

Some workplace charging technical considerations:

Power supply

Work with your electrician and utility company to assess the available power supply. If there is a need to provide more power to the site, you can see if the utility company has programs to support this. In most cases, the power supply will limit the number and power level of stations you can install. The good news is that there are smart charging stations that can mitigate the power capacity constraints by sharing power between stations and keep demand charges at bay with peak demand control.



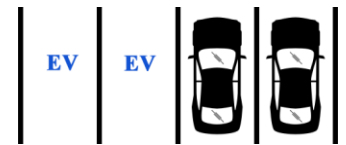
Metering

Energy metering choices depend on what kind of charging infrastructure you will use and which payment options you choose. There might be a utility program that will take care of this all, you might use third-party provider that handles all metering and payments or you might choose to set up a monthly flat fee for users and manage by payroll deduction. When considering your options you should consult with your utility company and an electrician who is knowledgeable about electric vehicle supply equipment (EVSE) and metering installations. For more information, check out our Metering and Payment systems table.



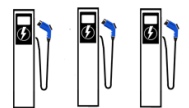
Location

Install charging stations as close to the electrical service as possible. It doesn't need to be a prime location. This keeps the ICEing down and makes charging spots more available for those who need them. You won't necessarily need to have dedicated parking, but consider the best usage policies. Please provide enough stations so employees can find charging. This way you don't have to set up a policy where employees have to move their car when their charging is done to free up the station for some other user. You don't want your employees spending their valuable work time moving cars around.



Power sharing

As mentioned earlier, in most cases the power supply will be the limiting factor on how many charging stations you can install. Fortunately, smart charging stations can mitigate the power capacity constraints by sharing power between stations. By using this kind of technology you might be able to double or even quadruple the number of stations on your lot.



Charging levels

Level 2 charging is the most common approach for workplace charging. This works well if you are using smart chargers that have metering, power sharing and power limitation based on site power functions available. Using Level 2 stations can cause a power demand peak in the morning when everyone comes to work and plugs in, but this can be mitigated with smart charging stations that stagger the charging times and even move some charging to the afternoon. Level 1 stations are also an option that should be considered. Level 1 stations provide a limited amount of energy during the workday (about 30 miles worth) but this might be enough for many users. Using Level 1 stations enables double the number of stations because of the lower power draw, and it makes flat fee approach easy because everyone is getting pretty much same amount of energy during the workday. If you want to provide Level 1 infrastructure, please install Level 1 EVSEs. We recommend against using regular outlets and having owners use their own cords for the following reasons:



- Normal outlets are not designed for this kind of use so they will keep breaking and potentially cause hazards.
- People have to haul their own cords back and forth, and some owners might not even have Level 1 cord set.
- Removable cord sets are more vulnerable to vandalism and someone could steal them.

Visitor charging

You should also provide some public Level 2 and potentially also DC fast charging stations for visitor charging. If you decide to install DCFC infrastructure think about public usage policies. Visitor charging stations should have higher fees than workplace charging stations to make sure they are available for those who really need it. There are likely ways to validate the charging, if you would like to do that for some of your visitors.



Fleet charging

Your company should lead by example by electrifying your fleet, step by step. Fleet charging setups depend on how those vehicles are used, where they stay overnight, etc, but there are cases where you might be able to use the WPC charging infrastructure for fleet charging during evening and night hours. Smart-charging stations enable digital access control and flexible pricing policies. If these spots are shared between fleet vehicles and the general public, for example, you can set up different charging prices for different users. If the system provider handles payments, take into account their payment fees.



Hardware selection

Hardware selection happens as part of the WPC planning process. There is no set time that this needs to happen, but it is instead dependent on many variables and choices made during the planning process. Those choices will narrow down the options, and usually there is a very limited number of hardware options that meet all stakeholder needs. For example, if the utility company provides their own program, that usually means that the system will be built using their preferred hardware. You probably have the most choices if you decide to run the program yourself and use flat billing. In addition, there are many third party providers with smart charging solutions, so you'll find many options to choose from.



Access and Authentication

Smart charging stations provide a variety of access and authentication options. Traditionally people were asked to use an RFID card or app-based authentication. The next step will be Plug & Charge solutions, where the charging station recognizes the car automatically and starts charging without an extra authentication step. These solutions are not yet commonly available, but we should expect some options soon. They might not work with older vehicles, so some users will still need to use the card or an app.



Payment options

Monthly flat fee through payroll deduction is one of the easiest ways to handle the charging fees. In case you have both Level 1 and Level 2 station options, the monthly fee would naturally depend on which one they choose. In case you have monthly payments and dedicated parking, your EV owners will provide the vehicle registration plate number, which can be marked on the reserved parking sign in front of the parking spot. You can use our Power and Energy calculator tool to determine the right fee levels.



If you decide to go with a “first come first serve” approach and kWh based fee, it should be 1-5 cents higher than average home charging rates. This makes sure that stations are available for those who really need them. It also provides a small stream to cover some costs associated with station expenses and maintenance. This kind of pricing will increase charging availability, make it more fair and reduce excess demand for new stations.

Data collection

Depending on your WPC approach, data collection might not be crucial for your program, but in many cases, it is very helpful. You can use common energy monitoring systems to collect general energy consumption data, but if you want more specific information, it is better to use smart charging stations. Smart EV charging stations can collect usage data per user, help you monitor costs and provide reports about usage and even greenhouse gas emission impacts.



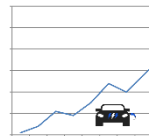
Signage and enforcement

If you are dedicating parking spots for certain users, you need to have some kind of easy way for the user to show that they have permission to use this parking spot for parking and charging. A small sign on their dashboard might be the easiest way to do that. If you have the charging spots available on a first come first serve basis, you need to clearly state that charging spaces are for charging. Signage should say something like “EV charging only.” You need to inform your employees that a vehicle needs to be plugged in and pull at least 5kWh/day. See Federal Highway administration’s [Regulatory Signs for Electric Vehicle Charging and Parking Facilities](#).



Future proof the installation:

The number of people shifting to electric is growing rapidly, so if possible, install at least 50% more charging stations than the present number of EV owners at your workplace. You can also future-proof your installation by running extra conduit to additional parking spots for easy installations later and using power sharing stations to stretch the available power capacity further.



Maintenance and service:

Train your facility people to check the charging stations weekly and make it easy for the users to report any problems with the stations. Have a trained charging station mechanic do maintenance on stations quarterly/twice a year/ annually.



We can help you by providing:

- Senior management EV/WPC education
- Advisory help for the project committee
- Connections to local companies

Get in touch with [EMPOWER coalition partners](#).

