



Everything You
Need To Know About
**ELECTRIC VEHICLE
CHARGING STATIONS**



Introduction to Electric Vehicles

The future is here and it's sustainable. With more and more folks turning to renewable energy sources, Electric Vehicles (EVs) have become a common sight on roads all over America. In fact, global sales reached an impressive 14 million units in 2023 alone. With stats like this, it makes sense that the need for EV charging stations has rapidly grown. At present, public charging points increased by 40% in the previous year - and home EV charging stations are on rise.

In the following, our electricians share what consumers need to know about installation and regulatory requirements — and explore the significant energy and cost savings EVs charging stations offer.

1. What You Need to Know Before Installation

Before embarking on the installation of an EV charging station, consider these factors:



Vehicle Compatibility: Be sure the charging station is compatible with your specific EV model. Different vehicles may require different connectors or charging speeds.



Location: Determine the ideal location for your charging station. For home installations, this could be in a garage or driveway. For businesses, consider accessibility and visibility.



Electrical Capacity: Assess your property's electrical system to ensure it can handle the additional load of an EV charger. This may involve consulting with an expert electrician.

2. Permits and Regulations

Installing an EV charging station isn't as simple as plugging in an appliance. There are various permits and regulations to navigate with which a professional electrician can assist, such as:

Zoning Ordinances and Building Codes: Local zoning laws may dictate where charging stations can be placed. Compliance with building codes is essential for safety and legal operation.

Permit Processes: Many jurisdictions have specific permit requirements for EV charging installations. For example, New Jersey has established Best Management Practice Guides to streamline the process.

National Regulations: The National Electric Vehicle Infrastructure (NEVI) program sets minimum standards for federally funded charging projects, ensuring safety, usability, and accessibility.

Local Authority Approval: Each locality has its own Authority Having Jurisdiction (AHJ) with specific requirements for submission processes, costs, and approval timelines.





3. Range of Costs and Potential Savings

The cost* of installing an EV charging station can vary widely depending on the type of charger and installation complexity:

Level 1 Chargers: These use a standard 120V outlet and typically cost \$300-\$600 for the equipment. Installation is often minimal, as they can plug into existing outlets.

Level 2 Chargers: Operating on 240V, these chargers range from \$500 to \$2,000 for the equipment. Installation costs can add another \$1,200 to \$2,000, depending on your home's electrical setup.

DC Fast Chargers: The most powerful option, these can cost \$20,000 to \$100,000 for the equipment alone, with installation potentially doubling that amount.

While these initial costs may seem significant, the long-term savings are substantial. According to Department of Energy (Energy.gov), charging an electric vehicle at home can save drivers between \$800 to \$1,000 per year compared to gasoline costs, especially for those who rely solely on electric power. This translates to significant savings over the life of the vehicle. Moreover, all-electric vehicles are about 40% more efficient than their gasoline-powered counterparts, contributing to lower overall energy consumption and reduced operating costs. To maximize these savings, the Department of Energy recommends installing a home charger and considering electrical system upgrades for efficient charging.



4. Energy Load Considerations and Efficiency

Understanding your property's energy load when installing an EV charger is of the utmost importance. Energy load refers to the total amount of electricity your property uses at any given time. Adding an EV charger can significantly increase this load, potentially straining your electrical system.

To calculate your energy load:

1. List all major appliances and their wattage.
2. Determine which appliances run simultaneously.
3. Add up the wattage of these appliances.
4. Compare this total to your home's electrical capacity, typically 100-200 amps for most homes.

Factors influencing energy load include the size of your home, number of appliances, and usage patterns. If your calculated load approaches your home's capacity, you may need to upgrade your electrical system before installing an EV charger. It's worth noting that while EV charging does increase your home's energy consumption, the overall efficiency of electric vehicles means you're still saving energy compared to traditional gasoline vehicles. Per the Department of Energy, EVs convert about 77% of electrical energy from the grid to power at the wheels, compared to conventional gasoline vehicles that only convert about 12%–30% of the energy stored in gasoline to power at the wheels.

5. Solutions for Boosting Energy in Older Homes

Older homes often face challenges when it comes to supporting the energy demands of EV chargers. Mister Sparky offers several solutions to address these issues:



Electrical Panel Upgrades: Increasing your home's electrical capacity from 100 amps to 200 amps or more can accommodate the additional load of an EV charger.



Wiring Improvements: Upgrading to heavier gauge wiring can handle increased electrical flow without overheating.



Dedicated Circuits: Installing a dedicated circuit for your EV charger ensures it has the power it needs without affecting other appliances.



Smart Energy Management Systems: These systems can balance the load across your home, prioritizing critical systems and managing EV charging to prevent overloads.



Electrical Vehicle Charger Load Management: Mister Sparky's innovative product line offers a cost-effective alternative to full panel upgrades. This system is programmable, self-powered, and can handle loads up to 60A continuously, making home EV charging more accessible for those with outdated electrical panels.

Our professional electricians at Mister Sparky can assess your home's specific needs and recommend the most cost-effective solutions to support your EV charging needs, whether that's a traditional upgrade or a smart load management system.





Maximizing Your EV Charging Benefits

To get the most out of your EV charging setup, consider these tips from the Department of Energy:

Take Advantage of Incentives: Look into potential tax credits of up to \$7,500 for new electric vehicles and \$4,000 for used models. These incentives can significantly reduce the initial costs of transitioning to an EV.

Explore Charging Discounts: Many companies provide discounts or free charging options for employees or customers. While home charging is typically the most cost-effective, these options can help reduce overall charging costs.

Consider Time-of-Use Rates: Some utility companies offer lower electricity rates during off-peak hours. Charging your EV during these times can lead to additional savings.

Regular Maintenance: Keep your EV and charging equipment well-maintained to ensure optimal efficiency and longevity.

As the adoption of electric vehicles continues to accelerate (pun intended!), understanding the intricacies of EV charging stations becomes increasingly important. From navigating permits and regulations to assessing energy loads and costs, there's much to consider when installing a charging station.

Every installation is unique. To ensure safety, compliance, and optimal performance, consult with a Mister Sparky electrician. Our experts can guide you through the process, from initial assessment to final installation, ensuring your EV charging solution meets all necessary standards and your specific needs.

With the right preparation and professional support, you can join the growing number of EV owners enjoying the convenience of home charging, contributing to a more sustainable future while saving money and energy. Whether you're dealing with an older home or a modern property, solutions exist to make EV charging accessible and efficient.

For more information or to schedule a consultation, don't hesitate to visit Mister Sparky at our mistersparky.com or call us at (800) 906-4577. Let's power the future of transportation, one charging station at a time.

**Prices vary. Contact your local Mister Sparky for more information*



© 2024 Mister Sparky Franchising SPE LLC. All rights reserved. Each location independently owned and operated.
Licensed in the respective state or county.