



# MLS Electric

## EV Charger Installation - Residential

### What to Expect for Home and How to Prepare?

**MLS Electric**  
EV Infrastructure Specialists  
Design, Installation and Maintenance  
Residential and Commercial  
Developers

**TESLA ENERGY**  
CERTIFIED INSTALLER

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# What to Expect?

Location

Type of Installation

Cost Considerations

Type of Charger

Selecting an Installer

Rebates and Tax Incentives



CHARGING  
CHARGERS



WALL CONNECTOR  
\$475



UNIVERSAL WALL CONNECTOR  
\$595

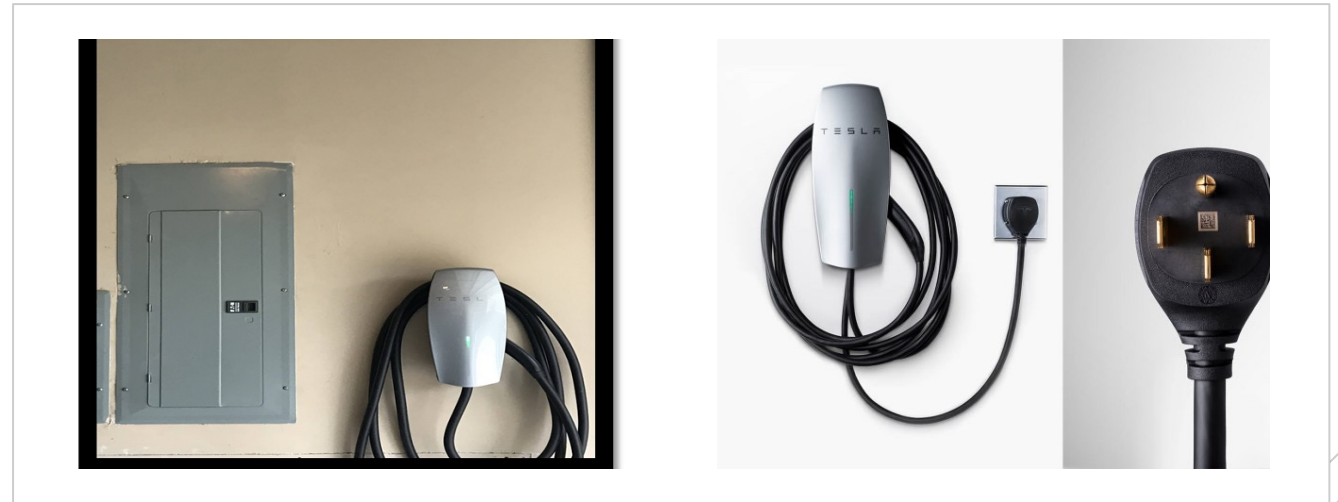
# Location of EV Charger

- Inside Garage
  - Same Wall
  - Adjacent
  - Opposite Wall
- Side of House
- Free Standing on Pedestal
  - Trenching required
  - Rough inspection of trench
  - Final inspection



# Type of Installation Hardwired or Plug-In EV Charger?

- Most people nowadays are going for level 2 chargers.
- There are two options to choose from regarding EV charger installation
  - Hardwired, or
  - Plug-in charger
- What is a Hardwired EV Charger?
  - A hardwired electric vehicle charger is wired directly into your home's electrical system.
  - Requires the services of a professional electrician
  - The electrician installs a dedicated 40/50/60AMP line from your primary electrical panel to your chosen charger location
  - Hardwiring an EV charger means it won't utilize a 240v outlet. Instead, it will draw power directly from the main panel.
- What is a Plug-in EV Charger (NEMA 1450 Plug)?
  - With a plug-in electrical vehicle charger installation, a professional electrician will install a 240v outlet or dryer plug. Such an outlet is also known as a NEMA 50r receptacle.
  - Once the installation is complete, you can plug in the charger and disconnect it as needed.



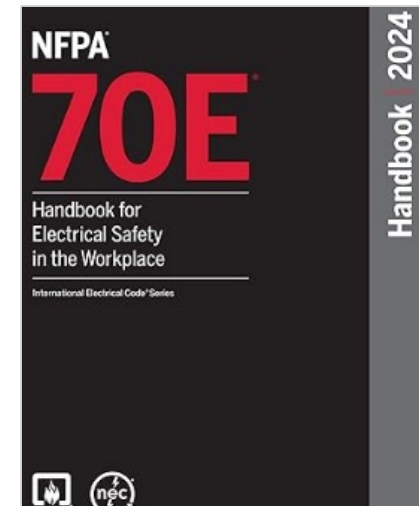
# Will You Need to Upgrade Your Electrical Panel

## The Role of Electrical Panels

- **Critical** in managing and distributing electricity throughout your home.
- Connects your home to the public utility system and organizes the distribution of electrical power into various circuits, each with its own circuit breaker.
- **Main circuit breaker** regulates power to the entire house
- Individual breakers assigned to specific areas or appliances
- **EV Charging Stations add up to 60 A to a typical 200A panel (30%)**
- A 30% increase in day-to-day usage may require an upgrade especially if your home is all electric
  - Electric heating and cooking require additional capacity on a 200A service
  - Gas heating and cooking provide some buffer on a 200A service

# Will You Need to Upgrade Your Electrical Panel

- Higher Amperage Upgrades are often required
- For **larger homes** or properties with unique power requirements, higher amperage upgrades like **300-amp or 400-amp services may be necessary**.
- These upgrades come with a **higher price tag**, with the cost for a new 300-amp service installation ranging from **\$4,000 to \$5,500**, and **400-amp** service upgrades costing anywhere from **\$5,000 to \$7,500**.
- National Electrical Code **Article 220.80** – Load Calculations
  - Most jurisdictions require compliance with 220.80 for EV Chargers
  - The National Electrical Code is what drives a need for a panel upgrade
  - **The code exists for public safety!**



# Cost Considerations



**Plug-in charging stations** are the more affordable option, and this is because they are cheaper to purchase and install when compared to hardwired options.



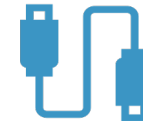
To install a **hardwired charger**, you will need to purchase equipment, pay for installation, and pay for permits.



**HomeAdvisor and Angie's List:**

You may have to pay **between \$500 and \$2200 to purchase hardware** equipment for a hardwired installation depending on the system you choose.

The cost of installation ranges from **\$300 to \$3300**. In addition, depending on your city, you may have to pay \$40-60 for a **permit application**, a **license fee of \$80-100**, and about **\$20-40 for processing fees**.



On the other hand, plug-in charger installation may cost you nothing if you **already have a compatible 240V outlet**.

All you would have to do is mount the unit, and you can do this independently.

If the charger comes without a mount, you may have to part with up to \$300 to purchase one.



# Factors Affecting Cost



When it comes to an EV charger home installation **cost, it varies depending on several factors.**



## Level of charging

**Level 1 charging:** Basic charging level utilizes a standard 120-volt electrical outlet. Doesn't require upgrades

**Level 2 charging:** With a higher voltage of 240 volts, Level 2 charging offers faster charging speeds.

Necessitates the installation of a dedicated 240-volt circuit and an EV charging station.

**DC Fast Charging** – Charger alone can range from \$10,00 to \$50,000 with engineering plans, and need for local formal plan review



## Required electrical upgrades

Installing an electric vehicle (EV) charger at home offers undeniable benefits. Certain electrical upgrades might be required to guarantee a safe and efficient charging experience.

Firstly, consider your home's electrical panel capacity (200A vs 60A addition: **30% increase in capacity**).

**Older homes** or those with limited capacity might need an upgrade to accommodate demand of EV charger.



## Distance from the electrical panel to the charging location



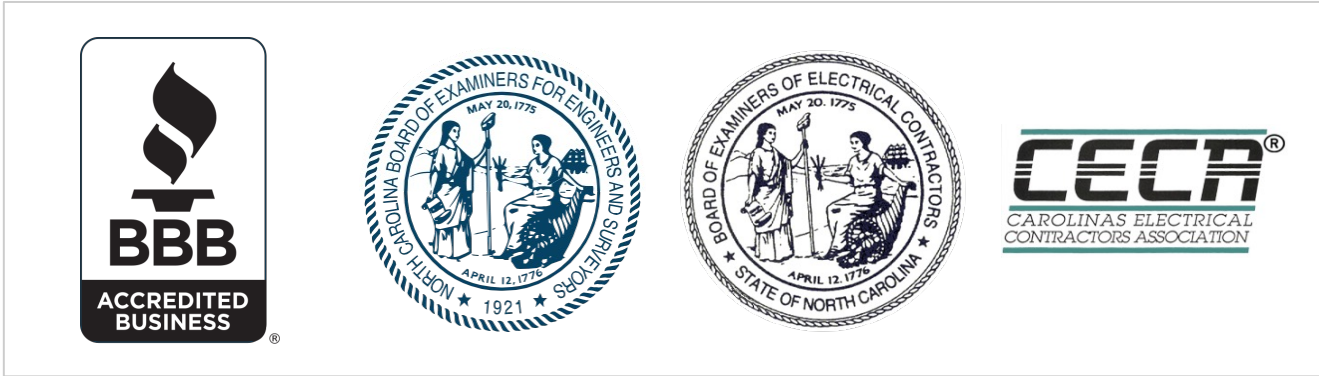
## Permitting and inspections





# Selecting an Installer

- Researching and Vet Installation Companies
- When starting your search, compile a list of potential installation companies nearby.
- A crucial aspect is to verify their credentials and industry affiliations
  - Tesla Approved
  - NC Board of Examinations for Electrical Contractors – Active License in your state
  - Carolina Electrical Contractors Association (CECA)
  - Find It Duke or local utility contractor in your state
- Companies certified by reputable organizations demonstrate their commitment to industry standards and best practices.
- Companies with a proven track record of EV charger installations are likelier to have the expertise required for a successful setup.
- Requesting References and Customer Testimonials – Google and Website Review's



# Rebates and Incentives



## Duke Energy Prep Credit:

**[EV Charger Prep Credit - Duke Energy](https://www.duke-energy.com)**  
**[\(duke-energy.com\)](https://www.duke-energy.com)**

**Customer Option** – Pay contractor up front and receive rebate from Duke Energy up to \$1133

**Contractor Option** – Select approved contractor on Duke Energy website, sign agreement and pay difference between actual cost and rebate.

**Choose MLS Electric**



## What is needed to qualify for rebate?:

Use **Licensed Electrical Contractor**  
Electric Vehicle **Registration**  
Proof of **Permit** and Passing Final **Inspection**

## Other Local Incentives:

- ❖ York Electric Time of Use Rate Program
- ❖ Union Power Time of Day Rate
- ❖ Federal Tax Credit for Home EV Chargers



## What's covered:

**Acceptable upgrades** include new electric plug-in outlets for a garage, electrical wiring improvements and other required electrical upgrades to support Level 2 or higher EV chargers.

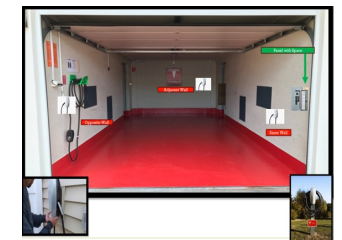
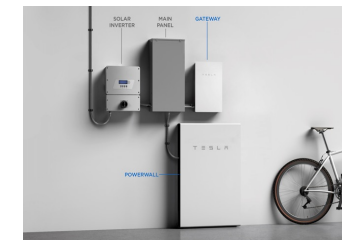
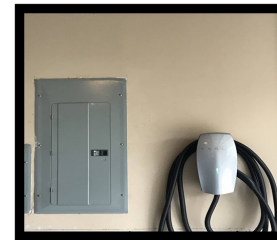
**Your credit may vary depending on qualifying costs and if your Duke Energy Service requires upgrades.**

# Turnkey WallConnector and PowerWall Installation

<b>EV Install - Package #1 Description (Same Wall Within 10 ft. or Panel) Base Installation</b>	<b>Cost</b>
Tesla WallConnector (Universal)	\$650.00
Labor, materials, wire, conduit, breakers and accessories	\$1,250.00
Permitting and Inspections	\$125.00
Duke Energy Rebate (For Duke Energy Customers Only)	(\$1,133)
<b>Total Cost (Estimated)</b>	<b>\$892.00</b>

<b>EV Install - Package #2 Description (Adjacent, Opposite Wall Installation)</b>	<b>Cost</b>
Tesla WallConnector (Universal)	\$650.00
Labor, materials, wire, conduit, breakers and accessories	\$1,250.00
Permitting and Inspections	\$125.00
\$15 per ft. past 10ft. (Adder: material and labor)	+++++++
Duke Energy Rebate (For Duke Energy Customers Only)	(\$1,133)
<b>Total Cost (Estimated)</b>	<b>\$892.00+</b>

<b>EV + PowerWall - Package #3 Description (Garage Install)</b>	<b>Cost</b>
Tesla WallConnector (Universal)	\$650.00
Tesla PowerWall	\$9,600.00
Labor, materials, wire, conduit, breakers and accessories	\$3,750.00
Permitting and Inspections	\$325.00
Duke Energy Rebate (For Duke Energy Customers Only)	(\$1,133)
<b>Total Cost (Estimated)</b>	<b>\$13,192.00</b>



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