

The Rise of eMobility in the U.S.

The market for electric vehicles (EV) has reached the tipping point. Early adopters now give way to an early majority of more pragmatic consumers. This calls for a highly robust and reliable public charging infrastructure. But what does this mean for charging equipment manufacturers and charge point operators (CPOs)? We talked to Jeff Tolnar, Senior Vice President, eMobility, at Shoals Technology Group, and Robert Krause, COO, EV Charging, at Diebold Nixdorf about this, and how the rise of eMobility in the U.S. impacts the EV charging business.



Jeff Tolnar
Senior Vice President, eMobility,
Shoals Technologies Group

Nearly every vehicle OEM has announced expansions of their electric vehicle lines. Many of the largest OEMs are moving towards a 100% EV future. That's very exciting but also emphasizes the need to rapidly build up public infrastructure. NEVI is a start for a coast-to-coast, fast charging network but it is really just a start. When EVs become predominant, drivers will demand ready access to charging at increased charging power levels. We must be prepared to launch quickly with flexible infrastructure to accommodate the inevitable change.

Economics, infrastructure, and disruption to current business are the principal factors that are hindering the rapid expansion of charging networks. Charger utilization will remain low until EV adoption increases.

Even with government subsidies, the ROI for the remaining capital is highly speculative. Some companies are willing to take that risk and will reap the benefits in the long run. Perhaps the biggest challenge is available power from the electrical distribution grid. We are talking megawatts of power in a condensed footprint. The grid is not equipped to handle this increase, and it takes time and money to increase electrical capacity. Putting in charging systems can be disruptive to the site host for weeks due to the civil work required. An above ground rapid deployment system like that offered by Shoals is a solution to that problem. With faster installation of charging assets, the site host can continue operating their business unencumbered.

Rough number capital costs for deployed charging solutions are 40% charger, 40% civil/cable/install, and 20% engineering/permitting/site host fees. These will vary depending upon whether an electrical upgrade is required. In many states, there are make ready programs offered by the electric utility that covers the cost of electrical site upgrades. Also, regarding site economics, a larger number of chargers changes this mix to be more predominantly charger cost vs. other costs. The amortized capital costs, recurring networking fees, energy cost and maintenance are typically offset by charging fees.

When we think of a future where EVs are the predominant vehicle, many drivers will use each stop as an opportunity to top up their energy for a few minutes — especially if a retailer bundles energy with other in store offerings. I strongly believe that a smart charging network tied to the retail operating systems will be a key business differentiator. An EV is really a mobile IoT device, which has substantial amounts of data about the vehicle and also about the driver. This data can be coupled to the offerings within the retailer to “drive” them to charge at their shop versus a competitor shop. If a retailer has no charging, then they will eventually fall far behind their charging-enabled competitors.

I look at the factors of vehicle choice, economics, range, ease of fueling and emissions. Five years ago, these factors were resoundingly favoring traditional ICE (internal combustion engine) vehicles. Our landscape today is changed and 5 years from now will be very much favoring EVs. There are more EV choices than ever, cost parity is expected around 2026, EV range is increasing, there will be more charging options and EVs have no emissions. Up to 50% of vehicles sold could be electric by 2030. This can only happen if charging a car is as easy and predictable as pumping gas is today. It needs to work every time and be very conveniently located. We have work to do on quality and availability to achieve this type of future state. The chickens have hatched — now we need to feed them!

THE TAKEAWAY

Demand for EV charging is soaring, as drivers are looking for public charging stations nearby that offer reliable charging services in a convenient setting. This calls for fast installation of charging assets and extremely high uptimes of charging stations at predictable costs. Together with our partner Shoals, Diebold Nixdorf ensures charger manufacturers and CPOs can expand their operations rapidly while offering EV drivers the best customer experience in terms of reliability, availability and convenience. [Explore how Diebold Nixdorf can contribute to your business success](#) with our advanced installation, maintenance and support services for your charging equipment.



HOW DO YOU LOOK AT THE NATIONAL ELECTRIC VEHICLE INFRASTRUCTURE (NEVI) FORMULA PROGRAM TO PROMOTE EMOBILITY IN THE U.S.?

WHAT IS HINDERING COMPANIES TO RAPIDLY EXPAND THEIR CHARGING STATION NETWORK?

WHAT ARE KEY COST DRIVERS FOR INSTALLATION AND DEPLOYMENT OF CHARGING STATIONS?

HOW CAN CHARGING STATIONS BE TURNED INTO A PROFITABLE BUSINESS FOR RETAILERS?

WHERE WILL THE EMOBILITY MARKET BE 5 YEARS FROM NOW?



Robert Krause
COO, EV Charging,
Diebold Nixdorf

The NEVI Program will be instrumental to overcoming the chicken-egg problem we're facing today. By providing \$5 billion over five years, the government supports the roll-out of a network of public DC charging stations. This will partly solve the range anxiety problem we're seeing with potential EV buyers. Moreover, accepting NEVI funds requires CPOs to report publicly about their infrastructure availability, which will lead to higher quality of service for EV drivers. I would expect to see network breadth and quality metrics becoming a key source of competition over the next years.

There's always the question about how to make money with charging in these early days of EV adoption. How to justify investments in charging networks until there is a sufficient volume of EVs on the road? That is why it's so important the federal government offers the NEVI program. However, CPOs and charger manufacturers simply lack the bandwidth to scale fast. They are looking for hundreds of trained engineers to install, maintain and support their charging networks. However, it will be cost-prohibitive and time-consuming to employ these themselves. This is where Diebold Nixdorf can help, with literally thousands of experienced service technicians around the globe who are ready to install, maintain and support a range of charging equipment.

Infrastructural changes represent the biggest cost: trenching cables, connecting chargers to the grid, and the physical installation of the chargers themselves. However, together with the purchase of charging equipment, these are one-time costs. Then there is the cost of electricity itself, but this can typically be offset against the charging fees. You also need to factor in maintenance, repairs, and support costs. Depending on the geographical distribution of your charging stations and SLAs, you'll need tens if not hundreds of certified service technicians and smart spare parts coordination.

You can make money in four ways: by selling energy; by earning and trading carbon credits, by attracting new groups of customers (i.e., EV drivers) to your site, and by increasing the spend per customer due to longer dwelling times. Additionally, you could also monetize these dwelling times by extending your services portfolio with car maintenance, office space rental, full lunch and dining options next to food to-go, etc. But whatever ways you choose, high reliability of your charging stations is an absolute prerequisite. If your charging stations experience down-time too often, you will lose customer confidence, and EV drivers will simply go elsewhere to charge and spend their money.

I'd expect to see an accelerated market consolidation among CPOs and OEMs to benefit from efficiencies of scale, as well as increased adoption of standards to foster efficient cooperation across the value chain. But the most important change we'll see is a shift in focus from just getting ports in the ground to keeping ports up and running at all times. The real competitive difference will become reliability of service. Research shows only 73% of all tested public charging stations are functioning correctly today. This number should be close to 100% to boost customer loyalty — and get maximum ROI on your charging networks.