

Electric car charging levels explained

Electric Vehicle Charger Levels and Speeds

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Yes, EV sales in Canada have slowed, but according to the latest Canadian Automotive Insights summary from S&P Global, zero-emission vehicles (ZEVs) saw a 48.9-per-cent sales increase in 2023 over the previous year. And, true, car dealerships across the country have EV inventory on their lots, but did we really expect the torrid pace of all-electric vehicle sales to continue, particularly now the so-called early adopters have bought their EVs? If anything, dealers with EVs in stock will allow interested buyers an opportunity to test-drive one, something that hasn't been the case to this point.

Despite that abundance of all-electrics, there are still many people trying to discern what electric vehicle charging is, how kW is different from kWh, or figuring out the difference between a Level 1 and Level 3 charger, or aiming to tell apart the North American Charging Standard from the Combined Charging System.

Here to help is an EV 101 crash course, an all-electric primer that should answer any question you have about the wonderful world of watts, kilowatts, and granny chargers. (Don't know what those are? Read on!)

Electric Vehicle Charging

Regenerative Braking To Charge Batteries

AC, or alternating current, is a type of electric current that alternates direction from time to time. Houses are powered by AC, which due to its properties is easier to make travel over long distances. DC, or direct current, is a one-directional flow of electricity that is used for the charging of batteries and systems that require large amounts of power. DC charging provides a more consistent delivery of volts than AC, which makes DC charging, also known as fast-charging, preferable for an electric vehicle, as it is faster.

And finally there's Level 3, which is the most powerful charger readily available, as it uses DC, or direct-current charging. Also known as "fast-charging" or a "Supercharger," a Level 3 charger typically ranges between 50 kW and 400 kW, and can add between 270 to 480 km of range in an hour.

To connect to a Level 3 - or DCFC - charger, an electric vehicle requires a Level-3-specific connector port. These include CHAdeMO, SAE Combo CCS, and Tesla Supercharger (or NACS) ports. So, vehicles not equipped with these ports cannot DC fast-charge.

One of the most obvious advantages of Tesla's North American Charging Standard over the Combined



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Charging System is the lighter weight, and thus easier manoeuvrability, of the smaller and sleeker NACS plug. More importantly, Tesla Superchargers have proven far more reliable, and plentiful, than public CCS chargers across Canada and the United States. And finally, the NACS system does not require fussy credit-card or app payments, instead offering a simple plug-and-play capability where the charger identifies your vehicle and charges an account you have set up with the charging network.

This depends on the EV's battery size, and the level of charger being utilized. A Level 1 charger can add approximately 6.5 kilometres of range per hour. A Level 2 charger adds roughly 50 kilometres of range per hour. And a Level 3 can add between 270 and 480 km in an hour.

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