

Proposal to define charging speed indicators

Context

Different electric vehicle models have widely varying charging capacities. Although these characteristics play an important role in the user experience, they are relatively unknown to users. In order to provide transparent information and facilitate comparisons, it is necessary to standardise communication regarding the charging speeds of different EV models.

In addition, qualitative information should be provided on a systematic basis to explain that charging power and therefore charging times can vary depending on various factors, including the initial state of charge or battery temperature and potentially the outside temperature.

Position of the French administration

It is proposed to use two main indicators for EV charging speed. The first concerns the time taken for a near-complete charge corresponding to normal use, and the second concerns the charging capacity in a given time.

For a ‘near-complete’ recharge, it is proposed to measure the recharge time between 10% (or 20%) and 80% of SoC (State of Charge). In real-world use, it does not seem feasible to start recharging from an empty battery (which would correspond to an immobilised vehicle). Furthermore, it may not be advisable to recharge too frequently beyond 80% using fast charging, in order to preserve the health of the battery. In addition, an indicator based on the 80% threshold would encourage drivers not to recharge beyond this level and would optimise recharge times and the use of high-power charging stations.

This indicator must be considered in relation to the size of the battery. Indeed, for the same vehicle model with two battery size versions, the model with the smaller capacity battery would have a shorter charging time and could therefore be considered ‘better’. This is why it is necessary to have a second indicator for charging speed, regardless of battery size.

With regard to charging in a given time, it is proposed to start from a SoC of 10% for the reasons mentioned above, and to take a duration of 10 minutes to define the distance recovered during this charge. Eventually, as the concept of recoverable distance depends on the vehicle's consumption (different distances on motorways and in towns), it could be envisaged that this second indicator could be defined in terms of the number of kWh recovered in 10 minutes of charging.

The two main indicators:

- Charging time between 10% and 80% of SoC
 - Or between 20% and 80% of SoC
- Distance recovered in 10 minutes of charging from 10% SoC (WLTP consumption)
 - Or number of kWh recovered in 10 minutes of charging from 10% SoC

If these indicators are only achieved when the battery has been pre-conditioned, this information must be indicated.

It should be noted that these indicators are also included in the ISO/SAE 12906:2024 standard.

If other indicators can be considered, such as maximum charging power, this should not be taken as an instantaneous peak, but as a minimum over a period of at least 10 minutes. Similarly, a charging time to 100% could only be complementary to the charging time indicator to 80%.