



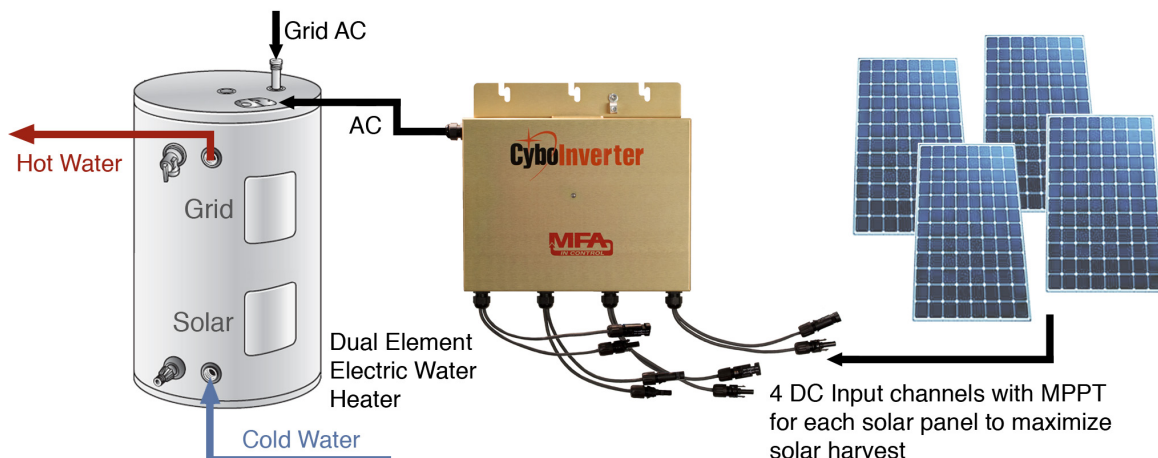
## News Release

### CyboEnergy Releases Battery-Less Off-Grid Solar System Design Guide

January 20, 2021 – CyboEnergy, Inc. (Rancho Cordova, California), the developer of the world's first solar power Mini-Inverter that possesses the key merits of both central inverters and microinverters, announced today that it has released a Battery-Less Off-Grid Solar System Design Guide. This guide will help customers and installers design off-grid solar PV water heating, zone cooling and heating, and electrification systems. CyboEnergy's two popular products, the Off-Grid CyboInverter H model and the AC Assisted Off-Grid CyboInverters are the core products enabling such battery-less off-grid solar power systems.

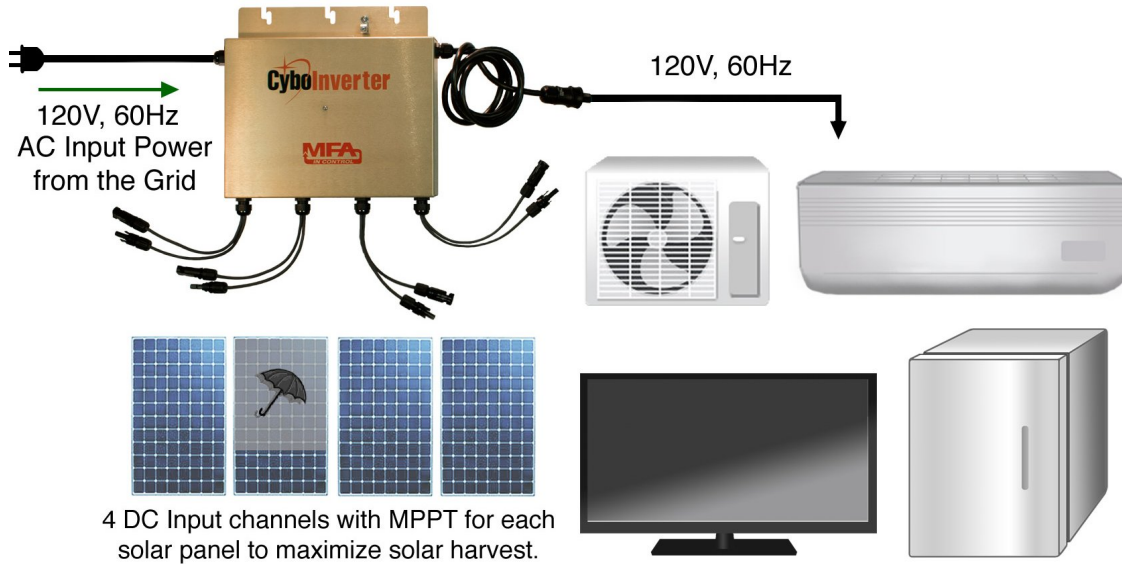
CyboEnergy CEO, Dr. George Cheng said, "Batteries have fundamental issues due to their high cost, safety risks, and recycling challenges. As a clean tech company, we have been pursuing our goals to offer battery-less off-grid solar solutions. Thousands of Off-Grid CyboInverter H model for PV water heating and AC Assisted Off-Grid CyboInverters have been deployed. Since there are no comparable products on the market, we developed this guide to provide a systematic approach for customers to design and build battery-less off-grid solar systems."

Instead of using batteries, why not use solar PV water heating to store energy in the form of hot water? The following figure shows an off-grid PV water heating system, where a CyboInverter H model is connected to 4 solar panels and delivers solar energy to the lower heating element of the water heater. The temperature setpoint for the lower element can be purposely set much higher than the upper element. This way, the upper element that consumes grid power does not turn on unless a lot of hot water is used within a short period of time. Compared with thermal solar, PV water heating is simple, clean, safe, cost-effective, and has no maintenance requirements. Packaged PV water heating systems with OG-300 certifications are available through CyboEnergy's strategic partners.





How to operate an off-grid system with no batteries? The following figure shows an AC assisted off-grid solar system that can run 120V loads. With assisted AC input power, the system can run AC loads 24/7 with solar power, grid power, or combined power. It allows users to take major loads off the grid and avoid the cost and potential curtailment of an on-grid solar system.



“Our battery-less off-grid solar system is the simplest and most cost-effective way to save electricity for homeowners, avoid demand charges for businesses, and provide hot water and backup power when the grid is down,” Dr. Cheng added.

The CyboEnergy Battery-Less Off-Grid Solar System Design Guide can be downloaded from CyboEnergy’s website at [www.cyboenergy.com](http://www.cyboenergy.com). To purchase CyboInverters or request a user guide, please contact CyboEnergy or its strategic partners and dealers.

### About CyboEnergy

CyboEnergy is a subsidiary of CyboSoft, focusing on development, manufacturing, marketing, and services of product lines in the renewable energy field. CyboEnergy received the Frost & Sullivan’s 2013 Global Product Differentiation Excellence Award for Solar Inverters and Frost & Sullivan’s 2017 Global Solar Inverter Technology Innovation Award. For more information, please contact: CyboEnergy, Tel: (916) 631-6313, e-mail: Josh Bear, [JBear@cybosoft.com](mailto:JBear@cybosoft.com), Web site: [www.cyboenergy.com](http://www.cyboenergy.com).

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