

# We are going to asset heavy routes and develop our own EV charging sites: Aatish Patel, president, XCharge North America

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XCharge North America President Aatish Patel spoke to S&P Global Mobility Senior Research Analyst Amit Panday on a range of topics, including XCharge's origin, growing global operations, localization and expansion plans for North America, diversification of supply chain, deployment challenges, and ensuring EV chargers work on the ground. The following are edited excerpts from an exclusive interview:



Source: XCharge North America

**S&P Global Mobility: XCharge is present in Europe, mainland China as well as in North America. Please tell us about the company and how it was established.**

**Aatish Patel:** It is an interesting story. XCharge has its origin in China, with the conception and the pilot. The two main founders were actually employees of Tesla when it was initially expanding its presence there. They were involved in Tesla's EV [electric vehicle] infrastructure buildout in China, in both the DC and Level 2 charging domains. [That is] when they identified gaps mainly in self-operating assets for, say, the real estate holders. They found that [there is] a lack of effective EV chargers that married an operational software with a reliable hardware piece. And [that is] where the whole idea of building XCharge came into play. They initially started a pilot in China and began conducting their pilot above Level 2 and 3 EV chargers. The pilot was very successful. The key aspect that pushed them forward was building a lot of new features, operational assets, [a] transactional piece, integration between the hardware and software, and independent operation aspects.

They built a good product, but it is not necessarily suitable only for the [Asia-Pacific] markets. 2015 was the year of inception for XCharge, 2016–17 is when we forayed into the European markets. We began getting some footing in Europe by 2018 with some fleet projects for public mobility. Later, we re-incorporated ourselves and established our headquarters in Hamburg, Germany. About 90% of our global business is stemming from Europe currently. The remaining business is split between the US and [Asia-Pacific] region.

The way XCharge North America is functioning is that we are a completely separate entity from the parent organization. We are currently consolidating our position and will be able to do that in the coming months. At XCharge Group, product engineering, product development, high-level support [and] business systems are based out of Europe. Meanwhile, production and supply chain are based in the [Asia-Pacific] region. In North America, we are focused on business development and technical development support for now. We have a lab and a headquarters in Texas [US] with satellite offices in New York [US] and California [US]. In Texas, we are really focusing on after-sales as well as engineering work. We have localized products for North America. We are shifting our focus away from Asia and looking at serving [US] and Europe.

**Please tell us about the EV charging-equipment facility that XCharge has set up in the US.**

We are currently assembling the EV charging equipment at our plant in the US. We have suppliers located all over the world who make the subcomponents for us. The entry point for North America entails having domestic suppliers as well. This facility is going to be a 15,000-20,000-square-foot facility, with the scope of future expansion, based on market demand. We are doing final assembly of EV charging equipment here. We have contract manufacturers in Asia. [They are] not necessarily doing the stamping, the pressing and the fabrication of the PCBs. We have suppliers that do this,

[they are] taking inventory and then ultimately following a process to get things assembled, tested and approved for sale.

But [that is] more or less what [we are] going to do in North America, with the facilities that we are planning in Kyle, Texas, at the moment.

**Are the EV chargers that XCharge is currently assembling and supplying in the US compliant with the requirements under the National Electric Vehicle Infrastructure (NEVI) Formula program?**

The goal would be to get to that stage. I think the key thing that [we are] being mindful of is making sure that the quality [is not] compromised. To comply with the NEVI program, we are currently working to achieve origin requirements from the subcomponent level through resourcing and working with our current contract manufacturers for these subcomponents.

However, considering we have established relationships and operations with our existing vendors for more than seven years, shifting them over to the US within six months to a year while expecting the same quality can be tricky.

So, [we are] doing a lot of work to just ensure the sourcing of components. [That is] where we are currently right now, working with our key suppliers who need to meet the various requirements like BABA [Build America, Buy America], NEVI and IRA [Inflation Reduction Act].

Additionally, we are doing a lot of work in optimizing our products for the grid here. So, [we have] done a lot of reengineering work for our products to make it easier, less grid-intensive, less infrastructure-intensive as compared to other solutions. We use 208V instead of 480V, which makes electrical equipment work easier.

We have done a lot of work before entering into the North American market formally to make sure our products are really oriented for the grid here, instead of having to make the grid work with our products. [That is] the approach a lot of our competitors have taken. And [that is] one of the things that we have been really good at.

One of the key things that [we are] doing is [we are] actually utilizing 208V, three-phase instead of 480V, which is more commonly found here in commercial sites such as hotels, shopping centers, gas stations, convenience stores. A majority of the EV chargers that are available in the market are generally oriented around 480, which [is not] available at these sites. This translates into an infrastructure update.

Meanwhile, the 208 actually allows us to utilize the existing infrastructure, and dramatically reduce the cost of installation, and more importantly, reduce the deployment time. We have recently deployed our charging solutions at a site within eight weeks, which included the initial tip-off to commissioning, permitting engineering, deployment and testing. We have compared competing projects in those jurisdictions that are still awaiting power upgrades. Those are probably not going to be online until maybe July–September 2024. [That is] one of the key innovations that we have brought to the North American market.

**What are the challenges that you are currently facing while commissioning an EV charging site?**

I think infrastructure readiness is the biggest challenge when it comes to deployment standpoint. The EV charger requires a lot of power, in many cases, installing a DC fast charger at a commercial

building will require two to three times the total available power at the site, which dramatically slows down the speed in which you can get a deployment up. Utilities are needed to be involved, there need to be zoning talks and then from utility standpoint, capacity calculations need to be taken into consideration to ensure that they can actually supply the required power.

What we are seeing right now is in areas where there are projects that require new service, [you are] basically adding a year to two years of project lead time before you can actually get construction started.

We are trying to bypass that with products like the C6, with its flexible input capability, as well as the Net Zero series, with their ability to use the batteries, to buffer and mitigate the need for ultrahigh inputs. We are proving cases basically at every site wherever we deploy our EV chargers.

In our office, which is a really good example, we wanted to install a DC fast charger, but we had, I think, only 50 kilowatts of free energy on the panel. We [did not] want to necessarily use all 50 kilowatts to power just the DC fast charger.

With the Net Zero series chargers, we were able to get it to run off with just 10 kilowatts, 50 amperes off the existing (solar) panel, and, more importantly, get it installed in four weeks versus having to wait nine months that was quoted for an energy upgrade before we could actually start construction.

There are a few more examples that we have actually done on the field that highlights that infrastructure readiness is the key challenge. But our solutions are connected toward mitigating the need for an immediate infrastructure compatibility to get the full output.

### **XCharge has about 40,000 EV chargers deployed globally. Where does North America stand in that?**

North America is a very small subset of that. We are tracking at about 25 units deployed right now in North America. I think the key thing to keep in mind is we have only really been selling units since the start of 2023. We have been waiting on getting compliance before we actually start selling.

Secondly, a lot of deployments that we are dealing with require infrastructure upgrades.

Also, of the 40,000 EV chargers that we have globally, a lot of those were Level 2. We actually had a Level 2 product that we were selling for a while but we sunset it in 2019, just because of the way the Level 2 market was going. It has been strictly DC fast chargers ever since. But from a DC fast charger perspective, almost 20% of those 40,000 are DC fast chargers.

I think the key thing is that [we have] been growing significantly over the past couple of years in terms of volume. In Europe alone, and, with North America, its going to be an initial volume driver in that as well, given how the business has been developing.

### **What is XCharge North America's focus when it comes to engineering and development? Are you also looking at bidirectional-charging applications?**

Obviously, the incorporation of energy storage is one key focus area. So, bidirectionality is an area [we are] definitely focusing on more and more. We have a new in-house EMS [energy management system] and BMS [battery management system] facility [that is] going online. That will be supporting battery validation for our next generation of products.

I think the key area specifically for North America, and now even a bigger focus in Europe, is the

focus on accommodating the constrained grid. So really making sure our solutions are actually deployable in an impactful timeline versus just have the fastest charge.

I think ultimately an EV charger on the ground is more useful than having a fast charger that is not going to be on the ground for the next two years. That is the key thing that [we have] been really focusing on with our product lines and are continuing to do so and continue to develop our next-generation products.

**For XCharge's global operations, the company focuses on supplying equipment to charge point operators [CPOs] and setting up EV charging facilities for corporate fleets and public fleets. Are you replicating the same strategy in North America too?**

From a customer supply standpoint, CPOs and corporate fleets continue to remain our focus areas (in North America). We are looking at corporate fleet operators who have assets that need EV charging.

We are also going to asset heavy routes in North America, in which case we are actually developing and operating our own sites now. So, [it is] a slightly different model compared to what [we have] done in Europe and what our peers are doing, but not necessarily something that no one else has done.

[Let us] look at Tesla. They have been selling superchargers; they have been deploying them at their own charging sites for a long time now; and they are definitely making a lot of money off them — and [that is] why they continue to expand quite aggressively.

As a vertically integrated original equipment manufacturer [OEM] like us, we not only have the hardware capability but also software capability to create a full turnkey solution. This is our core competency as compared to ABB, Tritium or a Delta.

We are taking that and going at it in a way that no other OEM, apart from Tesla, has done in the space here, because from a project standpoint, [we are] going to be the ones that can get things on the ground cheapest and in the most economical way.

[We are] working very aggressively through lock-in sites in areas that are impactful as well as in areas that are very challenging for DC FC deployment, because our solutions can be put into places where people [do not] really think DC faster charger can be installed easily. Those are honestly the sites where you need EV charges to create the most impact. So, [that is] a significant portion of the business that [we are] expecting to be in North America over the next two to three years.

**So, [you are] getting into the shoes of a charge point operator, who also is your customer. How would this play out for XCharge? Also, can you tell us more about how you are going to evaluate the sites where you set up your charging stations? Will XCharge come up with a pilot project before rolling it out on a larger scale?**

I [do not] really see the CPOs as competition in many ways, because we are doing a lot more than just providing a piece of equipment. We are working on our own software, integration, engineering and aftersales beyond just supplying equipment. In addition, we are also doing the operation development of that system. This is good for the CPOs, who are our customers.

On the second point, without getting too deep into it with confidential information, I think the key thing that we are focusing on is target markets. So, Texas, California and New York are the main areas where we are focusing on. [That is] just based on our capabilities and our footprint there, as

well as what we can see from an energy market standpoint as the most optimal for our strategy. We have leases and sites that we have acquired, that we are working on and getting them developed, though we [have not] formally announced them.

This is what we are actively working on. I think the key thing here is that we are trying to get these sites up and running, within a reasonable amount of time, instead of having these ready in about two to three years.

Moreover, we are also doing a small pilot or an initial phase, which incorporates multiple sites across these jurisdictions. Multiple here does not mean just one or two sites.

We are not necessarily trying to put one EV charging site in Los Angeles, one in San Francisco and one in LA. We are really focusing on areas where there's a clear need of EV charging stations.

**Can you throw some light on your expansion plans as a CPO in the near future? Global energy company Shell is a good example of cutting out a clear goal of building 200,000 EV chargers in its global network by 2030. They have been busy establishing strategic alliances and recently have invested in XCharge.**

We operate our own assets in key areas so we already have an idea on utilization rate. We are using modeling to get an understanding of revenue figures and the future potential. Based on how our pilot goes and the reception we get, our goal is to expand this further with a suitable partner that can help us lock-in the key real estate that makes sense for these types of EV charging sites.

Ultimately, I think the key thing that not a lot of people realize is EV charging is a real estate development. You need to have good real estate, have a good charging site. I think a lot of focus right now has been on areas that [are not] necessarily the best real estate. However, the trend suggests that EV charging stations have been installed at the sites that were easiest to get a charger online. This approach is good for a market when you [do not] have EV chargers to go around, and people are willing to drive 15 to 20 minutes out of their regular routes to get to an EV charging station. But as market saturation increases, the real estate aspect is going to be key.

Realizing this, [we are] trying to get as many good real estate assets locked up in our portfolio, or at least, with our hardware as soon as possible.

As utilization (of EV chargers) increases, the demand will increase. EV adoption and penetration are continuing to rise. Hence, the real estate is going to become more and more attractive and valuable.

I think [that is] partially why [you are] seeing such aggressive plans from Shell and other operators to lock in the real estate. [That is] where we come into play because [we are] not looking in that the same way they are in terms of power, availability and ease of access, but more so with our capabilities to adapt to a site.

[We are] definitely in a position to lock up some of the key real estate areas early on and I think over the next two to three years, our goal is to hopefully scale this into additional phases and have a decent portfolio of assets.

**Battery integrated EV charging stations are an emerging solution with multiple benefits. What batteries do you use in your Net Zero series of EV chargers? Are these second-life batteries? We have an industry example where Volkswagen and Audi have deployed second-life EV batteries in their pilot EV charging infrastructure.**

We use an LFP [lithium iron phosphate] battery. [It is] sourced from BYD. We actually co-developed

the architecture with them for the specific application. [They are] not recycled cells. [They are] brand new, at least at the moment. However, we do have plans to diversify the origin as well as the cycle count of the cells. So right now, [we are] using basically fresh cells to make sure that [we are] able to achieve the pre-performance and reliability we need with the product as well as the situations [we are] working in.

That is the key thing with us as [we have] actually gone through this stuff of co-developing the structure for this application as opposed to having an EV battery being used for energy storage or energy storage battery being used for EV charging. There are performance differences in each respective application, and all applications may not necessarily involve the most optimal transfer of energy.

So, [we have] worked with BYD, a big player in the battery space, and have created something [that is] fairly unique to our solution.

### **What is the life of these energy storage batteries used with EV chargers?**

So, average cycle counts for an EV battery is in the range of 2,000 to 2,500 cycles, which is about seven to 10 years of use, depending upon how you utilize them.

With the batteries that we are using in our Net Zero series range, we are able to guarantee 6,500 cycles. These have slightly different utilization profile because of the recharge-discharge function of the battery, as well as the fact that we are charging EVs and the grid at the same time. So, the average life is [about] 15 to 20 years. It is significantly higher than what you would normally see in a typical EV charging setting. [That is] due to the engineering, optimization of the cells; [we have] also done a lot of work on the thermal design to just make sure that temperatures are kept in check to ensure consistent battery health during operation.

### **Once you scale up your operations across North America and depending upon demand for battery-integrated EV chargers, will you look at new partners in the region to source energy storage devices or diversifying cell chemistry to recycled cells in the future?**

Yes, we are open to forging new partnerships. We plan to diversify our battery supply chains as the market develops. From a functional standpoint, since [we are] dealing with infrastructure and mobility, we would like to focus on making sure on our reliability and performance standards as priority. The key here is we would like to ensure these parameters before we implement any changes, whether it is about new cells or different suppliers or recycled cells. They need to meet our performance requirements. These are big batteries, and you [do not] necessarily want to swap them every five years.

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