

EV Charging

Is Tesla's EV charging advantage under threat?

10-minute Insight

The U.S. Department of Transportation (DOT) announced that it will provide a \$4.5 Billion fund to states to strategically deploy electric vehicle (EV) charging stations and establish an interconnected network.

What's the catch? The funds can only go towards the installation of 'equitable' charging infrastructure, which could reduce Tesla's dominance as the largest network in the US.

In this insight we analyze how EV charging standards could change in the USA given the government's injection of funds, and how Tesla is responding.

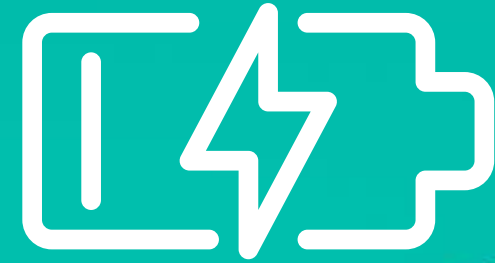
Target audience

Engineering Strategy

Marketing Product Planning

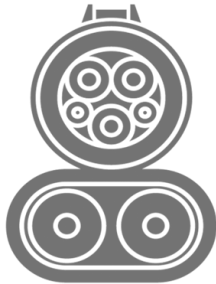
Focus market(s)

USA

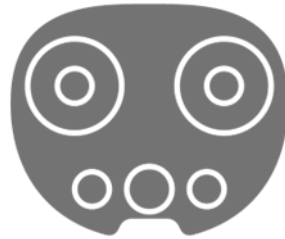


What is happening?

Charging Standards in North America:



CCS1/J1772



NACS



ChaDeMo

OEMs supporting the standard

All other OEMs



TESLA



NISSAN



MITSUBISHI MOTORS

Planning to shift to CCS1

Vehicle market share (2021)	21%	73%	3%
# of charging points	~95,000	~25,000	~8,000
Max power	350 kW	250 kW	400 kW
Power type	AC/DC	AC/DC	AC/DC
Total power capacity	2.9 TW	4.8 TW	2.0 TW

Key takeaway

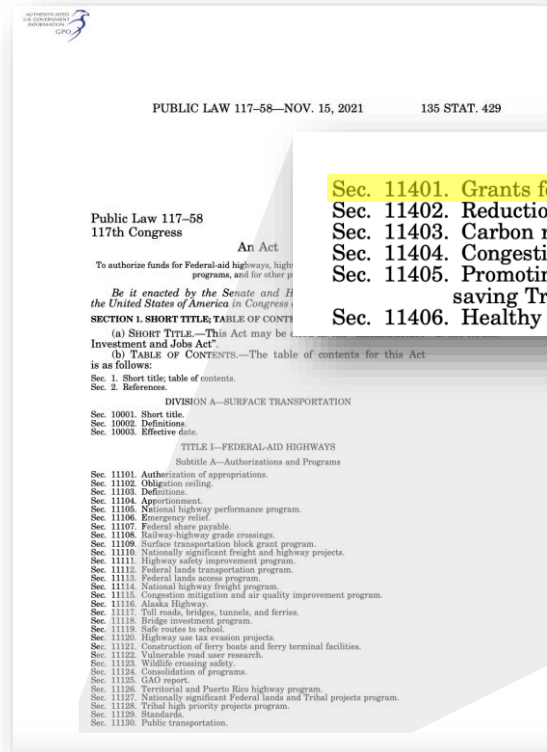
In North America, there are three different connector types for EV charging. This creates compatibility issues for both consumers and Charging Point Operators (CPOs).

- So far Tesla has dominated the charging eco-system, both due to their high market share and their heavy investment into infrastructure.
- Tesla has [announced plans](#) to open their charging infrastructure to non-Tesla vehicles, and is [actively courting](#) other OEMs to adopt its EV charger connector.
- Aptera, a solar-powered vehicle start-up, [recently became](#) the first OEM to adopt the Tesla charging standard, raising questions about whether other OEMs and CPOs would follow too.
- The massive investment in charging infrastructure by the US government adds a new dimension, as investment in charging points is tied to multi-brand support.

Why does it matter?



USA H.R.3684 - Infrastructure Investment and Jobs Act:



Subtitle D—Climate Change

Sec. 11401. Grants for charging and fueling infrastructure.
Sec. 11402. Reduction of truck emissions at port facilities.
Sec. 11403. Carbon reduction program.
Sec. 11404. Congestion relief program.
Sec. 11405. Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation (PROTECT) program.
Sec. 11406. Healthy Streets program.

\$4.5 Bln
Funds ring-fenced for charging infrastructure

500,000
Number of charging stations expected to be available by 2027

Key takeaway

- The distribution of \$4.5 Billion in charging infrastructure grants could reduce Tesla’s competitive advantage.
- The [NEVI program](#) allocates a proportional amount of the \$4.5B to each state to use for installation of “equitable” charging infrastructure.
- Each state will need to allocate funding based on projected car parc and consumer demands within their state, prioritizing charging standards that are widely supported by OEMs.
- Tesla’s decision to open-up its charging network and allow Aptera to use the NACS standard, could be a calculated move to become eligible for some of the funding.
- Regardless of whether Tesla succeeds, two outcomes are likely: charging infrastructure will become less of a USP for Tesla; and consumers will need to get used to a confusing world of adapters.

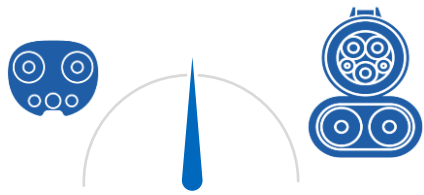
Scenarios for how charging standards could evolve in USA:



Scenario A: Tesla forced to adopt CCS

Growth in CCS network or government pressure forces Tesla to support CCS1/J1772 connectors on either their cars or their charging network (or both)

Likelihood: ●●●●● Impact: ●●●●●



Scenario B: Multiple standards continue to co-exist

Both NACS and CCS1/J1772 continue to grow in parallel with mainly Tesla backing NACS and the rest of OEMs backing CCS1/J1772

Likelihood: ●●●●● Impact: ●●●●●



Scenario C: More OEMs/CPOs begin supporting NACS

A number of other OEMs (potentially start-up or lagging OEMs) announce support of Tesla's NACS standard, putting pressure on other OEMs and CPOs to follow suit

Likelihood: ●●●●● Impact: ●●●●●

Key takeaway

The most likely outcome in the USA is that multiple standards continue to co-exist, both on the vehicle and CPO side.

- Tesla is already planning to [include CCS compatibility](#) in its charging stations.
- The automotive industry may experience similar pressure like the consumer electronics industry to consolidate around a single charging standard ([Apple has been forced](#) by the EU to switch away from its proprietary connector and support USB-C from 2024).
- The US government has historically had a less aggressive approach to imposing standards, and lobbying may prevent regulators from picking winners and losers in the EV charging standards battle.
- Conversely, Tesla may also succeed in its mission to convert more OEMs to NACS, which would alleviate future regulatory pressure to switch.

Who to watch out for?

CPOs

CPOs could increase utilization by changing their soon-to-be-obsolete CHAdeMO connectors to NACS connectors to entice the huge volume of Tesla drivers.

Tesla

Tesla's infrastructure continues to be a key USP. The recent decision to open its connector design could prove enticing for some automakers that want to leverage Tesla's current infrastructure.



Other OEMs

Traditional automakers are eating into Tesla's market share and heavily investing in both the in-vehicle and charging experience. Many are likely to benefit if US government funds are prioritized towards CCS infrastructure.

DoT & State governments

The speed at which governments invest in charging infrastructure will have a major impact. Certain states have reduced lead times through streamlined processes designed to quickly establish necessary EV charging infrastructure.

Key takeaway

The government investment announcement is already creating ripples in the market, pushing companies to react. Certain CPOs and OEMs will feel pressure to re-assess their strategies.

- Tesla has the advantage of having the largest DC charging infrastructure in the US, both in terms of power and number of stations.
- The NEVI government incentives will create opportunities for charging providers with longer outlooks and deeper pockets, potentially helping with the consolidation of the CPO ecosystem.
- CPOs frequently state that their largest barrier to market expansion is the paperwork and long lead times when working with public authorities – something government agencies are now working hard to remedy.

How should you react?



1

Monitor

Understand how state authorities plan to use this new funding for infrastructure and the best way to leverage your company's position.

2

Partner

Given the long timescales and complexities of deploying charging infrastructure, the appetite for partnerships across the eco-system is high.

3

Align

As the industry matures, the business models (and the number of players) will likely consolidate reflecting best practices and efficiency.

Authors



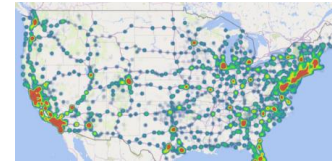
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EV Domain Principal



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Specialist



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Ref:217
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- SaaS tools
- M&A and partnerships analysis
- Strategic Advisory

Interested in finding out more?

Most of our work is helping 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 charging infrastructure**, please [contact us](#).