



The Buck Family
Fund of MCF

Back-Up Power Generators: Alternatives to Diesel?

Introduction

This resource sheet was compiled in July 2022 as a courtesy for MCF grantees and other nonprofits who may be considering back-up power options, with special thanks to staff at the Bay Area Air Quality Management District (BAAQMD); California Air Resources Board; City of San Rafael's Sustainability Office; County of Marin Community Development Agency; and MCE Clean Energy for their expertise and suggestions. Please note that this information is provided as a general resource to spur individual research. Links provided below do not imply a recommendation or endorsement of products by MCF and may become outdated over time.

Quick Reference Links

[CA Air Resources Board Technology Screening Tool](#)

[Portable Solar Generators](#)

[Propane Generators](#)

[MCE Energy Storage Program](#)

[Marin Solar Program](#)

[PG&E Back Up Power Options](#)

The Concern

Facility operators, including those at community-based organizations, increasingly need to ensure operations during power disruptions from extended outages due to disasters or PSPS events. This need has led to a rapid increase in the purchase of diesel back-up generators¹ despite excessive noise; health and safety risks; regulatory and maintenance requirements; and significant greenhouse gas emissions.

According to the Bay Area Air Quality Management District²:

Battery backup systems and solar generators are the cleanest, safest options. They are also exempt from requiring an Air District permit.

¹ [Diesel Back-Up Generator Population Grows Rapidly in the Bay Area and Southern California](#)

² <https://www.baaqmd.gov/permits/apply-for-a-permit/engine-permits/psps>

Other options include diesel, gasoline, natural gas, and propane fired backup generators. Gasoline, natural gas, and propane fired generators are cleaner emitting than diesel, and result in less adverse health effects.

All fuel-fired generators produce toxic air contaminants which have been linked to lung cancer and other adverse health effects. (Emphasis added)

Fortunately, alternatives to diesel, including propane generators, solar-powered portable batteries, and facility-level solar-powered battery storage systems, can increasingly be considered. However, navigating this dynamic marketplace can be challenging, and technical assistance (outside of vendors) is not readily available to help assess one's energy output needs and to consider criteria to decide upon the most suitable option.

California Air Resources Board Technology Screening Tool

CA Air Resources Board (CARB) has prototyped a technology screening tool for both residential and commercial emergency back-up power. The [residential tool](#) includes a list of manufacturers that offer options at different power range needs and includes approximate run times, while in the [commercial tool](#), actual installations of the zero-emission, near-zero-emission, and advanced conventional technology throughout the U.S. are featured. Check CARB's website for updates to this technology clearinghouse in the coming months.

Portable No/Lower Emissions Back Up Power

SOLAR GENERATORS

The **County of Marin Community Development Agency** developed this Back-Up Power [fact sheet](#) for residential customers considering Solar Plus Battery Storage and Generators. The information could also be applicable to smaller non-profits in commercial settings if the energy storage demands were not more than the average sized residential home.

For upfront capital costs, fossil-fueled back-up generators are cheaper. However, when the cost of fuel to operate the generator is accounted for, the solar plus battery system will in time reach cost parity with the fossil-fueled generator, and with further usage over time, will eventually be cheaper than the fossil-fueled generator. (Source: BAAQMD)

There are solar powered systems that are large enough, or that can be "stacked" to increase their capacity, to provide between 9 and 25 kWh, and some trailer-based systems that go up to 80 kwh. There's likely a solution that would meet the needs of many CBOs. Some commercial vendors are:

- Goal Zero (Yeti) <https://www.goalzero.com/pages/home-energy-storage>
- [Clean Green Solar Machine](#) - up to 24 kWh
- [Renogy Lycan 5,000 Power Box](#) - 4.2 kWh expandable up to 19.2 kWh
- [Nature's Generator Max 9.1](#) - 9.1 kWh (7 stacked units)
- [EcoFlow Delta Pro](#) - 3.6 kWh expandable to 25 kWh
- [Mobile Solar MS-400 Series](#) - 15 kWh to 80 kWh trailered solar/battery units

More resources that might be helpful:

- [Solar Generator Pros](#)
- [All-Pro Generators](#) - solar & wind generators
- [Rent Solar](#), a General Benefit company, rents solar generator equipment for non-emergency events and will soon sell this model:

“SunKit is the most adaptable solar-powered electric generator for portable backup power and off-grid clean energy use. Its modular system is perfect for anyone in need of reliable, quiet, clean power generation during an emergency or off grid. Designed to work with virtually any commercial solar panel available, SunKit can accept a wide range of solar energy inputs to charge its lithium battery, providing you great flexibility.” Available to rent; for sale soon--*sign up for updates*.

Its “sibling” nonprofit, [Project Footprint](#), provides solar powered generator deployment during disasters.

PROPANE GENERATORS

<https://propane.com/for-my-business/commercial-buildings-and-construction/commercial-grade-generators/>

<https://generatorsmag.com/propane-vs-diesel-generator/>

Facility Renewable Back Up Power

MCE Clean Energy runs the [Energy Storage Program](#) for residential and commercial customers:

MCE’s Energy Storage Program can connect customers with existing or new solar to available incentives, program funding, performance payments, and financing for battery storage to keep power on during an outage, and to provide electric bill savings.

Program Benefits

MCE’s Energy Storage Program offers reduced cost energy storage systems. MCE will prepare an application for incentives from the California Public Utilities Commission’s Self-Generation Incentive Program (SGIP) on your behalf, and MCE will provide upfront

funding for qualified customers. You will receive no-cost technical assistance from start to finish, including planning and installing your energy storage system with support from MCE's vetted contractors. Program participation also includes additional benefits for your facility, while increasing resiliency and reducing greenhouse gas emissions.

Eligibility:

- Must be an MCE customer, located in [MCE's service area](#)
- Must have existing solar or be willing to install solar*

* The [Marin Solar Program](#) run by the County of Marin's Community Development Agency can help you begin the process of evaluating whether the installation of a solar system is suitable for your home or business.

Still Considering Fossil-Fueled Back-Up Power?

[PG&E Playbook for Back-Up Generators for Small Businesses](#)

[PG&E Generator and Battery Rebate Program](#)

PG&E is offering eligible customers a rebate on the purchase of a qualifying product (generator or battery) to prepare for outages that *may* be applicable to some nonprofits. Note that small/micro non-critical care essential businesses are eligible for rebates for fossil fueled generators only, not for portable batteries.

Questions or Additions?

Please contact [Patti D'Angelo Juachon](#) at Marin Community Foundation.