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**Charging Station Types**

A charging station can be grouped into three different categories based on the speed at which it charges an electric vehicle (EV) as well as the type of electricity it outputs. This document’s purpose is to serve as a guide for understanding the charging rates, costs, and uses of different charging stations. The time it takes for an electric vehicle to reach a full charge will vary between models, as it depends on the battery size. The mileage range of a vehicle will also vary, but generally smaller electric vehicles have a smaller battery size and less range, while long range versions of car models will have much larger batteries that yield a higher mileage range but take longer to charge.

**This table shows the charging speeds for the average electric vehicle sold in 2022 that has a battery size of 75 kWh and a mileage range of 273 miles. Miles gained and percent charged per hour will vary by vehicle.**

**Level 1**

Level 1 stations are by far the cheapest in terms of equipment and installation costs, since EV manufacturers include a level 1 charging cord with the purchase of an electric vehicle. There is no need to modify the building’s electrical equipment, as the cord can be plugged into a standard wall outlet. Most public charging stations charge more for electricity than your utility provider, so charging at home is almost always a smart financial move, especially if your utility provider has off peak electricity rates during nighttime hours. Most level 1 stations charge the vehicle at a rate of 1 to 1.9 kW. This may not be fast enough for all commuters to gain the mileage needed to commute each day, but for many EV drivers this is the most cost-efficient method for charging, as the vehicle in the table above could gain 70 miles of range when plugged in for 10 hours over night.

**Level 2**

Level 2 charging stations are ideal from a cost perspective, costing around $8,000 for the unit, with installation costs ranging between $5,000 to $20,000. They are ideal for bringing a vehicle up to or close to a full charge over a period of 2 to 8 hours depending on the battery size and the remaining range of the vehicle when plugged in. Most level 2 stations charge at a rate of 7 kW and have 2 ports that share this output. If only 1 vehicle is plugged in, that vehicle has access to the full 7 kW output. This makes these stations ideal for workplaces and shopping centers where drivers can let their vehicles charge for an extended period of time. Many EV owners choose to install level 2 chargers in their own homes that can cost between $400 and $1,000 but the owner must have a location where the station can be mounted to a wall, and the cost of installation can meet or exceed the cost of the station itself. Still, rebates from Drive Electric Vermont and various utility providers can cover some of the station cost.

**Level 3**

Level 3 charging stations have the fastest charging rates, but it comes at a cost. Level 3 charging rates vary from the standard 50 kWh all the way up to 350 kWh, with some stations as low as 25 kWh. Level 3 charging stations require three phase power which many buildings lack. The cost to upgrade to three phase power varies depending on where the nearest supply is located but most often requires a substantial financial investment – between $50,000 - $150,000 and sometimes more. Even if the building is already equipped with three phase power, the cost to purchase a Level 3 charging station is a minimum of $45,000. Station managers pass these high costs down to EV owners by charging higher fees than at level 2 stations. In addition, regular use of a Level 3 fast charger is discouraged by most vehicle manufacturers because it may shorten the longevity of the battery. For these reasons, it is suggested that level 3 charging stations should be considered when the driver cannot wait, and the vehicle’s remaining charge is insufficient to complete the trip.