Backfill

Solar Cargo Trailer

Paul Bias, a green builder in Arcata, Calif., frequently works on sites where it's difficult to get temporary power. Rather than use a generator — which is loud and dirty and easy to steal — he powers his tools with energy from the sun **(1)**.

He first tried this approach when the technology center at a nearby university hired him to do some work and loaned him a trailer-mounted photovoltaic (PV) power system. By the time the job ended he'd decided to build a similar system for himself.

On an old cargo trailer, he installed an adjustable aluminum rack supporting four 170-watt solar panels **(2)**; they're wired to a charge controller and a bank of deep-cycle batteries **(3)** inside the trailer. The batteries put out 24 volts of DC power, which an inverter **(4)** converts to 110-volt AC that powers two 20-amp circuits.

Cloudy weather is not a problem. When fully charged, the batteries contain enough juice for three carpenters to work for two or three days. In a pinch, Bias can recharge them by plugging the inverter into an electrical receptacle.

Building the system cost $11,500 — $4,000 for the batteries and $7,500 for the panels, inverter, and control mechanisms. Although he admits that getting power from a generator or the grid is a lot cheaper, Bias says his portable PV system offers numerous advantages: It's clean and quiet and doesn't emit greenhouse gases; its power is available the moment he arrives on site; and the trailer can be used for storage **(5)**.

Best of all, he says, is the free publicity. The trailer has been written up in the local paper, and people now seem to recognize it and associate it with his company. Perhaps someday, Bias muses, one of them will decide to build a green home, and the first company they'll think to call will be the one with the solar trailer. — *David Frane*

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To see a wiring schematic of this system, go to www.jlconline.com and click on the JLC Extra tab.