

MARIN SUSTAINABILITY MAGAZINE VOL. 2

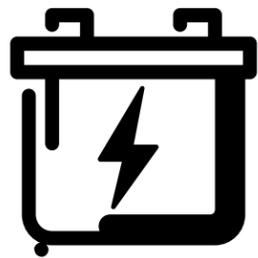
BROUGHT TO YOU BY THE MARIN COUNTY COMMUNITY DEVELOPMENT AGENCY
SUSTAINABILITY TEAM



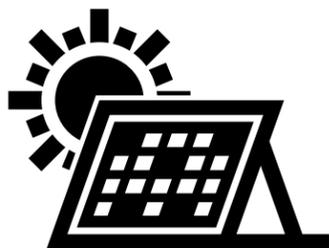
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The Marin Sustainability Team works to support healthy, safe, and sustainable communities.



With the warmer and drier weather contributing to high fire risk conditions and the subsequent threat of potential Public Safety Power Shutoff (PSPS) events, many Marin residents are looking into power backup solutions for their homes. Building departments in Marin are receiving an increasing number of permit applications for generators and battery storage systems. In this section we will provide basic information on battery storage technology, general costs and considerations, and resources that can help residents who are planning on installing power storage systems.



Solar and Battery Backup

Most residential solar systems are “grid tied,” meaning that when power

is shut off in the area even homes with solar panels lose power (with the exception of some solar systems that include backup capability for an emergency circuit). Adding battery storage to a home with solar allows that home to retain power during a grid outage.

*The Added Value of Battery Backup

While home battery backup systems have a bigger up-front cost compared to generators, they can pay for themselves over time through energy arbitrage. Under a Time of Use Utility Rate, battery systems can charge at times of the day when electricity is cheap, and power the home when energy is more expensive.

Compared to generators, battery systems do not require

fuel. In the event of a multiple-day power outage, a home with solar and a battery system will charge the battery during the day and use stored energy at night. With a proper load design, and sufficient sunlight, this cycle will repeat itself each day. Battery systems don't produce any operational greenhouse gas emissions, noise, or require regular maintenance compared to generators (oil changes and 'exercising' which means running the generator every few months).

Battery System Sizing and Costs

The ultimate cost of a home battery system depends on the capacity needed and variables related to a home's specific installation. The average single-family home has an electrical load of 18.5 kWh per day. Depending on an individual home's needs and budget, a battery system can be sized to service the entire home, or only “critical loads” (for example, a refrigerator and a small office).

Portable Batteries

Portable batteries can offer a more affordable solution for powering small devices and, depending on the size of the

battery, even some appliances. Similar to the large home backup battery systems, the higher the capacity, the more expensive the battery. Some higher capacity batteries can power larger home appliances and range from \$1,000 to \$3,000. For example, a 1,045 Wh rated portable battery can power the average refrigerator for 17 hours.

Permit Requirements

A whole home battery backup system that is connected to the electrical system requires a building permit. Those permit requirements include:

- Marin County Photovoltaic Permit.
- Scaled Site Plan: illustrating proposed location of equipment in relation to the property line and existing structures.
- Manufacturer's Equipment Information.
- Electrical Line Diagram per the latest edition of the California Solar Permitting Guidebook.

Free Webinar - December 9

Our office is hosting a free informational webinar on battery storage on December 9 at 6pm, sign up here: www.marinbatterystorage.eventbrite.com.

Battery

Generator

\$6,000 - \$8,000	Cost	\$5,500 - \$7,000
10 years (limited)	Warranty	3 years
No	Noise	Yes
No	Regular Maintenance (oil changes, 'exercising')	Yes
Yes*	Added Value	No

ENERGY EFFICIENCY

02

How Energy Efficiency Can Help with Comfort and Air Quality



Most homes in Marin were built before the State of California adopted energy code requirements into the building code (Title 24 Part 6). This means that a home built today is more energy efficient than a comparable sized home built before 1970 and the occupants of that home pay on average less money on their utility bills. Saving money is definitely a good thing, but making a home more energy efficient brings additional benefits that are often left out of the conversation. In this section we will provide information on those added benefits of energy efficiency retrofit projects and provide resources and rebate programs that can help homeowners achieve

their energy efficiency goals.

Insulation and Air Sealing – Comfort Benefits

Whether experiencing a heat wave or cold snap, having a well insulated and air sealed home can keep the inside temperatures regulated and comfortable. Insulation and air sealing work together to make your home more comfortable. A common metaphor used to illustrate this interaction is the sweater and wind breaker. One a cold, windy day, wearing a wool sweater helps keep a person's body heat, and adding a wind breaker provides an air barrier

to protect against a chilly breeze. Building insulation (measured in R-value) helps prevent radiant heat transfer and proper air sealing slows convective heat transfer (heat transferred through the air). When you're planning an insulation project, remember the wool sweater and wind breaker!

Relating to Resiliency – Keeping the Smoke Out

As the tragic, massive California wildfires become more common every year, many residents are having to change their lives and routines to adapt to this new reality. But even

when fires are not immediately threatening our communities, everyone is still impacted by smoke and poor air quality.

During smoky conditions, the Centers for Disease Control and Prevention (CDC) recommends checking local air quality reports (which you can do at [AirNow.gov](https://www.airnow.gov)), avoiding activities that increase indoor air pollution like burning candles, using fireplaces, or using gas stoves, and keeping indoor air as clean as possible by keeping windows and doors closed, running the air conditioner with the fresh air intake closed and keeping the air filter clean. (<https://www.cdc.gov/nceh/features/wildfires/index.html>)

Sealing up your HVAC duct systems and improving building air sealing can also help keep indoor air as clean as possible by lowering the amount of outside air from entering the home. You'll also be making your home more energy efficient!

Rebates and Assistance Programs

Rebates are available for single family home energy efficiency projects from the Bay Area Regional Energy Network (BayREN) Home+ program. Eligible rebate measures include building air sealing, insulation, duct sealing/replacement, HVAC and water heater upgrades, and more. In order to qualify for rebates, homeowners need to work with

a participating contractor.

There is also a no-cost, third-party technical support service through the Home Energy Advisors. The Home Energy Advisors are sponsored by BayREN and are not financially



connected to any homeowner projects. Their role is to help homeowners navigate the Home+ program, answer questions about their home's energy efficiency needs, and assist with finding a contractor and reviewing bids. They can be reached at (866) 878-6008.

To learn more about the program and browse participating contractors, visit www.bayrenresidential.org.

Getting Started with a Home Assessment

Residents who aren't sure where to start with home energy efficiency improvements can take advantage of the Home Energy Score program. Home Energy Score is a home assessment program developed by the Department of Energy and administered locally by BayREN. Each Home Score is done by a certified professional participating in the program, who can be a home inspector, contractor, energy

rater, or other industry professional.

Each Home Score comes with a 1 to 10 "score," indicating how efficient a home is compared to similar-sized homes plus a customized recommendation report advising homeowners on where they can make improvements. A Home Energy Score can be completed in about 1 to 2 hours depending on the size of the home. BayREN provides a \$200 rebate for each Home Score, which typically pays for at least half of the assessment cost depending on each Home Score Assessor's rate.

Learn more at www.homescoreca.org or call the Home Energy Advisors at (866) 878-6008 for more information about Home Energy Score.

Low-Income Weatherization Program - Continued on Page 8.

HOME HARDENING

Basic information on home hardening and emergency preparedness

03

Preparing for Disasters

For resources and information on disaster preparedness, we encourage residents to visit ReadyMarin's website.

www.readymarin.org

So far we have covered some strategies homeowners can take to prepare for power outages and improve indoor air quality and comfort through energy efficiency. But what about when wildfires pose an immediate threat locally to homes and communities? In this section we will cover simple "home hardening" measures and community disaster preparedness.

We encourage residents to visit FireSafe Marin's website for home hardening tips, resources, and webinar opportunities.

www.firesafemarin.org

Resilient Neighborhoods

The Resilient Neighborhoods program offers a fun and educational free workshop series for Marin residents to learn about their carbon footprint, strategies for making sustainable home and lifestyle changes, and community resiliency and disaster preparedness.

The community resiliency workshop teaches participants how to make a "go-bag," create a family evacuation plan, and connect with neighbors.

Learn more at:

www.resilientneighborhoods.org or email rnoutreachassociate@gmail.com.



HOME HARDENING BASICS

REMOVE TRASH BINS AWAY FROM OVERHANGS (WHEN EVACUATING FROM A FIRE, MOVE TRASH BINS INSIDE OF HOUSE)



INSTALL FIRE-RESISTANT VENTS FOR ATTICS AND CRAWL SPACES



INSTALL BATTERY BACKUP FOR GARAGE DOOR OPENERS



INSTALL "LEAF-PROOF" GUTTERS, OR KEEP GUTTERS FREE OF FLAMMABLE DEBRIS



INSTALL DUAL-PANE, TEMPERED WINDOWS



BUY A FIRE-RESISTANT DOORMAT



CREATE A DEFENSIBLE SPACE AROUND THE HOME BY CLEARING FLAMMABLE PLANTS AND OTHER FUELS

Low-Income Energy Efficiency and Weatherization Program

The MCE Healthy Homes program is an effort of local providers working to make homes healthier, safer, and more energy efficient. Income-qualified residents can receive reduced and no-cost home improvement assessments and services.

Energy efficiency measures include attic insulation, air leakage sealing around windows and doors, installation or repair of windows, doors, water heater, furnace, and more.

Health and safety measures include: moisture and mold remediation, leak prevention, improved ventilation, integrated pest

management, installation of smoke detectors and carbon monoxide alarms, lighting, asbestos and fire hazard mitigation, and slip-and-fall prevention through modifications to stairs, entryways, and bathrooms.

Partner programs include: Community Action Marin, the Marin County Sustainability Team, Marin Center for Independent Living, Marin Community Foundation, Marin Housing Authority, and San Francisco Peninsula Energy Services.

Call Community Action Marin for an Application (415) 526-7500.

Eligibility

Households in County that meet the following income criteria may apply:

Household Size	Max Monthly Income
1 Person	\$2,296
2 People	\$3,003
3 People	\$3,710
4 People	\$4,417
5 People	\$5,123
6 People	\$5,830
7 People	\$5,963
8 People	\$6,095

Questions about any of these programs? Contact our office at attn: Marin County Sustainability Team 3501 Civic Center Drive Room 308, San Rafael, CA 94903 | energy@marincounty.org | (415) 473-2698

Bay Area Regional Energy Network Disclaimer: The BayREN Home+ Program provides assistance and incentives for home improvement projects that can reduce energy use and make homes more comfortable. This program is managed locally by regional energy networks and directed by the California Public Utilities Commission in collaboration with the California Energy Commission. Funding comes from utility customers under the auspices of the California Public Utilities Commission. Incentives are offered on a first-come, first-served basis and are effective until funding is expended or the program is discontinued. Programs may be modified or terminated without prior notice. Trademarks are property of their respective owners. All rights reserved.

All County publications are available in alternative formats upon request. Request for accommodations can be made by calling (415) 473-3069 (Voice), (415) 473-3232 (TDD/TYY) or by email at energy@marincounty.org.