What powers ev charging stations

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Compared to filling up your tank at familiar gasoline or diesel pumps, charging an EV is vastly different, and may even seem complex and daunting.

So to help you navigate, we answered the 7 most asked questions about electric car charging:

Charging an electric car is a pretty simple process that can differ depending on the type of charger. Generally, every EV comes with a charging cable and plug suitable for the specific car and country you live in. Most of the time, you will be able to plug the cable directly into a 3-pin home outlet and charge your EV straight off your home''s electrical network.

Charging via a home EV charging station (or charging on the go) works differently. While it depends on the charging station, generally, the process is as follows:

However, that could be changing in the near future with Plug & Charge (ISO 15118). This new international standard provides a direct communication interface between chargers and EVs, payments are arranged automatically, allowing a charger to immediately recognize, identify, and connect to your car and start charging.

When charging at home, the electricity used by your EV will simply be added to your electric bill. Paying for public charging works differently. Often, you can either pay directly by card or an app, or your charging costs are monthly billed based on a contract or subscription.

While EV chargers come in many different shapes and sizes, the main difference is whether they provide alternating current (AC) or direct current (DC).

All batteries, including those in EVs, store DC power, so the AC current coming from the grid must be converted. It''s not a question of if, but rather where this conversion happens that highlights the key difference between AC and DC chargers.

To avoid getting too technical, let''s give a practical example. In order to fully charge a Tesla Model S (that has a 100 kWh battery) with a 22 kW Level 2 charging station, it would take about 7 hours, while it would take an 11 kW charging station approximately 10 hours to do the same.

With DC charging, the electricity is converted from AC to DC by the charging station before it reaches your car. This allows it to bypass the car''s slower onboard converter and achieve much higher power outputs, up to 350 kWh as it feeds power "directly" to the battery. As a result, charging an EV with a DC charger takes mere minutes rather than hours.

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For context, and quick comparison; what would this mean when fast charging a Tesla Model S? This would only take around 30 minutes.

However, -as you can probably imagine- DC charging infrastructure requires a lot of power and is therefore unsuitable for most residential, commercial, and municipal environments.

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