Exploring pathways for a balanced integration of electric mobility (agenda item 9)

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Hello, my name is Felix Tröscher. I am responsible for LamA, which is short for Laden am Arbeitsplatz, or charging at work, at the Fraunhofer institute for industrial engineering.

Here in Stuttgart, our systematic approach aims on matching mobility needs with the available modes of transportation

Although we take into consideration all modes of transportation, we understand that cars are still playing a significant role in serving individual mobility needs.

For journeys by car to be compliant with environmental targets, battery electric vehicles represent the best overall package to reduce carbon emissions due to their high overall energy efficiency.

To support the ever growing fleet of both corporate and private electric vehicles, charging infrastructure plays a crucial role in electrifying vehicle fleets. Charging must work seamlessly in order for the electric drivetrain to be a viable alternative for internal combustion engines.

This is where LamA stepped in back in 2018. LamA aimed on finding a charging solution that is based around workspace environments. That meant that both corporate as well as private charging needs had to be addressed, along with the various challenges that evolve around operating a charging network in the public sector. During the project we were able not just to answer a wide variety of questions spanning from the effects on user behavior, it security all the way to load management, we also built a charging network of over 500 charging points both AC and DC located all over Germany.

Today, the charging network combined with the operating concept we developed during the project allows us to electrify the Fraunhofer fleet as well as act as an enabler for employees to switch to electric drivetrains, even if they cannot charge their vehicle at home.

Understanding the needs and habits of our three types of users: corporate vehicles, employees and third party users helped us defining rules that enabled everyone to use the charging infrastructure to their benefit.

We found, that fleet vehicles and those of employees complemented each other very well.

During the day, employees could charge their cars while they were at work. Without having fees for parking durations exceeding 4 hours, which are typical in Germany at the time, employees could park their cars as usual when they arrive at work and pick it up at the end of the day fully charged.

At night, fleet vehicles which were out during the day fill up their batteries and are ready to go the next morning.

Also, since charging stations are put up at the same location where employee and fleet vehicles are parking ever since, no additional trips are necessary for charging, reducing time needed for filling up to a minimum.

Furthermore, looking at LamA from a social viewpoint, having a charging solution at work makes e-mobility available to a much broader audience, regardless of whether they have a charging station at home or not.

Our charging stations however are not just beneficial for the users who use the LamA network every day. They are also beneficial for the local grid.

Due to the longer standing time of the vehicles, loads for the grid can be shifted in order to fit in with the already available power supply on site. Load shifting also helps us to comply with regenerative energy sources and to support stabilizing the grid.

By integrating the charging stations into existing load management systems, peak loads can be reduced while still providing users with a full charge at the end of their business day.

Using our approach we found a practical balance point between grid compliance and user experience, but also between staying in control and finding the right external partners.

By keeping the role of the charge point operator we managed to stay in control of all the factors that are crucial for user acceptance in a charge at work environment. Working closely with external service providers we ensure compliance with regulatory boundaries within the public sector and help reducing additional work for site managers.

Summing up what we achieved during the project:

For the end user, we created a practical, reliable, and accessible charging infrastructure enabling the switch to electric vehicles for everyone.

For the site managers we enabled maximum control while keeping the necessary efforts to a minimum.

We integrated our charging points into existing infrastructure by upcycling existing parking spots and utilizing already available power infrastructure, keeping the costs per charging point as low as possible.

Although the project LamA as part of a federal clean air initiative is coming to an end, we will continue to run LamA as a charging network.

Starting now, we put our focus on multiplying the knowledge we gained by expanding our charging network across and beyond Fraunhofer, paving the road to sustainable mobility.

That’s it for today. Thank you for joining me. My name is Felix Tröscher, good bye!