

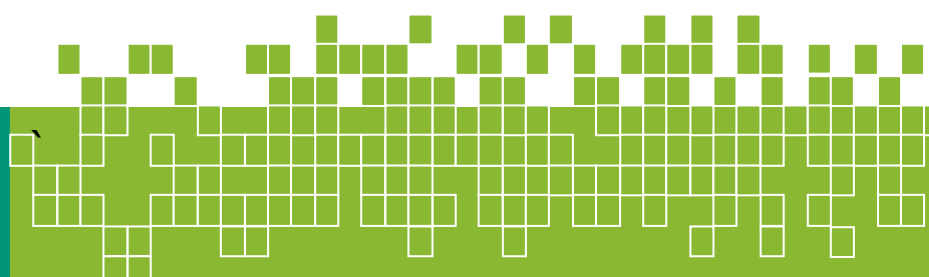


- **Solar charging stations for electric vehicles (EV's)**

The combination of solar energy and **electric vehicle (EV) charging** is the key in drastically reducing our dependence on fossil fuels. Electricity comes from a variety of sources and it's crucial that electric vehicles will be powered by renewables. Electric cars are becoming immensely popular and coming years we expect nearly anyone who owns a solar energy system will install a **solar charging station** at its home. For this to happen we'll need a fundamental change in how we think about refueling our cars and a natural evolution of our energy infrastructure.

- **What is the change in thinking that we need?**

Most people believe we need to be able to charge our **plug-in electric vehicle (PEV)** or **plug-in hybrid electric vehicle (PHEV)** within 2-4 minutes, similar to pulling over at a gas station and filling up your car with gas. Even though Tesla's super chargers are trying to do exactly that, electric charging is going to be different from what people are used to. From now on most people will charge their electric cars with their home solar charging station while they sleep or while they're at work. Solar charging stations will be used for "**topping off**" an electric car, giving the owner enough battery charge to return home where she can fully recharge the EV.





• On-Grid solar charging stations

A grid-tied solar energy system is the most straight forward way to charge your electric car with solar energy. A grid-tied solar energy system will feed the power to the grid, regardless of whether your home needs the power at that moment or not. So when your solar energy system is feeding to the grid, and you are at your office, the electric power generated at home is sold to the utility company. You'll get that power back from the utility company in the form of a credit. When you come back from work and park your car at home, you can use that credit to re-charge your car at home.

A conventional electric vehicle charger that is connected to the grid “will almost always be cheaper” than an Off-Grid charger that stores the power in batteries.

• Components needed for a solar charging station

1. EV charger
2. Solar panel array, installed on roof, ground or canopy
3. Battery energy storage system (ESS, in case of an Off-Grid Solar energy charging station)
4. Solid foundation, in case of a stand-alone solar charging canopy (Often used: a steel base plate that functions as ballast, so no foundation is required, simplifying the installation).

