

EV Charging Installation Guide

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Introduction

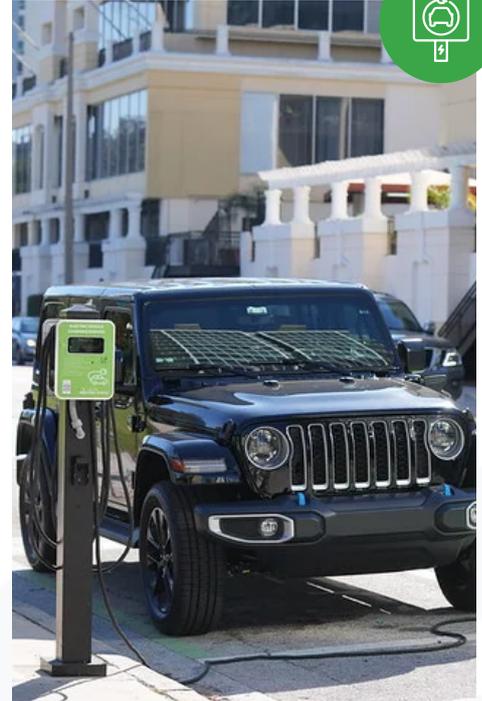
There is no place to start but the beginning. For many who are just starting to explore EV charging stations as a part of their property, knowing where and how to start can be among the most challenging aspects. Whether you're developing a new site or working with an existing one, site selection is still important. Where you place charging stations can impact the success of your EV charging program, regardless of your business, from retail to MDU.

But implementation goes well beyond site selection and the choices you make during this phase of your project can have long lasting effects. This guide is intended to help you understand what you need to know about site selection and the implementation/installation process as well as what questions you need to ask both yourself and your EVSE provider.

Why Site Selection is So Important

When you've finalized the decision to implement EV charging stations, you want to ensure you're going to launch a successful endeavor. The first step to that is site selection. Not only do you need to ensure you've got ample space for charging stations, but how you maximize the space available may impact your charging station selection. Furthermore, there are concerns regarding available parking, power grid capacity, and more.

It's not enough to say "I've got a parking lot." Where and how EV charging stations are set up requires attention to space and logistics. And, as we can say from experience, failure to focus on this can result in over architecting your site, creating complications you shouldn't experience.



Top Factors to Consider During Site Selection

So you've got a parking lot, but you've just read the above and know that it's not enough. What other factors do you need to consider during site selection? While there are quite a few factors to consider, the top factors impacting EV charging station site selection include:

- ✓ Site demand and traffic
- ✓ Dwell time
- ✓ Existing parking space/space availability
- ✓ Lot layout
- ✓ Power grid capacity





Top Sites for EV Charging Stations

Given the factors listed above, when it comes to top sites for EV charging stations, three of those factors stand out above all others. Those three factors are: demand/traffic, dwell time, and available space.

Ideally, you want a location that is high traffic with an existing demand for EV charging stations. Further, you want locations that have a dwell time of at least a half hour which would enable drivers to “top up” their charge while shopping, dining, running errands, or participating in other activities. Finally, you need available parking spots that can be dedicated to EV charging, meaning you have ample space for other cars to park without blocking EV charging stations.



Site Selection Checklist

With an understanding of the top factors, and your site’s ability to meet those needs, it’s time to drill down and look at some more specific things you’ll need to factor in as you determine your site’s suitability for EV charging stations:

Demand and Traffic

- Are there any regional initiatives driving EV charging infrastructure? Are there requirements for those programs or initiatives? Will your site meet those requirements with minimal investment?
- How many EV drivers are registered in your area?
- How many EV charging stations already exist in your city?
- Is your site a popular or frequent destination?
- Is there driver, business, resident, or visitor demand in this area?
- Do nearby locations or competitors offer EV charging stations?
- Do you have dwell time of greater than 30 minutes for Level 2 chargers?
- Is there space for fast charging hardware?
- Would EV charging stations at your location boost reputation? Sales? Tenancy/Occupancy?

Location and Space

- Is there ample existing parking?
- Is there space for EV charging hardware?
- Is there easy, unimpeded access to parking at all times of day/night?
- Would this area benefit from a sustainability boost and the presence of “greener” solutions?

Site Logistics

- Is there a nearby electrical panel?
- Is the path from the electrical panel to parking unobstructed?
- Is there ample power from the grid at this location?
- Based on available power, how many stations could you host?
- Based on available power, would fast chargers be an option?
- Are there obstacles that might create connectivity challenges, such as parking structures or buildings?
- Could EV charging station placement create an obstruction to other structural needs such as snow removal?

Top Factors to Consider For EV Charging Station

Didn't check every box? That's okay, it doesn't mean it's not a good option, it just may require working with your EVSE provider to resolve challenges. If you've determined your site is possibly suitable and also a good choice for EV charging stations, it's time to consider installation and implementation. With a full service, turnkey EVSE provider, these services will be included (along with ongoing maintenance and support). However, it's still a good idea to understand what you need to do in terms of decision making based on your site.



EV Charging Hardware

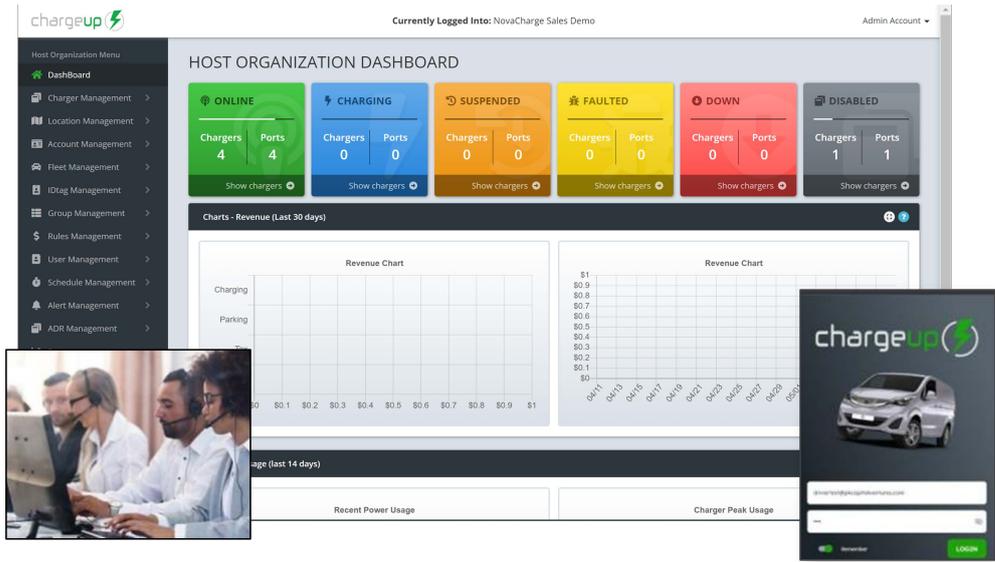
Let's start with the basics. **Level 2 and DC fast chargers** are what you'll want. Your power grid capacity will help determine what you're capable of hosting on site, though power management capabilities based on your charging platform management system (more on that in a moment) can help you optimize.

Most EV models, for level 2 charging, use the J1772 connector. For DC fast charging, most cars use a port called CCS or combined charging solution which looks like the J1772 connector but includes two additional high speed charging pins. Nissan and Mitsubishi, as well as some older model Kias, may use a CHAdeMO. And, if you're worried about Tesla charging, those come with adapters for Level 2 that enable them to charge where needed.

In addition to the charging station types and connectors, you'll also want to consider the housing and cables used to keep your investment safe. Ideally, you'd choose enclosures that are NEMA 4 and IK10 rated. These factors help protect your charging stations from water (with NEMA 4 that's about 65 gallons per minute from a 1-inch hose) and from impact. IK10 is the highest measurement rating for protection from physical damage using the international standard IEC 62262 scale. IK10 rated products are protected against 20 joules of impact.

These factors are critical for longevity in wet climates, particularly those that are regularly impacted by strong thunderstorms and hurricanes.

The real difference in EVSE quality and functionality comes from the integration of your hardware and the chosen software platform.



Software/Network/CPMS

The power of EV charging is best leveraged with networked chargers. Networked chargers provide remarkable control for all aspects of charging station management through an EV Charging Platform Management System (CPMS). This part of the software provides access and control for everything from complex fee structures and power management to uptime monitoring and maintenance. Remote access to your charging stations requires a robust network, but not all EV charging networks are built the same.

For ROI, you'll want to be able to use that CPMS to set rules and adjust fee structures based on time and demand and possibly even the driver. This is particularly useful for rewards programs, company/delivery vehicles, and more. Similarly, to maximize this ROI, you'll want to understand how, when, and who is using your EV charging stations the most. That's only possible with robust reporting through a CPMS.

You'll also want to be able to manage power usage. More specifically, if four drivers pull up to your four EV charging stations, at different times, how do you manage charging speed so as not to overload your site's power capacity? That comes down to your CPMS.

And, speaking of drivers, what kind of experience do they have? As a station owner, you'll want to find an open charge point protocol (OCPP) compatible EV charging station. For station owners, this means you've got some flexibility regarding the networks you, and drivers, use to connect to your stations. That means you've got flexibility should you wish to choose a different service provider and drivers have the ability to connect to your stations through a variety of apps.

When it comes to concerns regarding EV charging, one of the biggest concerns for drivers is reliability. For station owners, that translates to concerns regarding maintenance, upkeep, and connectivity. Networked EV charging stations can be monitored for uptime and NovaCHARGE's solution includes the NovaBOT which can provide Level 1 troubleshooting and maintenance for you.

Still, flexibility and reliability are the name of the game. That's why choosing a forward thinking, OCPP compliant solution (and one that's OCPI ready) matters. The EV charging market is rapidly changing and expanding with some players coming and going and having a solution on site that's capable of weathering not just the elements, but the changes in the industry is vital for you and for drivers.

Installation and Implementation Checklist

You've determined that your site is a great spot for an EV charging station and there's a demand. You've done your research and due diligence on an EVSE provider and you're ready to get started. What's next? You can and should work with your provider to complete these next steps.

- Complete a full site assessment- preliminary information may not be thorough enough. This should include an audit of the existing electrical infrastructure.
- Plan your EV infrastructure: including a potential plan for scaling your solution
 - Layout your stations: determine their location, number of spaces and potentially room to grow etc.
 - Determine the number of Level 2 and/or DC fast charging stations
 - Check distance to electrical service and ensure no obstructions or cabling issues
 - Consider access for installation
- Prepare a budget and installation timeline
 - Research grants, rebates, and tax incentives
- Contact your local utility company, especially if additional infrastructure is needed and include that in your budget and timeline
- Research and secure necessary permits from local government
- Work with your contractor or EVSE provider to complete the installation and necessary inspections
- Train station hosts and develop a monitoring and maintenance program
 - Work with your CPMS provider to ensure you can monitor stations and discover what automated tools they offer to assist





EV Charging Installation and Site Selection
Guide and Checklist



As might be clear at this point, few things are more important than the EVSE provider you choose. From site assessment and planning to hardware, software, and networking, selecting a full-service provider can assist you with the process and ensure everything runs smoothly. Like any business investment, this isn't something you want to rush, nor is it a place where you want to cut corners or cobble together solutions from multiple providers.



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If you'd like to learn more, [our blog](#) is a great place to start. If you're ready to talk to a team of experts and see how NovaCHARGE will walk with you through the project and provide ongoing support after, including one of the strongest warranties in the industry, [reach out to our team today](#), and let's check some of these boxes together!

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