CHAdeMO

CHAdeMO should get ready for the war to come about the standardization of the fast charging station. From a leading role in the domain, some decisions and competitors could endanger the bright future it was predestined to. What makes this giant having feets of clay?

CHAdeMO is an association promoting a standard for the DC fast charging station. Its aims at establishing a dense network of fast charging station worldwide, because it considers that it is the only way to overcome the range anxiety effect, this fear of the drivers to run out of battery in a desert of charging station. With a technology permitting to charge every electric vehicle up to 80% of its battery capacity in 30 minutes, it recommends, according to the Japanese origin of its name, to drink a cup of tea meanwhile.

Gathering today more than 341 companies from more than 38 countries, its early development was pretty fast. Indeed, this champion was originally a consortium of all the best Japanese industry that could have a role to play in the electric vehicle industry:TEPCO, that was the first to start a R&D program on charging station in 2005; but also automotive companies like Toyota and Nissan, or battery and energy companies. These companies founded the association in 2009. In the end of 2010, the first electric vehicle compatible with the standard was launched in the market: the Nissan Leaf.

Quickly, things accelerated. Backed by the Japanese government, that gave subsidies for R&D for the performant companies, a dense network of charging stations emerged in Japan; then was the turn of Europe and the United States. Nowadays, more than 7,000 CHAdeMO charging stations are connected to the grid. The sale of electric vehicle compatible to CHAdeMO standard has also risen sharply: between 2010 and 2014, 368,000 electrical vehicles were sold, among them 80% are fast chargeable. **50% of the electric vehicle car market is compatible with CHAdeMO standard**.

At the same time, CHAdeMO companies mutualize their resources to impose their standard to the market, gathering security issues, a maximal voltage of 50kW, communication channels between the battery and the charger, leaving also areas of improvement with the development of the technology. The specifications are improved every year through various workshops. Nowadays, many car manufacturers still produce cars that can use CHAdeMO plug. These efforts finally resulted in the recognition of CHAdeMO as an international standard and as a European standard.

These outcomes are good for all the companies participating in the CHAdeMO association: they get a guarantee that they technology will be used in the following years. Instead of fighting to impose their standard, which would be a barrier to the rapid development of the market, they need to convince the consumer in terms of technical performance and price. The obstacles to the competition being alleviated, the race for innovation is very fierce: more than 50 companies actually manufacture different DC charging stations with the standard CHAdeMO, and the technology is improving at a fast pace. The company Fuji recently launched in the market a low cost charger: by lowering the voltage to 20kW, it makes the usage price go down with a charging time that does not exceed 7 extra minutes. Inevitably, this will pull the prices of the market down.

The Western car manufacturers, outpaced in this first round, tried to win the second by establishing a competitive standard, Combo. Developed by the biggest automotive manufacturers, such as BMW, Volkswagen, or General Motors, the initiative is an attempt to catch up the lost time against the Japanese corporations. Although there is still a few cars compatible with Combo charger, they managed to make Combo certified as a standard in the US and in Europe; what’s more, all public DC fast charging station in Europe should necessarily be equipped with a Combo plug from 2017, which is not the case for CHAdeMO…

Still, due to the fact that many components are common between the two standards, many European manufacturers responded by proposing two plugs in their charging station: one Combo, and one CHAdeMO, with an extra cost lower than 5 to 10% of the charger price. Consequently, every major stakeholder in the European market finds its interest until now: the companies following one of the two standards because they will be well represented in the network; the European Union because of the healthy competition environment it managed to provide by permitting the two standards to coexist; and the consumer that can buy an electric vehicle without the fear that the standard they chose will be out of the market the next year.

Thanks to the massive presence of CHAdeMO in the market, both in terms of already existing infrastructure and wide range of compatible car, it could not be ignored and has still an important role to play. But can we assess the same within 10 years? When the biggest Western manufacturers will catch up and propose competitive electric vehicles, it is not guaranteed that the consumer will not massively shift to their favorite trademark at the time of petrol cars, which would be more German than Japanese cars. If we add the fact that the Combo charger network will be necessarily well developed due to the European commission decision, it is possible that CHAdeMO will be phased out. What’s more, the Fukushima accident has slowed down the dynamism of TEPCO, the leading company in CHAdeMO’s standard, in the research and publication of new patents in the industry.

Finally, this case shows that the battle of standardization is not over in the market of charging station. Even if CHAdeMO was by far the fastest to impose its standard, and did it in a very organized way, the pie is foreseen to be too large for other car manufacturers to ignore it. The coexistence of these two standards makes the competition environment in the European Union quite healthy for the moment, but anyone that wants to tap the market should be aware of the danger to put all its eggs in one basket. Although CHAdeMO is leading the race, the emergence of Combo, and even Tesla supercharger, is such that all the options should be kept open for the moment. On the contrary, it is wiser to focus on the business model and the competition on the price and the governments’ subsidies to thrive.