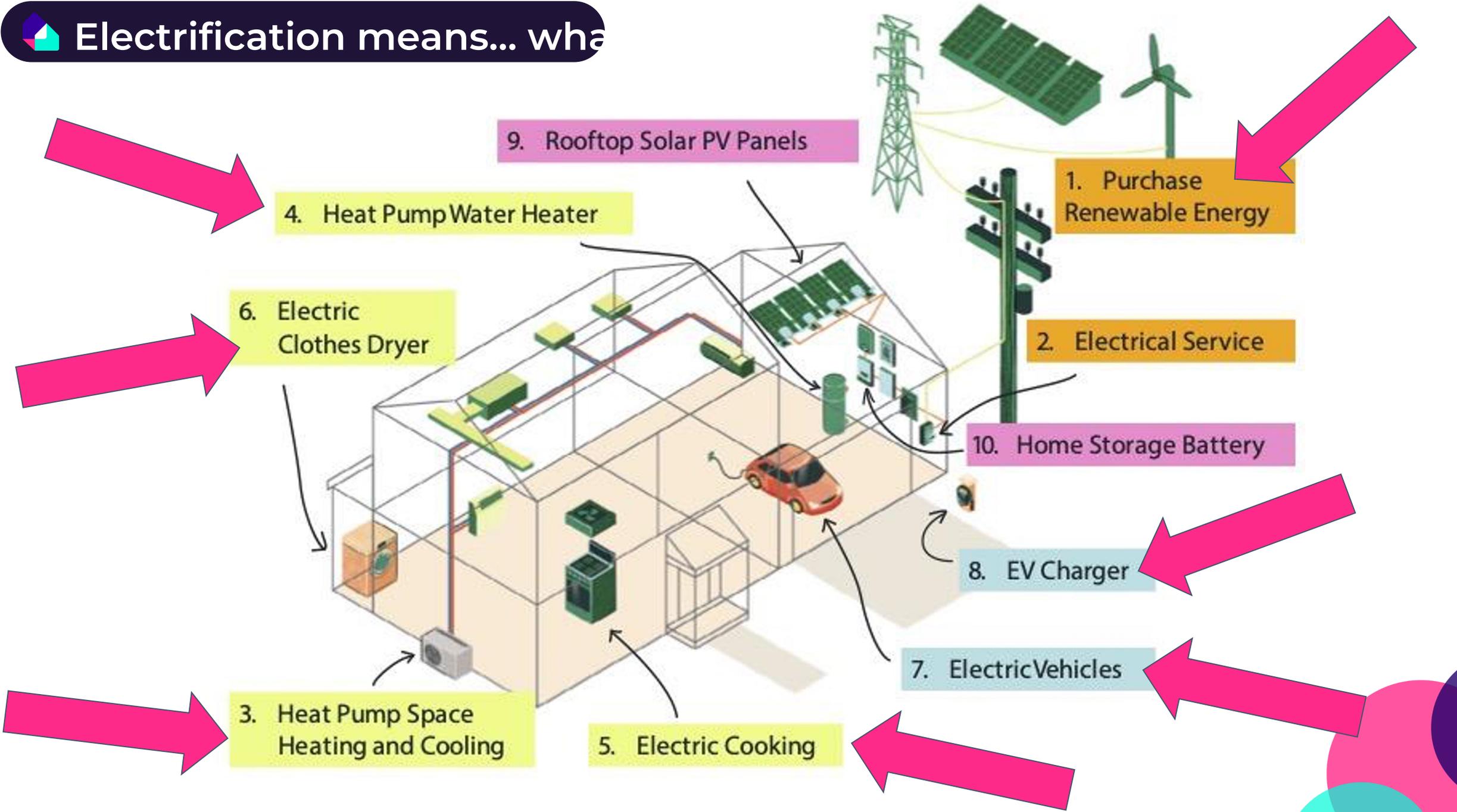
presents...

**Using Our Homes
to Combat Climate Change**
(while saving money!)



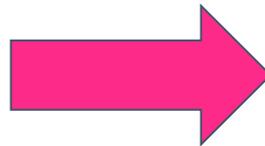
Transitioning homes from fossil fuels to clean electricity is ***the number one*** way we **act against climate change.**

Electrification means... what



Electrification means... heat pump water

Gas water heater

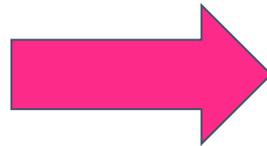


Heat pump water heater!



Electrification means... heat

Gas furnace

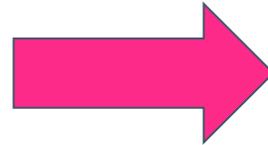


Heat pump!



Electrification means... induction

Gas stove 🙄



Induction!



 Electrification means... lots



Electrification means... solar &



Electrification means... solar &



Building Operations
41%

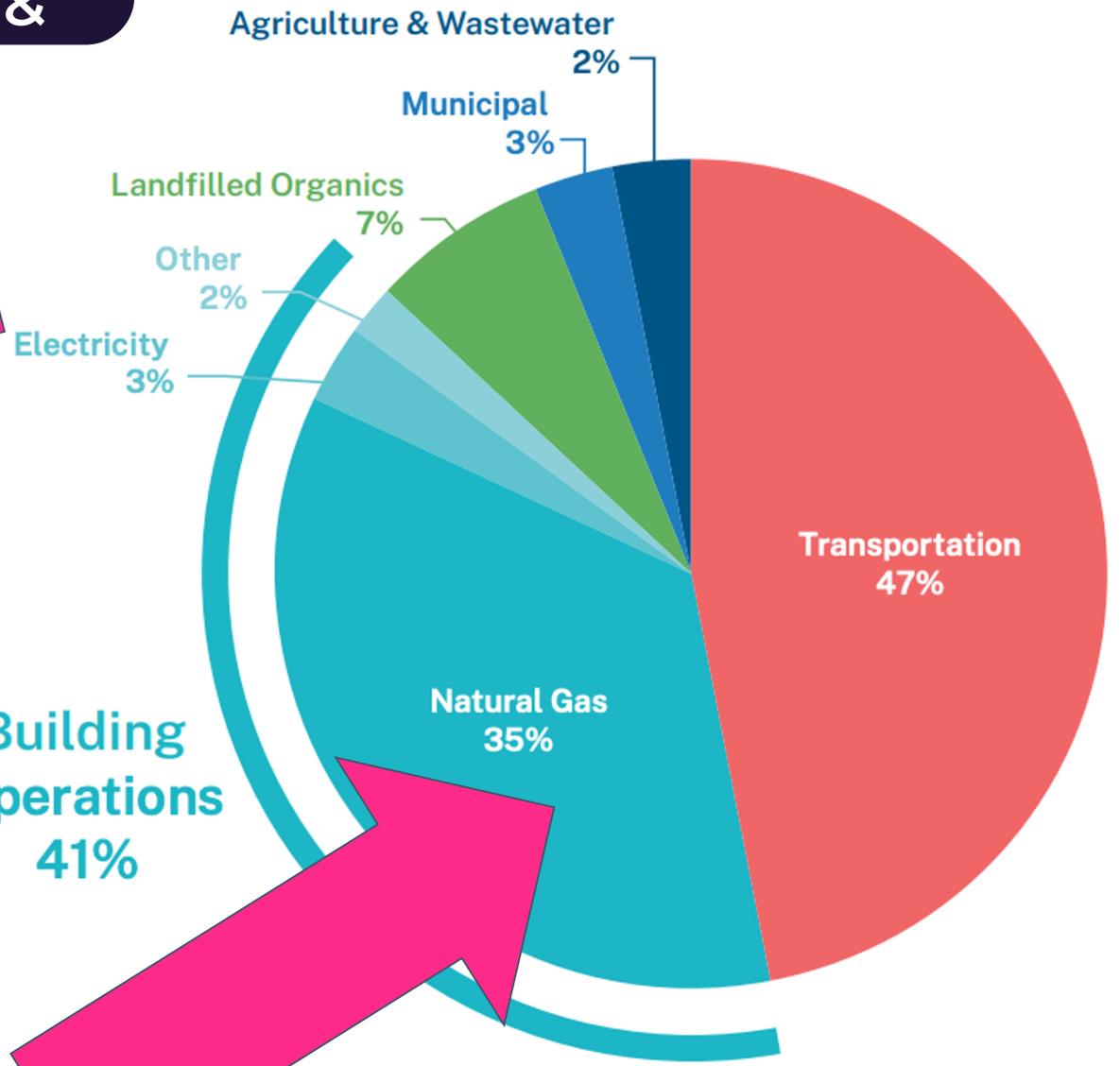


FIGURE 4: SAN FRANCISCO'S 2019 GHG INVENTORY



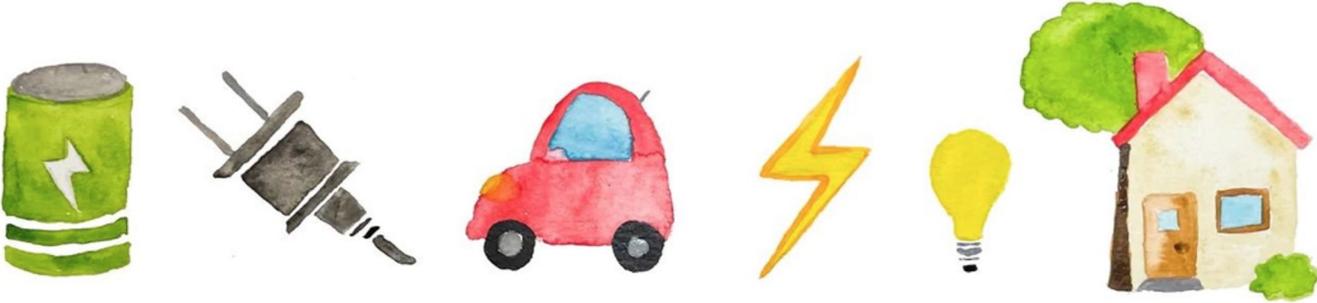
Solar & Batteries

≠

**Meaningful, affordable
decarbonization***

* Widely true in California. Varies by time and place elsewhere.

Step 1: Plan



NICOLE KELNER

Home Electrification Plan for Wanda Watts - from QuitCarbon

🕒 Last edited time July 18, 2023 7:54 AM

🔗 URL Empty

▼ 1 more property

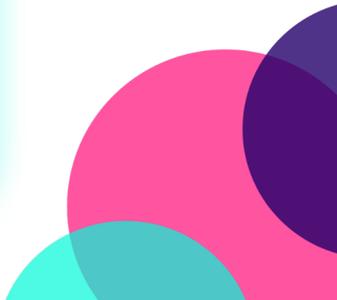
Welcome to your electrification journey! We know that we have to make deep cuts to carbon emissions in the coming decade to avoid the worst impacts of climate change. The good news is that we know a lot about what it will take to achieve our carbon reduction goals — now we just need to start taking action. By embarking on QuitCarbon's planning process, you're taking

Step 2: Replace appliances



- **NO** to emergencies
- **YES** to early retirement!

Prompt replacement of harmful gas appliances is **always better** than “using them up”



Finding a Contractor

The ***right thing*** for a ***fair price*** from a ***reputable installer***.

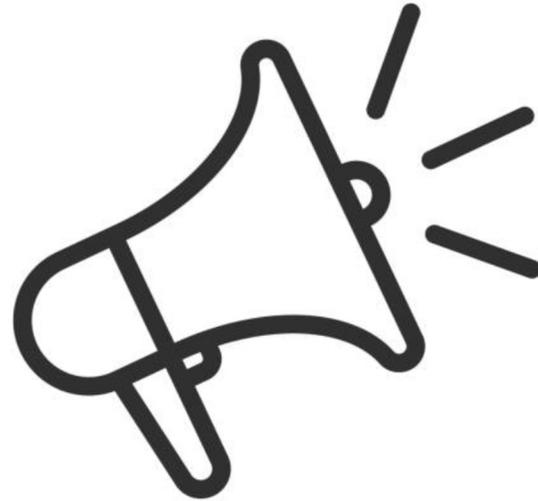
- QuitCarbon referrals
- BayREN.org
- SwitchIsOn.org



Step 3: Repeat, until...



Step 4: Help others!



Costs - QuitCarbon Explains Total Cost of

\$9,000 estimate 🐱 😬 (HPWH example)
– \$7,700 in rebates! 😄 🎉
= \$1,300 out of pocket
– \$2,500 utility bill savings (15 years)
= you get paid \$1,200 to electrify!

(Gas water heater = \$2,000 - \$4,000)

+ Better, safer, healthier homes,
communities and planet

- Home value
- Green financing (ask QuitCarbon!)
- Inexpensive options
 - 100% renewable electricity
 - Plug-in induction



 Let's quit... together

We're your free, expert concierge
throughout the entire process, from
planning to contractors to rebates.

Get started at QuitCarbon.com!

Incentive Stacking

Cost Savings for Central Coast Residents

January 23, 2024 | Lori La Riva



3C-REN: Tri-County Regional Energy Network

- Three counties working together to improve energy efficiency in the region
- Services for:
 - **Building Professionals:** industry events, training, and energy code compliance support
 - **Households:** support with home energy upgrades
- Funded by ratepayer dollars that 3C-REN returns to the region





ENERGY
CODE
CONNECT



BUILDING
PERFORMANCE
TRAINING



HOME
ENERGY
SAVINGS

Coming in 2025...

Commercial, Agricultural, and Energy Assurance Programs!



Stacking Incentives



Central Coast
**Community
Energy**



TECH CLEAN
CALIFORNIA



HOME
ENERGY
SAVINGS

Inflation Reduction Act (IRA)

Santa Cruz County

San Benito County

Monterey County

King City

Paso Robles
Atascadero

Morro Bay, San Luis Obispo,
Grover Beach, Pismo Beach,
Arroyo Grande

Santa Barbara County

Lompoc

Santa Barbara

Updated June 8, 2023



Central Coast
Community
Energy

- Currently Enrolled
- Enrollment Pending
- Not Enrolled



HOME
ENERGY
SAVINGS

SAN LUIS
OBISPO
COUNTY

SANTA
BARBARA
COUNTY

VENTURA
COUNTY



TECH CLEAN
CALIFORNIA



Inflation Reduction
Act (IRA)





Central Coast
**Community
Energy**

Electrify Your Home

- Partnership with TECH Clean California to provide cash incentives to enrolled contractors for heat pump projects in the 3CE service area.
- Incentives are for projects switching gas-powered* water heaters and HVAC equipment to all-electric.
- They are available for appliance costs and costs related to electric panel upgrades or replacement.

**natural gas or propane*





Heat Pump Incentives

- Incentives for single-family heat pump HVAC projects and related panel costs.
- Incentives for heat pump water heaters and related panel costs (required enrollment in demand response program and time-of-use rate).
- As with 3CE, only available through TECH-enrolled contractors.



Heat Pump Incentives from 3CE and/or TECH

Heat Pump HVAC System

- 3CE customers: \$1,500–\$2,500
- Other CA customers: \$1,000

Heat Pump Water Heater

- 3CE customers: \$3,300 or \$3,800
- 3CE customers who enroll in a demand response program and time of use rate: \$4,600–\$6,800
- Other CA customers who enroll in a demand response program and time of use rate: \$3,100–\$5,300

Electrical Panel Upgrades

- \$2,000 when part of a heat pump project

Incentives shown are for market-rate customers and are **\$1,000–\$2,000** higher for income-qualified customers.

How to Participate with 3CE and/or TECH



3CE Electrify Your Home Overview

<https://3cenergy.org/rebates/electrify-your-home>



TECH Clean CA Incentives & Contractors

<https://incentives.switchison.org>



HOME
ENERGY
SAVINGS

Single-Family Program

- Discounted pricing available from enrolled contractors—**up to 75% off project costs.**
- Projects that save energy (gas or electricity)* are eligible for incentives when you work with a 3C-REN enrolled contractor.
- The actual incentive depends on how much energy the project will save.

**not solar*



3C-REN Eligible Upgrades: Heat Pumps & Beyond



3C-REN Incentives for Heat Pump Projects etc.

Incentives Based on Projected Energy Savings

Heat Pump HVAC System

- \$3,000 average (but big variance)

Heat Pump Water Heater

- \$1,000 average

All energy efficiency projects in 2023

- Market-rate customer incentives were clustered in the \$500-\$5,000 range

**Hard to Reach
customers receive
3x the incentive
dollars from 3C-REN**

Hard to Reach Customers: 3x the Incentives

SB+SLO Counties:

Homeowners that: live in mobile homes, don't speak English as their first language, OR are on CARE/FERA rates.

Ventura County:

Homeowners that meet at least two of these criteria: live in mobile home, don't speak English as their first language, are on CARE/FERA rates, or live in an SB 535 designated DAC.



**"I'm trying to remodel my house and if I can get something for free that helps the environment at the same time, that's great! I love the heat pump water heater."
-Ariel**

**Invoice total: \$7,300
Cost after incentives: \$0**

How to Participate with 3C-REN

Single-Family Incentive Eligibility Criteria

- Single-family residential customer
- Live within the 3C-REN territory
- Receive Investor-Owned Utility (IOU) service (gas/electricity)
- No added solar previous 12 months
- Incentives must be accessed through contractors enrolled with 3C-REN



HOME
ENERGY
SAVINGS

www.3c-ren.org/for-residents



IRA: Inflation Reduction Act

- Largest clean-energy investment America has ever made to make the transition to clean energy and decarbonizing our lives.
- Available now: Federal tax credits for household electrification.
- Available in 2024 or 2025: California Energy Commission plans to focus rebates and incentives on low-income populations.



Energy Efficient Home Improvement Tax Credit

- **30% tax credit for heat pump** project (space heating and water heaters), capped at \$2,000 per year.
- **30% tax credit for electrical panel** upgrade if done in conjunction with a heat pump project, up to \$600.
- **30% tax credit for weatherization** purchases such as insulation, air sealing, door and window upgrades, and energy audits, capped at \$150 to \$1,200 per year.
- Credits of 30% will be based on the *actual money* spent on the project *after* other incentives are applied.
- The overall limit for an efficiency tax credit in one year is \$3,200.
- Credits reset each tax year, effectively becoming available again for additional projects.
- [IRS Fact Sheet](#)

Rewiring America IRA Calculator*

www.rewiringamerica.org/app/ira-calculator

Household Electrification Incentives All the savings you may be eligible for!			
Tax Credits [?]			
ITEM	AMOUNT	TIMELINE	
Battery Storage Installation	30%	Available Now!	More Info >
Geothermal Heating Installation	30%	Available Now!	More Info >
New Electric Vehicle	\$7,500	Available Now!	More Info >
Rooftop Solar Installation	30%	Available Now!	More Info >
Used Electric Vehicle	\$4,000	Available Now!	More Info >
Heat Pump Air Conditioner/Heater	\$2,000	Available Now!	More Info >
Heat Pump Water Heater	\$2,000	Available Now!	More Info >
Weatherization	\$1,200	Available Now!	More Info >
Electric Vehicle Charger	\$1,000	Available Now!	More Info >
Electric Panel	\$600	Available Now!	More Info >

Household Electrification Incentives All the savings you may be eligible for!			
Electrification Rebates [?]			
ITEM	AMOUNT	TIMELINE	
Heat Pump Air Conditioner/Heater	\$8,000	2024	More Info >
Electric Panel	\$4,000	2024	More Info >
Efficiency Rebates	\$4,000	2024	More Info >
Electric Wiring	\$2,500	2024	More Info >
Heat Pump Water Heater	\$1,750	2024	More Info >
Weatherization	\$1,600	2024	More Info >
Electric/Induction Stove	\$840	2024	More Info >
Heat Pump Clothes Dryer	\$840	2024	More Info >

Credits are relevant for California residents but the rebates are not—do not be misled. CA's rollout of the federal rebates is in development for 2024 or 2025 and will be low-income focused.

How will I remember and track ALL THESE INCENTIVES?!? 😨

Two incentive finders will connect you to everything I've discussed today and more:

- 3CE, 3C-REN and TECH incentives
- IRA federal tax credits
- Finding an enrolled contractor
- Additional rebates not discussed today
- Solar, EV and e-bike programs

And the results will be tailored based on your zip code!



THE SWITCH IS ON



Incentive Finder URLs: <https://incentives.switchison.org> and www.3c-ren.org/programs-incentives



Thank you!

For more info:
3c-ren.org

For questions:
info@3c-ren.org



TRI-COUNTY REGIONAL ENERGY NETWORK
SAN LUIS OBISPO • SANTA BARBARA • VENTURA

Q&A

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