



Guide to Residential Energy Efficiency and Renewable Energy Incentives

EcoAction Partners has built this guide to help residential property owners and renters make their homes more energy efficient, help you access resources for installing solar power, and help you understand the world of electric vehicles. This is a complicated and technical undertaking, so we have divided this guide into sections. Please contact EAP with any questions and we would be happy to help you navigate this document.

- Weatherization Upgrades
- Energy Efficiency
- Renewable Energy
- Electric Vehicles and Chargers
- Electric Service Upgrades
- Outdoor Electric Power Equipment
- Examples of how Rebates and Tax Credits can be Applied
- Residential Solar Panels Case Study
- An Example of investing in a Heat Pump

Weatherization Upgrades

The Basics-

Before you invest in new efficient technologies, appliances, and renewable energy, it makes sense to make your building envelope as efficient as possible.

- Energy Assessment Programs- There are programs and contractors who can assess your building's energy use and assess where you could make your building more efficient.
 - Find general information about energy audits [HERE](#)
 - SMPA offers rebates to help you pay for an energy audit [HERE](#)
 - BHE offers free energy evaluations [HERE](#)
- CARE- Colorado's Affordable Residential Energy Program helps income qualified residents access free energy audits, weatherization, and energy upgrades.
 - CARE Program on EAP's site [HERE](#)
 - Colorado CARE [HERE](#)
 - Energy Outreach Colorado [HERE](#)
 - SMPA Energy Audits Info [HERE](#)
- DIY Weatherization- Making hot or cool air requires a lot of energy. Keeping that air where you want it makes a lot of sense. A well sealed and insulated space takes dramatically less energy to heat or cool.
 - Seal cracks and gaps between the inside and outside of your building



- Add insulation in walls, ceilings, and crawl spaces
- Information for home efficiency [HERE](#)
- Energy saving ideas [HERE](#)
- BHE Efficiency rebates for gas [HERE](#)
- DOE Weatherization Assistance [HERE](#)
- Use energy where and when you need it
 - Programmable thermostats help you manage your energy use based on when and where you need it.
 - Consider occupancy switches or timed lighting systems
 - LED bulbs are ultra efficient and an easy cost savings strategy
 - All SMPA rebates [HERE](#)

Energy Efficiency

● **Efficient Appliances**

The Basics-

The latest electrical home appliances have never been more efficient. Further, renewable energy generation comes in the form of electricity, so your electric appliances will be ready to be powered by more and more renewable sourced electricity as renewable energy grows. There are also many opportunities to get tax credits and rebates when you buy high efficiency electric appliances

- Here is information regarding the various types of high efficiency electrical appliances that are coming onto the market. [HERE](#)
- SMPA Resources [HERE](#)
- BHE Electricity Improvements [HERE](#)
- Colorado will begin a federally funded rebate program later in 2023. Info [HERE](#)
- Home Owners Guide [HERE](#)

● **Mechanical Systems**

The Basics- Mechanical systems heat your water and heat or cool your home. These are the biggest users of energy in your home. Upgrading mechanical systems can reduce your energy bill! Heat pumps are very efficient at heating and cooling.

- Information on Heat Pumps [HERE](#)
- BHE Rebates for Electric systems [HERE](#)

Renewable Energy

The Basics-

Solar panels continue to become more efficient and solar installations are becoming a common feature in our landscape. You can access renewable(solar?) energy through a home installation or investment in community solar. You can also access a variety of incentives that will make your solar energy less expensive.



- A solar array on your home can offset your energy bill and create clean energy for your consumption..
 - General Information [HERE](#)
 - SMPA Renewables Rebates [HERE](#)
 - SMPA general rebates [HERE](#)
 - Here are resources to help you access rebates, incentives, and tax credits to make your investment less expensive
 - Federal Tax Credits information [HERE](#)
 - Guide to Home Upgrades Tax Credits [HERE](#)
 - Home Owners Guide [HERE](#)
 - Calculator to estimate your IRA savings [HERE](#)
 - [Loans](#)

Electric Vehicles and Chargers

The Basics-

Electric vehicles generally have about half the carbon footprint of a combustion engine vehicle. The advantages of EVs can be difficult to understand without becoming informed about how they work and how they may or may not be the right choice for you. There are also tax credits and rebates available for EVs. Plug in hybrids do not qualify, even though they are pretty awesome for our area.

- General Information on EVs [HERE](#)
- IRS Guidance for EV Rebates [HERE](#)
- EV Credit Guide [HERE](#)
- Article about EVs and Tax credits [HERE](#)
- Colorado's EV website [HERE](#)
- Colorado Resource to answer questions about EVs [HERE](#)
- Federal page with Colorado programs [HERE](#)

Electrical Service/Panel Upgrades

The basics- As people move to electric vehicles and efficient electric appliances, their electric service equipment may need to be upgraded to handle the extra load. If your service panel/breaker box is more than 20 years old, less than 100 amps, or if all of the spaces in the box are full. You will probably need to have an electrician install a larger service panel. This can be expensive but there are rebates and tax incentives that can offset the cost.

- Federal Guide for Electrification in Homes- [HERE](#)
- Colorado Incentives for Panel Upgrades [HERE](#)

Outdoor Electric Power Equipment



The Basics- New battery technology has made electric outdoor power equipment a great option. Imagine not having to struggle to start your old lawnmower or chainsaw. You can give your lungs a break by not breathing all of that exhaust, too. Rebates on this equipment include battery and plug in models.

- SMPA's rebates for Electric Equipment [HERE](#)
- Colorado will begin a rebate program later in 2023

Examples of how Rebates and Tax Credits can be applied

- This guide has a variety of scenarios for how to apply tax credits. [HERE](#)
- This is a guide to IRA incentives [HERE](#)
- Here is a guide to calculating rebates and tax incentives [HERE](#)

Residential Solar Panels Case Study

Here is an example of an actual solar project bid for a home in Ouray. Every project will be different depending on the household energy use. This project is slightly oversized to accommodate a future electric vehicle charger and electric thermal storage space heater.

Typical Residential System= 3.6kW

- Estimated cost without rebates= \$20,000
- SMPA Rebate= \$300
- Federal Tax Credit= 30% of Investment = \$6000 Tax Credit
- $\$20000 - (\$6000 + \$300) = \13700 Estimated cost cost of project

The system will eventually pay for itself in about 10-15 years and will ultimately have a positive cash flow before the end of its lifespan. Here is SMPA's page on [NET METERING](#).

You can estimate the production of a possible solar array [HERE](#). You can calculate your carbon footprint offset with this [CALCULATOR](#).

- If your system generates 5180kW per year it will offset 3.7 Metric tons of CO2 per year. That is the equivalent of 9400 miles of travel in your typical car.

You can also add the cost of the project and its energy production to your total home equity.

An Example of investing in Heat Pumps

These numbers are estimated. Check with an HVAC provider to get accurate numbers.

- A typical "3 ton unit", which can heat/cool 1500 sq ft will cost around \$6-8000.
- Smpa offers a rebate of up to \$3000. This brings the cost down to around \$4-5000.
- Federal Rebate. A tax credit covers 30 percent of the costs of purchase and installation, up to \$2,000 per year.
- [Article about heat pumps](#)

