

Detailed Project Information

What we are using:

There are many solar generator options, ranging in size, durability, and power. The generator utilized in this project is the Bluetti AC200MAX with a Bluetti B300 3,072Wh Battery for additional power supply and storage. Through the guidance of those using the generator as their sole source of power (“van-life” or off-the-grid lifestyles), other supplies were added to provide a more efficient experience. Though Bluetooth capabilities through a smartphone app may be used to control generator functions, multiple sources reported direct sunlight creating visibility issues for the LED touchscreen operating screen on the AC200MAX, leading to CES purchasing tents for outdoor operation to provide shade and protection from the intense light and heat. The tents also provide protection from the various weather conditions users may find themselves in, such as rain for these water resistant (not waterproof) generators, with tarps also purchased for protection of the panels as well. Though these generators are considered comparatively compact and lightweight at 62 lbs. and batteries at 79.6 lbs., dolly/flatbed carts were ordered for ease of transport and setup, best for maneuvering the equipment if a minimum of 1 or 2 people are alone in assembly of the generator, panels, and battery.

Preparing our power sources:

Charging

The AC200MAX can be charged in ways other than PV-connected solar panels, and it has zero emissions during use. The generator and backup battery units may be charged via electricity with the included AC adapter, which could be helpful prior to an expected extreme weather event to prepare for loss of electricity. The generator also includes a lighter port for car charging, also to be done with included XT-90 cable. It is important to note that charging the generator and battery with the included cables is necessary for warranty purposes, as utilizing 3rd party materials will void the warranty if damage does occur. Due to the variability of input charging and export uses, extension cords were purchased for indoor AC adapter charging and AC powering of refrigerators and other appliances. Charging capabilities are available via 4 AC outlets (2200W total), 4 12V DC outlets (RV, car, and 5.5mm), a 100W USB-C port, 4 USB-A ports, and 2 15W wireless charging pads. Depending on the power of the source, a complete charge of the 2,048Wh capabilities of the generator can be completed between 2 hours (when combining 1300W solar panels with full solar capacity with AC charging) to 10 hours (if using a 24V car port).

Battery Life

The generator can complete approximately 3,500 life cycles before the capacity begins to lessen below 80%. To preserve battery life, charging the generator to 80% twice a year if not in regular use already, is recommended by the manufacturers. If left unused, a solar generator can hold its battery storage for 1 year.

CES Researchers are continuing to test the various capabilities, uses, and limitations of the current solar kit and will make changes or additions when applicable.

CES does not endorse any specific brand of generator. Please see the equipment comparison information for more information about other brands reviewed during the initial phases of this project in 2022, and reasoning for starting this research, education, and outreach project with the Bluetti generator. CES intends to test and use other generators as part of this ongoing project.