EV Infrastructure

Is the US effectively deploying EV infrastructure?

10-minute Insight

Over 10 million EVs will be shipped in the US over the next 5 years, which require both private and public charging infrastructure to function.

Based on SBD's data, ICE consumers in the US are the most concerned about the transition to EVs.

In this insight we explore the current and planned rollout of EV infrastructure in the US and what does this mean for future EV sales, for both consumers and OEMs.

The USA is used as a case study, but the analysis can be prepared for other regions, considering their specific deployment strategy and EV market penetration.

Target audience

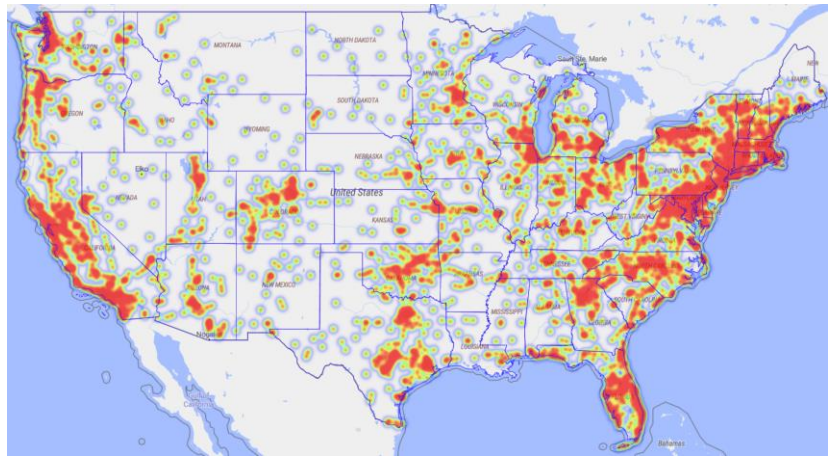
Product planning Strategy Legal Marketing Engineering

Focus market(s)

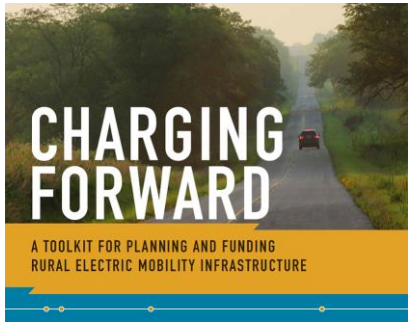
USA

What is happening?

Public EV Charging Station deployment EV*



Planned initiatives on US EV infrastructure

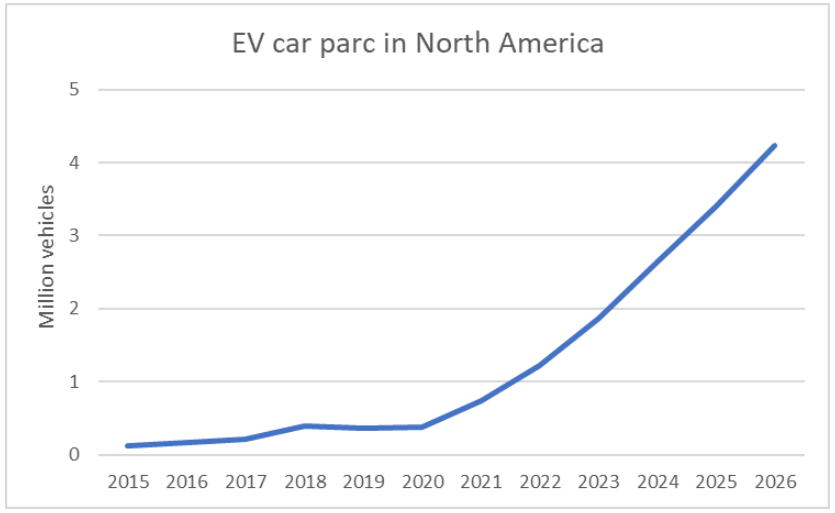


Best practices for planning EV charging networks and tips to navigate federal funding and financing.

+ $7.5 billion for EV charging network

Funding to build a network of 500,000 chargers.

EV volume forecast**



OEMs publicly announcing 2022 sold-out EV production in the US

Key takeaway

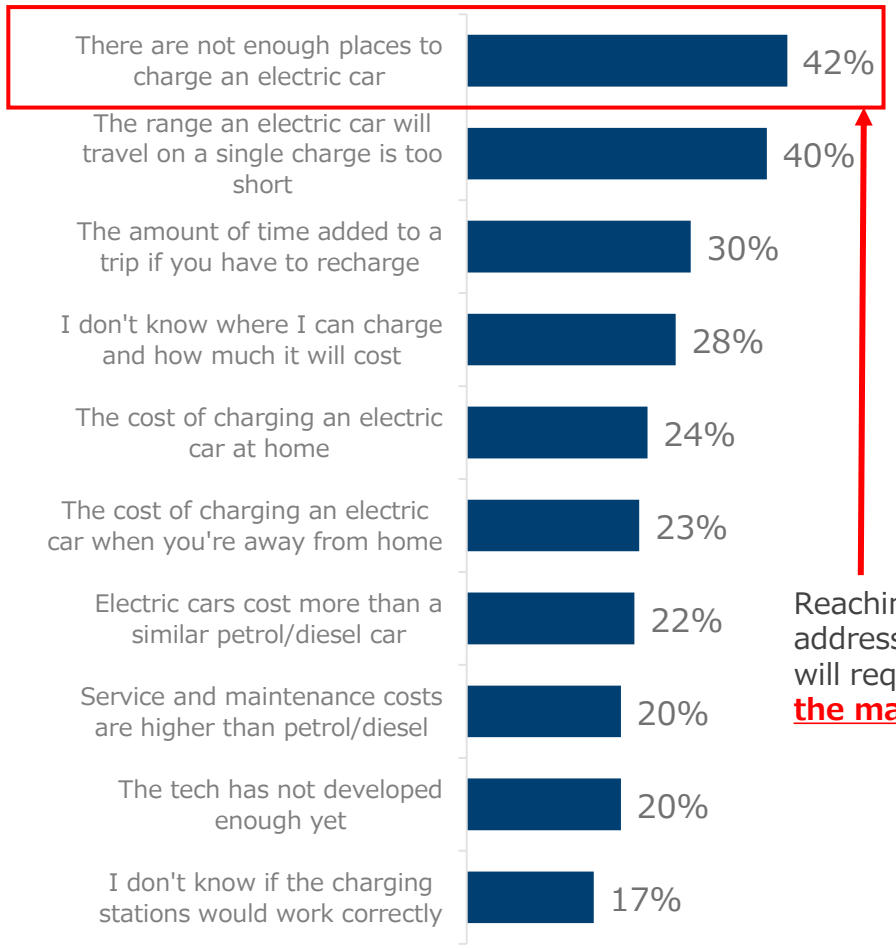
OEMs, US government and Charge Point Operators (CPOs) are under pressure to provide adequate EV charging infrastructure. However, deployment requires a better understanding of consumer needs at a local (state or city) level.

- Charging point deployment in the US is concentrated in coastal areas, however, the next 5 years will see a considerable increase in EV sales in the interior states, as charging infrastructure evolves.
- To support this, the US government has committed $7.5 billion to EV infrastructure.
- As additional battery manufacturing facilities are set up, supply chain pressures will be eased, and vehicle production will increase.
- Note – charging infrastructure data covers only public charging infrastructure, private or home charging is not included here.

** Data from EV Volumes
* Heat map based on SBD's EV Charging & Infrastructure Guide (Ref: 217) and web-based Location Analysis Platform

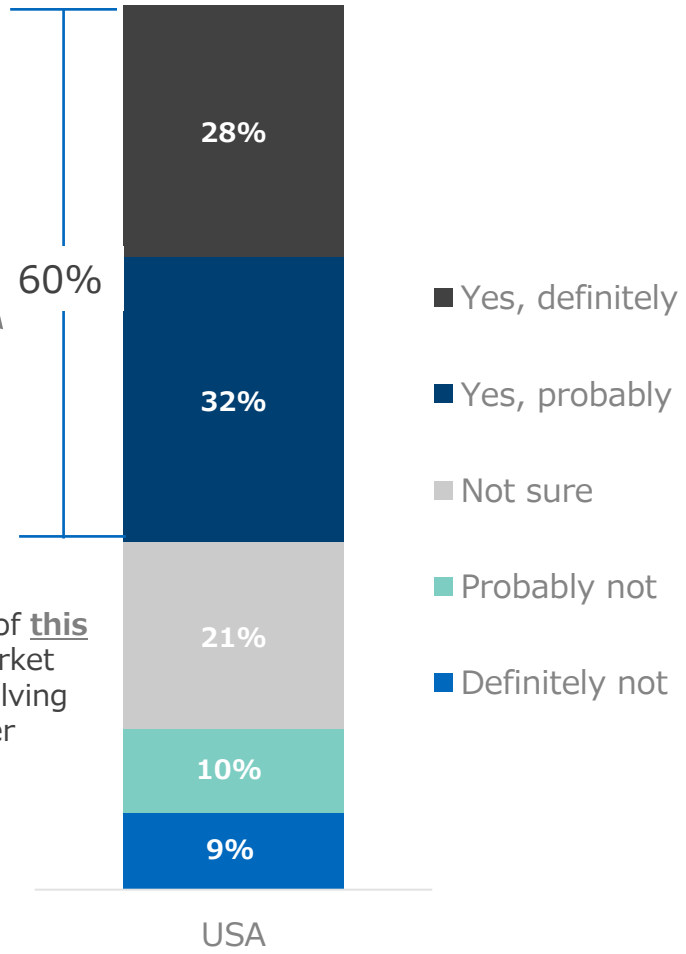
Why does it matter?

Top 5 barriers to purchase among ICE owners considering purchasing an EV*



Reaching most of **this** addressable market will require resolving **the main** barrier

How likely ICE owners are to consider buying an EV*



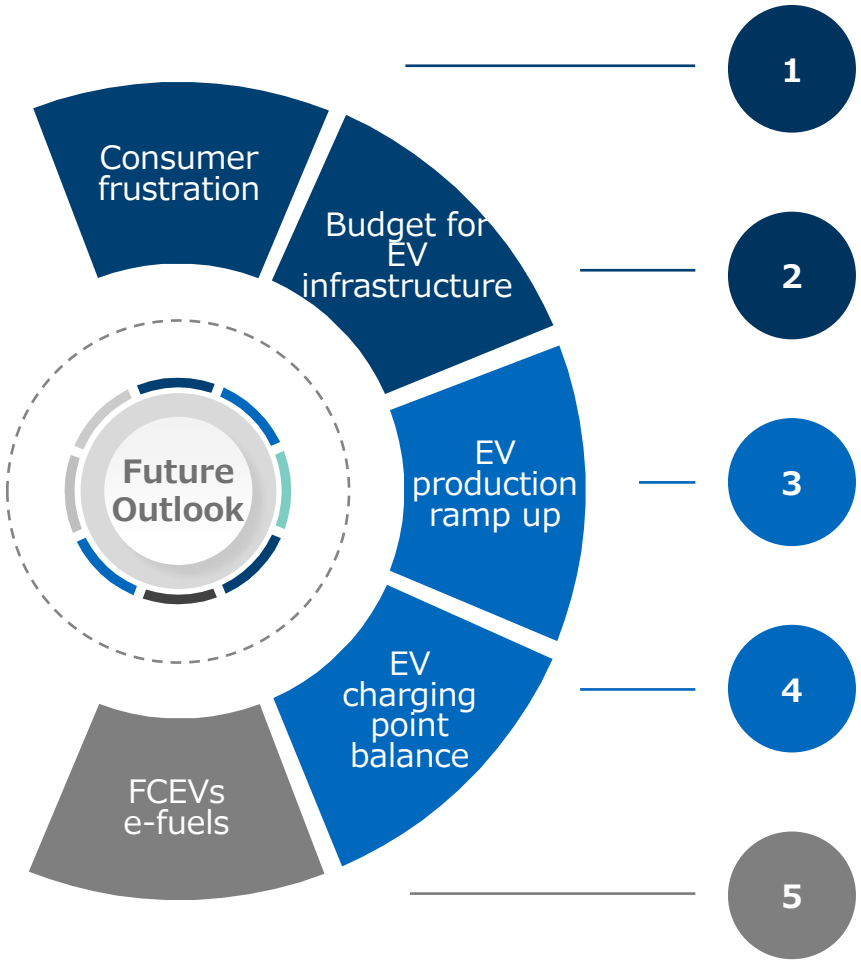
Key takeaway

Access to charging infrastructure and charging are key barriers for adoption in the US. Focusing on these should be a priority to drive EV adoption.

- SBD asked over 1,000 ICE owners in the US that qualified as 'EV Considerers' about the main drivers and barriers for purchasing an EV.
- While progress has been made developing the charging infrastructure and only one in five EV owners claim charging infrastructure to be a barrier, the lack of infrastructure, either actual or only perceived, is clearly a key barrier to EV ownership.
- Focusing only on the barriers alone is not enough. A perception change is required to help push consumers towards adoption, as it prevents making psychologically "easy" excuses for not buying an EV.

* - Data based on SBD's Overcoming Barriers to EV adoption (Ref 208)

Where next?



1. Consumers will get frustrated as they want both vehicles and infrastructure now
2. Money for EV infrastructure projects to be released to companies and local authorities to start deploying projects
3. EV production to become primary focus for all major OEMs
4. EV infrastructure is deployed across the US, addressing charging concerns for a majority of the population
5. Other methods for propulsion to be explored in earnest (Fuel-cells, e-fuels)

1-3yrs | **3-5yrs** | **>5yrs**

Key takeaway

In the long-term, EV infrastructure will be available to most consumers in the US. However, in the short- to mid-term, it is in the OEMs', government, and CPOs' best interest that the infrastructure is deployed efficiently and in consideration of local needs to address consumer frustration.

- The current low EV supply (compared to underlying demand) will give governments, CPOs and OEMs some time to deploy infrastructure and be ready ahead of an EV-production ramp up.
- Charging issues have become more prominent, with concerns about 'highway charging' and vehicle range increasing in prevalence. This will continue until infrastructure is deployed and public perceptions change.
- As awareness of the environmental impact of EVs spreads and innovation in battery technology slows, public and private entities will shift their focus to alternative propulsion methods

Who to watch out for?

	Tesla	Electrify America	Charge Point	EVgo	Shell Recharge Solutions
Public power capability in the US [kW]	2,604,750	647,017	545,469	136,418	61,157
Number of charge points in the US [kW]	22,402	3,487	60,393	2,502	2,872
Maximum AC power offering in the US [kW]	48	7	65	7	29
Operates as an eMSP [Y/N]	Y	Y	Y	Y	Y
Offers B2C services? [Y/N]	Y	Y	Y	Y	Y
Subscription [Mandatory / Optional / No]	No	Optional	No	Optional	No
Announced OEM partners	Tesla. But has announced opening charging to other OEMs	Hyundai, Kia	BMW, Cadillac, Fiat, GM, Honda, Hyundai, Jaguar, KIA, Land Rover, Mercedes-Benz, Mitsubishi Motors, NIO, Nissan, Polestar, Chevrolet, Smart, Toyota, Smart, Volkswagen	BMW, GM, Hyundai, Kia, Nissan, Subaru, Tesla, Toyota	Ford

** Data from EV Volumes

Key takeaway

SBD has identified the 5 CPOs with highest charging capability in the US. CPOs are expanding their charging capacity and partnering with OEMs to allow end consumers a broader access to EV infrastructure.

- There are hundreds of companies and several business models in the complex charging ecosystem, and we expect market consolidation with respect to both, with an increased focus on efficiency, consumer experience, and scaling to profitability.
- CPOs frequently state that their largest barrier to market expansion is the paperwork and long lead times when working with public authorities. Working with local governments to reduce this overhead will drive infrastructure expansion and reduce the cost for all parties involved.

How should you react?

1 Educate

OEMs, governments and CPOs should work together in educating consumers about existing charging infrastructure and future subsidies for charging.

2 Analyse

A more nuanced methodology is needed to deploy infrastructure. Deployment goals and KPIs are required at a state and metropolitan area level. More chargers everywhere is not an efficient nor effective approach.

3 Plan

As an OEM, plan your future deployment alongside governments and CPOs to ensure adequate support and user experience. Software tools and big data will help you take more informed decisions.

Authors

Edward Paez
Specialist

Robert Fisher
Domain Principal

Related SBD Reports

Ref:208
Overcoming barriers to EV adoption

Ref:217
EV Charging & Infrastructure Guide

Related SBD Consultancy

- Competitive EV network analysis
- UX design and assessment
- SaaS tools
- M&A and partnerships analysis
- Strategic Advisory

Interested in finding out more?

Most of our work helps clients go deeper into new challenges and opportunities through custom projects. If you would like to discuss recent projects we've completed relating to **EV infrastructure**, please contact us.