

WHITEPAPER

COMMERCIAL ELECTRIC VEHICLE CHARGING

Understanding the differences between
charging station levels and speeds.





BENEFITS OF WORKPLACE CHARGING

Here's what you need to know to pick the right charging station for your property and drivers. Not all charging stations are equal:

- Level 1(for special applications)
- Levels 2 (routine applications)
- Level 3 (road tripping)

THE CHARGE LEVEL INDICATES HOW LONG IT TAKES TO CHARGE AN ELECTRIC VEHICLE (EV)

If you've decided to "level up" your property with EV charging stations, you've made an excellent choice. Commercial properties considering electric vehicle (EV) charging stations are future-proofing while offering an attractive feature to patrons and tenants. Even better, installing charging stations can be a snap. But what level of charging station is right for your property? Different charging levels have emerged to meet a variety of needs and use-case scenarios. Most commercial properties favor Level 2 charging for its excellent balance of benefits versus costs, but before you make that long-term investment, make sure you understand each level.

THE "GAS STATION EXPERIENCE" DOES NOT APPLY TO THE WAY PEOPLE CHARGE ELECTRIC VEHICLES.

With gas vehicles, we're used to going to a gas station and standing there for a few minutes while we fill up the tank. With electric vehicles, it's much different. Now drivers "fuel" their vehicle while the car is parked and they go do something else (like work or sleep). In other words, "fueling" no longer requires the driver's presence, freeing them for other tasks and obligations. The question ceases to be "how long must I stand here?" and becomes "can I 'fuel' enough in the time my task will take?" That means properties installing charging stations must consider which level will provide the power and speed needed for the time their customers or tenants will have.

EV CHARGING LEVEL COMPARISON

| | LEVEL 1 | LEVEL 2 | LEVEL 3 (DC FAST CHARGING) |
|--------------------|------------------|---|----------------------------|
| POWER | 1.4kW | 7.2kW - up to 27 miles/hour 11.5kW - up to 41 miles/hour 19.2kW - up to 53 miles/hour | 50kW |
| SOURCE | Standard Outlet | Special Charging Station | Special Charging Station |
| CHARGE RATE (est.) | Est.5 Miles/hour | See Above | 200 Miles/Hour |
| OPTIMAL USE CASE | Occasional Use | Everyday Use | Road Tripping |

LEVEL 2 RULES FOR EVERYDAY USE

Sometimes people think if Level 2 is good, then Level 3 must be better, but that's exactly how charging works.

Remember, EV drivers do not remain with the car while it charges, which means a property selecting an EV charging station does not need to replicate the gas station experience (which isn't even possible today). Consequently, the importance of "speed" as a factor diminishes unless your property finds itself in a special use-case. The most important question is not about speed at all; it's about use-case scenarios and driver needs.

WHICH LEVEL BEST MEETS THE NEEDS OF THE DRIVERS WHO WILL BE VISITING YOUR PROPERTY?

Most EV drivers only need about 20 miles or so of range to 'top-off' the battery when running errands or commuting to work.

Level 2 can easily handle such needs in the time drivers will spend at the destination property. More to the point, it is typically the most cost-efficient solution. Level 3 – or DC Fast Charge (DCFC) – stations definitely have their place, but they have other considerations compared to Level 2 charging for most commercial scenarios. Only about half of the electric vehicles on the road are compatible with DCFC. In addition, DCFC stations are much, much more expensive to purchase, install, and operate.



WHEN MIGHT A DCFC STATION BE RIGHT FOR YOUR PROPERTY?

DCFC charging stations can cost tens of thousands of dollars to buy and install; and these units require the property to supply sufficient electrical capacity, which may necessitate infrastructure upgrades.

Plus, DCFC stations will likely increase property power bills, although this aspect can vary. However, DCFC is ideal for applications that require shorter charge times. For example:

Road tripping: If your business or property is a popular stop along highway and interstate routes, a DCFC charger provides a valuable resource while also encouraging these long-distance drivers to visit you as opposed to other stops.

Fleets: If you own a fleet of electric vehicles that are used throughout the day for business purposes, having a fast-charge option may be effective in keeping your fleet fully charged.

Car sharing: Short-term (often hourly) car rentals represent a growing business model in metro areas throughout the U.S. DCFC stations can quickly charge these vehicles between rental sessions.

Ultimately, EV charging is really about meeting the range needs of EV drivers in a way that aligns with their habits while remaining cost-effective for the property.

The logo for ACDI Energy Services, featuring the letters 'ACDI' in a bold, white, sans-serif font inside a black rectangular box.

For more information on ACDI Energy Services and our products, please call 800.990.2234 or visit acdi.energy.