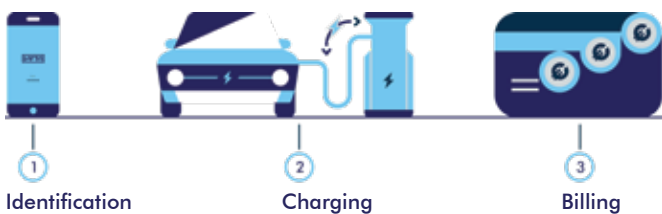




# As Easy as “Charge me!”

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Smart EV charging, or intelligent charging, refers to a system where an electric vehicle and a charging device share a data connection, and the charging device shares a data connection with a charging operator. As opposed to traditional (or “dumb”) charging devices that are not connected to the cloud, smart charging allows the charging station owner to monitor, manage, and restrict the use of their devices remotely in order to optimize energy consumption.



## MANAGING LOADS AND COST

Viewed purely from an infrastructure/operating perspective, smart charging will flatten the electricity usage peak by shifting the peak due to vehicle charging away from the peak due to other consumption.

Powered by an intelligent back-end solution, real-time data from connected charging devices and charging events allows remote management based on various signals: e.g., fickle energy production, local electricity consumption, number of other vehicles being charged, electrical devices being used on a nearby premise. To create a more sustainable energy system based on renewable energy sources, EV charging has to be smart.

In its essence, smart charging requires an electric car driver to identify at the charging station. Identification connects the EV driver, charging point, and the charging event together. The right price will be charged from the right customer, and money is directed to the right charging station owner. Since it's smart, everything happens automatically.

On paper, for EV drivers registered to the charging service, identification is effortless: they just log in to the mobile application and start charging or show their RFID tag to the charger. Unregistered users can also use the stations and pay with a credit or debit card.

The charging event itself happens based on the settings and prices set by the station owner. The station can be part of a station group and include plenty of smart features occurring on the background, but for the end-user charging is as easy as it can be: they just identify and plug in.

## GETTING TO TRUE ROAMING

Or it would be easy, if not for real-world ugliness often encountered when travelling by EV around the country or even worse - going abroad. To borrow parlance from telcos, “roaming” between the ever-increasing number of smart EV charging service providers and all their own charging platforms, applications, RFID cards and tokens, and means of end payment - is still very much full of friction and frustrations.

EV owners are forced to juggle between dozens of charging networks' apps, cards, and tokens just to start charging. At the same time, not only do charging networks have vastly different pricing, but they also have great variance in prices inside their own network based on load (slow or fast charging), time of day, loyalty membership status and many other factors that confuse and complicate price comparison between networks.

Furthermore, the digital experience itself is equally lacking. Different user interfaces and user journeys between operator apps needed just to accomplish even the most basic of tasks make for daily frustrations.

Fortunately, charging network operators are - encouraged by user demands and EV owner clubs and associations - growing more aware of the need to offer a streamlined digital charging experience.

We are in the midst of a shift from infrastructure-first to user experience-first thinking. The charging infrastructure - ports, kilowatts, and locations - is still as important as ever in building charging stations. However, to maximize usage and revenue, charging station operators are joining forces and working towards a common goal: interconnected roaming platforms where customers can charge at any station in any network with just one customer account, ideally using their preferred app and payment method of choice. Thus, the onus is on the operators' backend systems to exchange and present data from various networks to the user in a timely fashion, and provide end settlement services towards credit card networks and processors.

