Ev plug and charge

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Any electric vehicle owner can tell you all the ways in which EVs are preferable to gas-powered cars, but there"s no denying that navigating the various requirements of different charging stations can be a headache. Gas stations have the advantage of a uniform experience: swipe your card, select your grade, pump your gas, and go.

EV owners deal with a much more complicated system of fobs, app logins, and individual accounts tied to specific charging stations. In fact, it"s so inconvenient that most EV owners stillcharge their vehicles at home.

Enter plug-and-charge, a new technology that promises to simplify payment processing, charging station compatibility, and the user experience overall. It"s an innovation we"re honestly excited about, and ChargeLab is working hard to deliver it for all our drivers.

Plug-and-charge introduces two big innovations: better data security and data integrity in the charging process and a more seamless user experience for EV owners. But what is plug and charge, and how does it work?

ISO 15118, colloquially known as plug-and-charge, is a new form of encrypted communication between an EV and a charging station. Rather than relying on a fob, login, or other external form of authentication, the charging station authenticates the car itself, and payment processing happens automatically. With plug and charge, billing information is tied to the car, set up when it"s bought or leased, and authenticated by the charging station at the point of sale.

This process creates a secure, standardized way for charging stations to communicate with EVs. By using asymmetric cryptography--a pairing of a public and private security key, neither of which can be decrypted without the other--the charging station is able to verify an EV"s identity and vice versa. This allows for a higher degree of data security and integrity with plug-and-charge, which protects user information, payment processing details, and the security of the electrical grid.

Plug-and-charge also creates a much simpler and more streamlined user experience. EV owners set up their payment and authentication information when they buy or lease an EV, at which point all that data is linked to a contract certificate and public security key associated with the vehicle. From then on, all the owner has to worry about is plugging the vehicle into a charging station; plug-and-charge handles any authentication and payment processing automatically and invisibly.

Customers love convenience, and that"s only increasing with time. According to a 2020 National Retail Federation survey, 83 percent of consumers said convenience was more important to them than 5 years prior, and 97 percent had backed out of a purchase because it was inconvenient. Inconvenience can cause someone to avoid a store or find a different charging station.

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However, as charging stations and auto manufacturers adopt plug-and-charge, inconvenience starts to become a non-issue. All the driver must do is remember which stations have plug-and-charge and drive to whichever one meets their needs. Compared to traditional methods of payment processing and authentication, plug-and-charge is orders of magnitude more convenient. It"s an even easier process than finding the right gas station.

Improved security builds trust and customer loyalty, but better security is worth pursuing in its own right. Data breaches are costly and increasingly common; a recent IBM survey estimated the average global cost of data breaches at $4.45 million USD (about $5.9 million CAD), representing a 15 percent increase over the last three years. Plug-and-charge significantly narrows the possible vulnerabilities in your EV ecosystem.

Plug-and-charge also offers more efficient charging networks overall. As charging adapters become more standardized, charging stations can service a growing number of vehicles, and drivers can be confident their EV is compatible with a given charging station. Charging sessions don"t take as long, and there are fewer points of failure to bog down customer service reps. It even supports wireless charging, meaning plug-and-charge is future-proofed as charging technology improves.

Plug-and-charge has only been around a short time, which means EV manufacturers have only incorporated plug-and-charge technology into their cars for a few years. That said, plug-and-charge is gaining momentum. Ford and Porsche were some of the first on the market with plug-and-charge. Audi, BMW, Volkswagen, Skoda, Cupra, Genesis, and Mercedes-Benz have all adopted the technology since.

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