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CharIN positions on:

Payment Systems for EV Charging – Part I

within the context of the German “Ladesäulenverordnung – LSV”, and the revision of the Alternative Fuels Infrastructure Directive (2014/94/EU)

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Background:

Scope – Germany – Europe

The (proposed revision of the “Ladesäulenverordnung – LSV”) ordinance regulates the minimum requirements for the safe and interoperable construction and operation of publicly accessible charging points for electric vehicles as well as other aspects of the operation of charging points such as authentication, use and payment in accordance with the implementation period of Directive 2014/94/EU of the European Parliament and of the Council of October 22, 2014 on the development of the infrastructure for alternative fuels (OJ L 307 of October 28, 2014, p. 1).

The vast majority of EV charging events are managed easily by customers through the use of their selected Electro Mobility Service Provider contract. Publicly accessible charging points are integrated into a comprehensive roaming system based upon commercial agreements between parties. New technological developments will further enhance the EV driver experience with contract-based charging, reducing the need for ad-hoc charging.

In the event that the customer does not have a contract with an Electro Mobility Service Provider, the “ad-hoc” payment solution allows a convenient recharge without the need to sign-up to any new contract.

- **“Ad-hoc” payment can be made directly and easily by the customer using credit or debit card details already today. Mandatory additional hardware installations on the charging points should be avoided.**
- **Cash payment solution on charging points should be avoided.**

Challenges to consider regarding mandatory ad-hoc payment solutions for EV chargers.

In principle, numerous solutions already exist for ad-hoc payments, via payment terminals, NFC readers and web-based (apps & mobile websites) applications.

The following topics should be considered in this context.

- Payment terminals and readers can increase the cost per charging point between € 400 and € 2000 (excluding construction costs, certification and follow-up costs), and increase the susceptibility to vandalism and weather (especially snow and ice). The cost for installation, maintenance and repair of payment terminals will make this solution more expensive.
- Payment terminals with PSD2 require strong customer authentication and a secure PIN pad (the PIN cannot be done via display/screen, it has to be a secure PIN pad).
- Direct credit card terminals may require a secure, PCI certified network connection (potentially additional SIM card and backend).

- Lack of technical solution: Reservation of payment amount (card-swiping at beginning of charging session) is not possible over a foreseeable average charging time (payment ecosystem not prepared)
- Credit card terminals may not be reliable enough, especially not when unattended and without (video) surveillance (vending machines are usually located under a roof or in a building).
- Currently, only a limited amount of suitable payment terminals is available; this could result in market distortion in favour of few companies.
- The proposed “Girocard” system is a German debit payment and ATM system that is not used anywhere else in Europe. Corresponding services such as Europay do exist, but are rarely used in practice. Direct payments methods have to support technologies used all across Europe in order to support international passenger transit.
- The usage of credit cards is unevenly spread and relatively little used in Europe¹, especially compared to smartphones². Currently only a small number of EV chargers offer payment terminals.
- Continuously new payment technologies such as web-based applications are developed, which may encourage CPOs to choose web-based rather than payment terminal based solutions for their EV charging stations.
- Credit card scamming encourages the adoption of wireless, "tap-and-go" style payment solutions such as contactless cards and mobile based payment options or app-based payments.
- Credit card terminals may be incompatible with the use of RFID badges, and are often not optimized for QR code recognition.
- Due to the points listed above, mandatory direct payment modules for card payments could circumvent business cases to be positive to a larger part. This may disattract investments in charging infrastructure and therefore slow down the overall rollout speed for EVSE hardware.

CharIN recommendation:

Ad-hoc payment solutions need to be flexible to offer different payment methods, so it is up to the operator to offer a payment method suitable for the targeted customer group. Web-based payments are already simple to use without the need to install additional Apps/Software or register with different operators. Dedicated Apps enable operators and service providers to offer additional services to the EV drivers. Payments solutions like pre-installed Apps on smartphones for wallet purposes (e.g. ApplePay/GooglePay) enable customers to pay easily via NFC-capable smartphones or smartwatches. The industry is working hard to provide customers with the best charging experience possible and the choice for the ideal payment method should be left to the customers to decide.

¹ <https://www.statista.com/statistics/1112757/credit-cards-and-debit-cards-per-capita-in-europe/>

² Newzoo's Global Mobile Market Report 2019 - (Light Version page 33)