

SOLAR GENERATOR OPTIONS AND COMPARISON

Multiple brands and models of solar generators were considered for this project. The objectives of our search included finding a generator kit that was simple to assemble and use, that could support a group without power for an extended length of time and was reasonably priced based on the capabilities.

Goal Zero

Goal Zero is a company that offers a wide range of products, but price and reviews led us to continue our search. The Yeti 200X Power Station and Nomad 20 Solar Panel cost \$429.95, offering a 187Wh charge from the generator, and 20W capabilities for the panel. It is small and portable with a panel that is made to fit into a backpack. Unfortunately, it is too small for the purposes of this project. These units are intended to be portable and used for small devices such as phones and laptops during camping/outdoors situations. The same was concluded about Goal Zero's Yeti 500X Power Station and Nomad 50 Solar panel, which cost \$924.95. To suit the needs of community support during extended periods of power loss, the generator and panels would need to provide more watt hours and shorter re-charging times. The Yeti 3000X Power Station with Boulder 200 Solar Briefcase Kit was a close competitor to be the final choice, but the price of \$3,699.95 was high compared to other brands offering similar power capabilities. This was once again true with the Yeti 6000X Power Station with 2 Boulder 200 Solar Briefcase Kits (\$5,999.95) and Yeti 6000X Power station with 4 Nomad 200 Solar Panels (\$7,750.52) when compared to the generator and extendable battery kit offered by Bluetti.

Powerpanel

Powerpanel's PVT1 was an option that was also considered, but just as it was a year ago, the product is seemingly still in trial and not mass-produced yet. However, the product is certified by Solar Rating and Certification Corporation (SRCC) and Florida Solar Energy Center (FSEC).

Nature's Generator

Nature's Generator was an intriguing brand, offering a generator charging option that differs from competitors. It can be charged using a wind turbine that generates 150W at 27mph and can withstand speeds up to 110mph. The Gold Essential Generator allows solar and wind power to recharge the 1800W capability, but the ability to stack batteries to extend the power capacity made Bluetti more appealing for long-term situations, especially those where sunlight may not be consistent. The panels also only provide up to 100W of recharging power.

EcoFlow

EcoFlow's Delta pro generator was not initially searched as an option at the inception of this project, but now stands out for a few reasons. Popular science rated this generator as the best to have for the home, likely due to its expansion capabilities. Where Bluetti expands double its capacity with extendable batteries, the Delta pro can expand up to five times the amount of power (up to 25,000Wh). This option is however more expensive (around \$3,699 for the generator alone, \$7,697 for a comparable expansion package) and significantly larger in size than the AC200max.

Our Chosen Option: Bluetti

Bluetti's products came highly recommended in the off-grid community due to its high-power capacity, as well as the offered bundles that provide over double the Wattage through connectable backup batteries. This longevity can ensure confidence that power can be provided over the uncertain bouts of powerlessness that result from extreme weather events. The AC200MAX was ultimately chosen over the AC200P due to the expandability allowing up to 8,192Wh. The main cons highlighted through customer testimonials included the weight of the generator, but this was an issue highlighted by many brands such as Ecoflow. Paired with the suggested materials list we have compiled, Bluetti generators and panels are the best fit for our goals to keep multiple electrically powered appliances and supplies running simultaneously for extended periods of time without a domestic power source.

Sources:

<https://www.goalzero.com/products/goal-zero-yeti-6000x-portable-power-station? pos=1& sid=20a16d0bd& ss=r>

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<https://energypal.com/best-solar-panels-for-homes/power-panel/pvt1>

<https://naturesgenerator.com/products/natures-generator-gold-essential? pos=3& psq=gold& ss=e& v=1.0>

<https://naturesgenerator.com/products/natures-generator-wind-turbine? pos=1& psq=wind& ss=e& v=1.0>

<https://us.ecoflow.com/products/delta-pro-portable-power-station?variant=40516140138569>

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.