



TECHNOLOGY/INNOVATION

TECHNOLOGY AND INNOVATION NEWS
FROM THE NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION

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EV Charging: Deployment and Infrastructure Considerations

Electricity is a fundamental cornerstone of modern life. Consider how many times you have benefited from electricity usage just since you woke up this morning. In fact, it is difficult to think of a world without electricity.

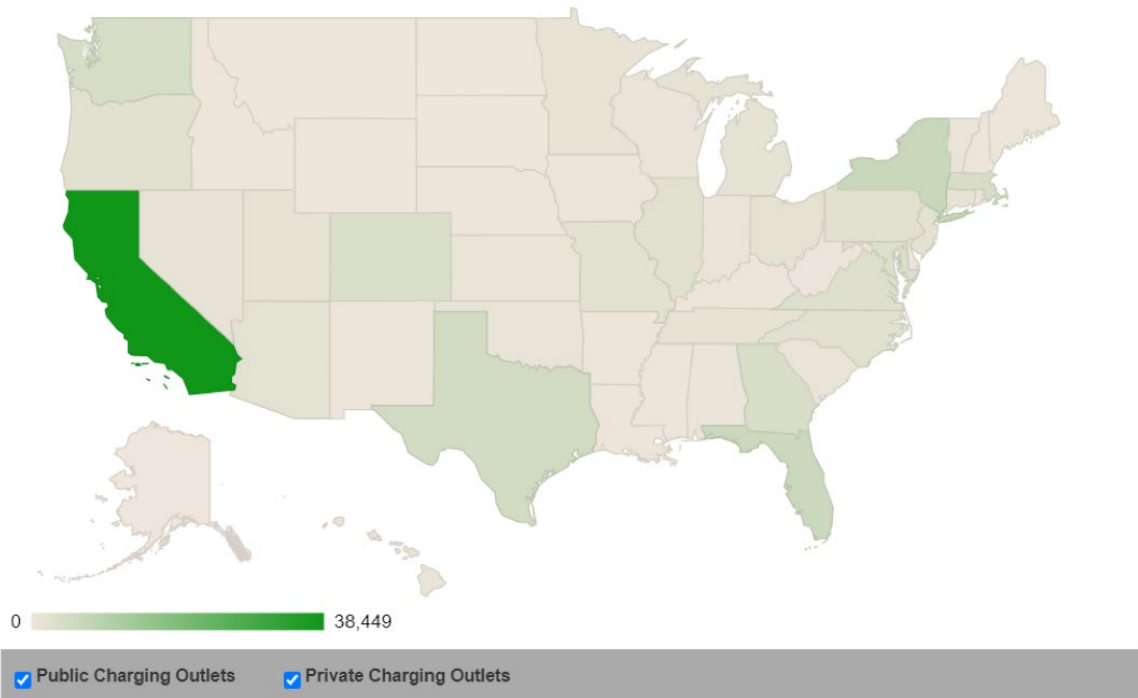
Electric vehicles use an alternative source of energy than conventional petrol or diesel car. Plug-in electric vehicles (PEVs)—which include plug-in hybrid electric vehicles (PHEVs) and all-electric vehicles (EVs)—are on the rise. EVs in the early 2000s lacked range per charge and availability of chargers. Today's EVs benefit from increased range, charger efficiency, and charger station availability. However, 'E-mobility' may reach a bottleneck if the charging infrastructure does not keep up with the projected density of EVs.

The United States government recently proposed spending billions to promote EVs and install 500,000 charging stations across the country. Currently, America has over 45,700 charging stations and over 116,000 charging outlets (including public and private access) according to the U.S. Department of Energy. It is projected that more than 250 new models of battery electric vehicles (BEV) and PHEVs will be introduced into the U.S. within the next two years.

Over the next five years, it is projected that EV sales will more than double for the U.S. Additionally, major automotive industry players are committing to broader EV development. GM has plans to release 30 or more EVs through 2025, Volvo is on

track to put one million electrified cars on the road by 2025, and Volkswagen aims for 50 percent of their North American sales to be EVs by 2030. The demand for EV charging is imperative to support these new automobiles and their infrastructure. Although many individuals who have EVs own personal charging stations at their residences, the need for commercial charging on a wider scale has quickly become more prevalent than ever before.

Electric Vehicle Charging Outlets by State



Source: [AFDC Alternative Fueling Station Locator Data](#)

Publicly accessible electric charging stations are located in nearly every state in the country. There may be one or more charging outlets at each station. Roll over a state on the map for a count of non-residential charging outlets that serve [plug-in electric vehicles](#). To map electric charging stations near a specific address or city, use the [Alternative Fueling Station Locator](#). [Total station counts](#) for electric charging stations are updated using an established data collection schedule on an ongoing basis.

Currently, EV charging usage and adoption is very locally dependent and distributed in highly concentrated regions. The state of California, for example, has nearly a third of all charging outlets within the U.S. Since America runs off three power grids, or “interconnections” (Western, Eastern, and Texas), it is crucial for the major power grids to coordinate together for charger integration in the existing building and grid structures.

North American Electric Power Grids



Electricians play a huge part in defining requirements, providing expertise, and installing electrical equipment such as EV stations. Building owners, developers, urban planners, and regulators will also be key players in the advancement of EV charging stations. However, these constituents could also be potential inhibitors to new EV infrastructure based on the challenges in cost and retrofits. The technical savvy of understanding how to work with distribution operators and utility companies is also critical for many EV projects based on the feeder upgrades and demand charges. Several resources addressing considerations for the development of EV charging are listed below:

- [The United States Government Press Release](#) – Details new actions to accelerate deployment of electric vehicles and chargers.
- [Plug-In Electric Vehicle Readiness](#) – Factors to consider such as existing conditions, opportunities, partnerships, outreach, and education.
- [Federal and state laws](#) - Find federal and state laws incentives for alternative fuels and vehicles in your area.
- [Electric Vehicle Infrastructure Projection Tool \(EVI-Pro\) Lite](#) – Tool to estimate how many EVs will be needed and the effects it will have on your charging load profile.

Today, there is an opportunity for electrical contractors to proactively build a strategy around EV charging stations to benefit the millions of consumers who are increasingly turning to EVs as their major means of transportation. For this new wave of powered vehicles to sustainably address our energy needs, the need for reducing barriers to EV adoption and creating open interoperability is key. This expands the market share and value proposition of our contractors while creating a sustainable future for us all.

NECA Innovation Overload Podcast

The NECA Innovation Overload Podcast helps contractors make sense of industry tools and decide what is right for their business. Each week, the NECA Innovation Team and a weekly guest discuss and tackle problems contractors across the country are facing.



These podcasts were produced to inform and excite NECA members across the country about new industry developments and tools, critical industry issues, and the latest labor relations and safety guidance.

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Please contact innovation@necanet.org if you have any questions.

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