How To Build A DIY Solar EV Charging Station

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With today"s constantly fluctuating electricity prices, it’s only natural that you’d want to become more energy-independent. Or maybe, you just love a good ol’ DIY project. Either way, a DIY solar EV charging station is a no-brainer!

But there’s more -- controlling the input electricity for your EV also determines its ‘greenness’. Why? Because, while you may be mitigating tailpipe emissions, your electricity source is still a greenhouse contributor. For example, in the US, 40.7% of electricity is still created from natural gas and 19.4% from coal!

Given that we would not be typically driving your car flat out every day, let’s assume that we’d be driving a reasonable 30 miles per day. This would mean our Tesla would use 7.8 kWh per day, according to a range of 0.26 kWh per mile.

We also want to aim for a Level 2 AC charger (240V), as a level 1 charger would take too long and it’d be quite risky to try and install a level 3 charger at home (at 480V and with direct current).

Inverters for solar panels are a key part of your system. They allow your solar panels to power your electronic devices by converting DC (Direct Current) electricity into clean AC (Alternating Current). Similar to the electricity from your utility company.

You’ll need an inverter as the output power of a solar panel is constantly fluctuating over the course of the day and is strongly correlated to the weather (passing-by clouds, rain, full sun, etc). Because of these fluctuations, all inverters for solar panels include an MPPT solar charge controller that’ll optimize solar production.

Store your PV energy in batteries -- they are your key to autonomy. Lithium batteries are recommended. Although more expensive than lead-acid, they’re perfect for intermittent charging and durable, with up to 10 years of service.

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