

Mobility Plaza®

Interview: critical success factors for eMobility adoption in the U.S.

The market for electric vehicles (EV) is on the brink of shifting from early adopters to an early majority of more pragmatic consumers, and this shift will necessitate a new focus on both convenience and availability of a robust public charging infrastructure. I had the pleasure to talk about this with John Eichberger (Executive Director, The Fuels Institute) and Robert Krause (Chief Operating Officer EVC, Diebold Nixdorf) about the trends, challenges, and critical success factors with regards to eMobility adoption in the U.S.



What patterns do you see in the U.S. market with regards to EV adoption?

JE: “The electrification of the U.S. automobile industry will have a significant impact on consumer purchase and “fueling” behavior. Purchases of electric vehicles will continue to grow as a share of total vehicles sold. A recent report from the Fuels Institute written by S&P Global projects EVs to gain a 17% share of sales by 2030 — i.e., more than 2.5M vehicles sold each year. And while infrastructure is expanding, the charging market is far behind where it needs to be to satisfy demand and provide

potential EV customers with the confidence that they will have access to dependable, always-on charging ports to charge their EVs.”

RK: “I agree. More and more drivers are ready to embrace EVs. To illustrate this: the best-selling vehicle in the country is the Ford F-Series truck. Ford’s announcement of their new F-150 Lightning electric truck, and the fact that all production of this E-truck is already reserved, indicates a market shift from the early adopters who drive a Tesla to the early majority who prefer a Ford truck. But despite these positive developments, **range anxiety continues to** hinder EV adoption and remains a barrier to many EV purchase decisions today. The availability of reliable public charging infrastructure — not only along busy corridors but also nearby underserved markets like multi-tenant housing units — will precede true “mass-adoption” of EVs in the United States.”

So, taking a closer look at your last comment: what is holding us back with regards to creating a comprehensive public EV charging infrastructure

RK: “I see two major challenges. First of all, there is the question for investors how to make money from a charging network in these early days of EV adoption. It is a chicken-and-egg problem: how do you justify the purchase of an EV when you don’t see a broad-based charging infrastructure in place, and vice versa: how do you justify investing in such a charging infrastructure until there is a sufficient volume of EVs on the road? That is why I am happy to see the federal government has stepped in and is spending in total a \$7.5 billion to build a national public EV charging network under the NEVI program.

But it is not only about increasing the number of charging stations, it is also about **reliability of service**. Right now, the uptimes of charging stations often are sub-par. A recent study shows that only 73% of all tested public charging stations in the San Francisco Bay Area is fully functional. However, this percentage should be in the high 90s to give EV drivers the confidence they need. In fact, poor uptimes may only exacerbate range anxiety. I do realize it is a challenge for charger manufacturers and charge point operators (CPOs) to find trained support staff to install & maintain their infrastructure. The good thing is, that with the acceptance of the Bipartisan Infrastructure Law (BIL) grant funding, CPOs are required to report their uptimes and as such, will have their infrastructure availability statistics publicly known. This will lead to higher quality of service for the EV driver. I would expect to see network breadth and quality metrics becoming a key source of competition over the next two years, and current levels of service availability won’t cut it.”

JE: “Reliability of service is indeed a must, since drivers prefer brands who offer dependable charging services for their electric vehicles. Reliable charging services lead to improved customer experience and increased customer loyalty, higher charging and upsell revenues, and have a positive impact on brand perception. CPOs have a considerable influence on the reliability of their charging stations, but unfortunately it is not 100% in their hands. The U.S. utility market was not designed to accommodate retail-level transactions like those required for EV charging. Despite the influx of capital from the government and other sources to support the installation of charging stations, businesses ultimately

will need to find a way to make money, and the operational expenses associated with electricity service can be prohibitive. So, the federal government's goal of deploying 500,000 chargers by 2030 could be a challenging one to meet, but even if we would only see growth to 400,000 charging ports by 2030, this lower volume still represents a stunning 15% annual growth over the next eight years!"

You both have been talking about the importance of being able to monetize the investments in EV charging. Can you share with us how convenience retailers could benefit from deploying EV Chargers on their premises?

RK: "It depends on whether the retailer is also CPO, or that they decide to outsource the charging operations to a third-party. Assuming they are a CPO themselves, retailers can generate revenues through the charging process itself, i.e., by selling electricity. As a spin-off, CPOs 'earn' so-called carbon credits or CO2 certificates, which can be traded or used to lower their overall CO2 footprint. In addition, revenues can be accrued by combining the charging process with other commercial services while taking advantage of the long dwelling times of customers charging their cars in front of their stores. I think retailers should rethink their business model and develop new, integrated customer journeys that not only bring in extra revenues but also increase customer loyalty. If they are able to get drivers out of the car and into their convenience stores, EV charging will for sure increase the average basket size.

In the case retailers are *not* a CPO themselves, they cannot earn or trade carbon credits, but they can still profit from renting out space to commercial CPOs and witness an increase in basket sizes."

JE: "In addition to the points raised by Robert, there is an opportunity cost associated with not installing a charging station. More than one-third of fueling customers purchase something inside a convenience store — dismissing this customer because they choose to drive an EV would potentially sacrifice in-store purchases. Even if an EV customer is not actively seeking a charger, they will notice which retailers offer charging services and that will resonate with them."

What are critical success factors enabling a great customer experience for EV drivers?

JE: "EV charging needs to be a high-quality experience providing EV drivers with reliable, safe, and convenient options. Too often, charger locations are determined by easy access to power supplies without regard to customer convenience. Chargers often are installed far from the store, behind the store, without canopies or car service conveniences like squeegees and trash cans — this does not beckon to the EV driver. Charger cables that are too short to reach the car is another issue. And uptime, it cannot be stressed enough, is another critical success factor. Think about unresponsive or unavailable screens on the charger, payment system failures, network issues, or broken connectors. These issues should be fixed to offer a convenient customer experience. Ensuring that charging locations encourage drivers to frequent a facility, in addition to offering on-site amenities like fresh food and dining accommodation to engage the customer for 15 or 20 or 30 minutes, will be critical to generating the transaction frequency to make the charging installation a profitable enterprise."

RK: “For me, it would be three words: availability, reliability, and convenience. Studies show these are the top-3 concerns for EV drivers. **Availability** relates to things like open charging platforms and driver roaming, which avoids drivers needing multiple charging memberships; full hardware and software interoperability; and ease of payment, including support for all commonly used payment types.

Reliability is about having charging ports up-and-running at all times. Nothing is more frustrating than a charger being out-of-order, which just makes the whole range anxiety problem worse. This requires a sophisticated monitoring, spare parts logistics, and broadly available servicing infrastructure so that chargers can be repaired within a couple of hours instead of in a couple of days.

And last but not least: **Convenience**. As John already mentioned, charging stations need to be easily accessible and convenient. In addition, having a convenience store or restaurant located on premises offers drivers the ability to spend their charging time in a productive way while waiting for their charge to complete.”

Looking to future, what will the EV charging market in the U.S. look like in say 3 – 5 years from now?

RK: “I’d expect to see an accelerated market consolidation both among charge point operators and hardware manufacturers as scale efficiencies drive down costs. Scale of operation and prime locations are equally important, which explains the current ‘land-grab’ taking place. In addition, acquiring EV charging companies could prove attractive as a diversification move for large retail fuel players, which we have already seen. But the most important change we will see is a shift in focus from just getting ports in the ground to keeping ports up and running at a level consistent with traditional fuel pumps. I’m convinced the basis of competition shifts from quantity towards quality over the next 2-3 years. And given our background in supporting the daily operation of mission critical end points for many of the largest banks and retailers in the world, Diebold Nixdorf is uniquely positioned to support CPOs and charger manufacturers in delivering high-quality ‘always-on’ charger availability.”

JE: “The U.S. is in the earliest stages of the EV transition, and that is apparent in the way the charging market has developed so far — multiple players, inconsistent interoperability, lack of standardized connectors, low reliability, etc. It is uncertain what it will look like exactly in five years because those seeking to support its growth are not united in understanding exactly what the customer needs. Nonetheless, there has been — and will be more - progress in reciprocal integration among charging brands and, like Robert mentioned, this will accelerate as the market consolidates into a handful of long-lived providers. Open standards, interoperability, quality of service and a customer-centric approach will be key to successfully service the needs of a growing EV market, and I expect to see leading vendors in this domain collaborate more intensely on these topics.”


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