Charging your power chair or scooter when the power is out

Charging your chair or scooter when the power is out can be a major challenge. This info sheet considers a few options:

A. Charging at a day shelter or a friend's generator
B. Charging off a car (including hybrids and EVs)
C. Solar power

The challenge is that most powerchairs and scooters usually run on two large (12-60Ah) 12V batteries. The charger that comes with your scooter might be an overnight charger that only charges at 2 Amps, so it'll take at least 6 hours to charge your 12 Amp-hour battery pack. With a larger chair, you might have an 8 Amp charger, but that will still take around 4 hours to fully charge a 30 Amp-hour battery and 8 to charge a 60 Ah one. So you need somewhere where you can charge for 4-8 hours to charge from zero to full.

Charging at a day shelter or gas generator

Charging at a day shelter or a (friend's) generator makes the most sense although it means that you might need to spend 4-8 hours at that location, depending on how depleted your batteries are and how slow your charger is.

Wheelchair chargers only take around 30 watts for a 2 amp charger to 200 watts for an 8 amp charger (we're including some of the inefficiencies of the charger in the equation), so they are not significantly taxing on a generator or emergency power.

Charging using a car's alternator

If you have access to a car, you can hook up a small "inverter" to it that will take the 12 volt power and convert it to the 120 volt AC power you need to plug in your charger. You'll need to keep the car running as you'll quickly deplete its batteries if it's not running. Be careful of the carbon monoxide that the car generates. Electric cars as well as hybrids such as the Prius can

also power inverters - although in both cases, you need to keep them 'on' so that the main battery pack can charge the 12v battery.

A 300 watt inverter is fairly inexpensive (<$50). Note that you may burn out the cigarette lighter if you draw more than 120 watts, so if you're plugging in a bigger charger, use the battery clamps instead of the cigarette lighter.

Solar Power

Solar power is enticing but the Lab has found that you will only get less than half of the rated power out of portable solar panels. So a "100-watt" panel may struggle to give you 50 watts even in the brightest northern California sun.

You'll then need to convert the DC power from the solar panel to the AC power for your charger.

The best solution albeit very expensive is to use solar panels to charge a large battery bank such as a Yeti 1000 and then use that to charge a chair. But because the Yeti only has 1000 watt hours and a large chair might have 840 watt hours, you might only get 1 charge out of a fully charged Yeti 1000 — and it might take 2-3 days to fully charge a Yeti even with their biggest panels. And you'll be out almost $2000.

Please give us feedback on this! Either now or later on at: knak@berkeley.edu. v0.1b