Power Management – Basic Information

The ChargePoint EVSE charging software platform includes a wide array of options to manage energy and power at stations and groupings of stations. As fleets quickly grow, the ability to manage power among many vehicles can be critical to save on electrical infrastructure costs and ongoing energy costs. Options are illustrated below for the commercial AC and DC offerings.

Cable Sharing:
Allows a single cable to supply a dual port AC charging station. The available power (circuit breaker rating) is set at the time of commissioning, then the station will self-manage and assign power to each port as required, but not exceeding the maximum power set.
Dual port stations also ship with an L1 to L1 power jumper. The standard power jumper is pre-installed on the right RCD and used for standard single port and dual port installations. To better balance load across all three phases across the site, an L1 to L2 power jumper is also available for phase rotation of the supply between ports.

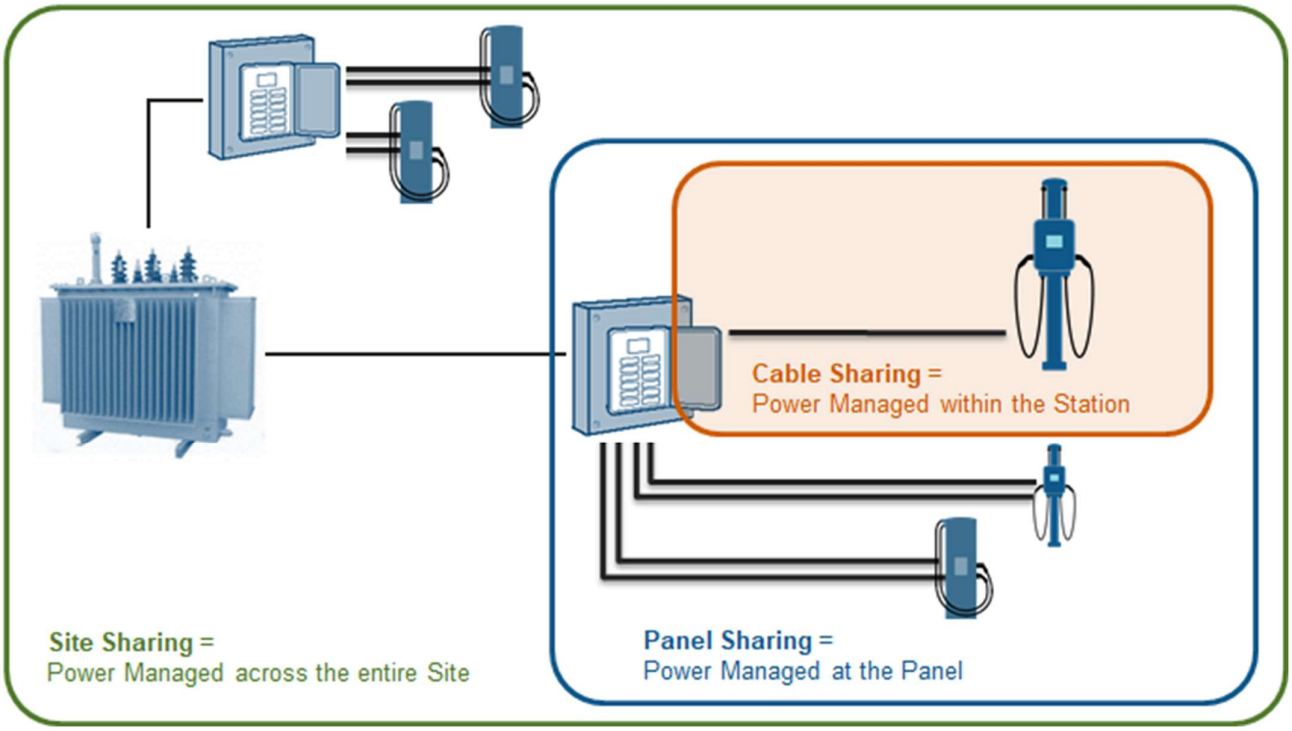
Power Select:
Allows lower power circuits to be run to the stations: 30A circuit supporting 24A load or a 20A circuit supporting 16A load. Power Select is typically set by an installer using the installation wizard but may also be remotely set by ChargePoint Support when necessary.

Demand Response:
An optional feature on the CP4000, this enables station operators to conduct demand response on a station or group of stations. Power can be curtailed completely, by a percentage of the active power, or set to a lower power threshold.

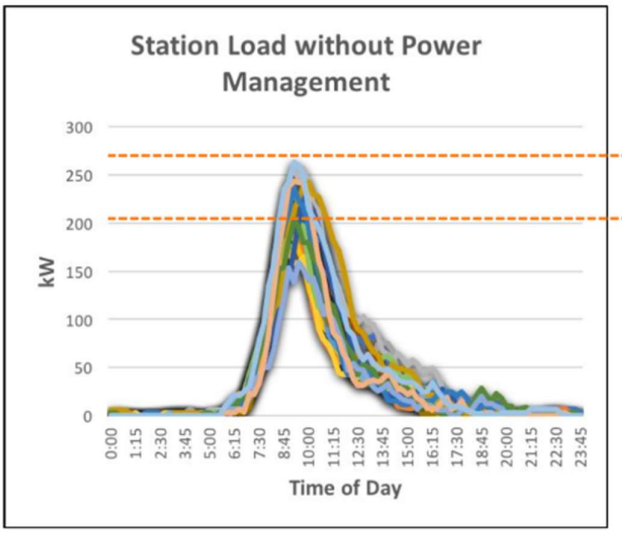
Power Share Ceiling:
Max aggregate load of a custom group of stations in a geographic region may also be configured, and power ceiling may optionally be set up to vary by time of day or day of week, or may vary based on pricing information provided by the utility. Setting a power ceiling that varies by time of day may complement integration of EVSE and solar or battery storage systems.

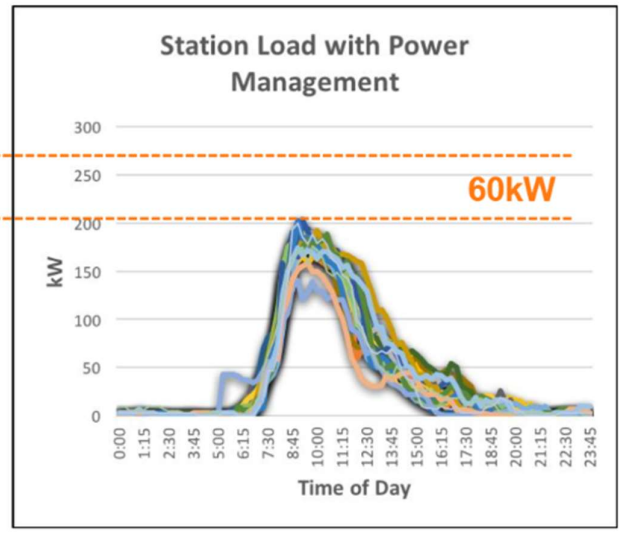
Power Management:
Allows an aggregate maximum load to be set for a group of stations at the station/cable level, panel level and transformer/site level; DC power can be managed at a site level, in conjunction with dual port station and panel level power management applications. This allows for oversubscription of electrical service and optimizes the active charging time of vehicles relative to their overall time the vehicles are parked. For example, Power Management for EVSE charging a fleet of 21 electric vehicles at a site using common transformer and electrical panel may be configured for 45 kVA max aggregate load that would otherwise require up to 140 kVA power capacity. With Power Management, stations will self-manage to never exceed the threshold.

Multilevel Power Management



ChargePoint Power Management enables efficient charging of an increased number of vehicles using available power at a site, reduces electrical infrastructure costs, and eliminates higher utility service costs associated with exceeding a peak power threshold. The stations in concert with ChargePoint cloud- based services actively manage the individual power output to each vehicle to ensure that the maximum allowed load is never exceeded. This software feature is extremely useful in fleet applications given the large number of vehicles and charging requirements within a single site. The following graphs illustrate the impact of using power management to manage demand charges with a large number of charging stations at a single site.





Via our full library of APIs, Power Management becomes more dynamic and intelligent. Integrations with 3rd party control systems such as Energy Management Systems (EMS) or Building Management Systems (BMS) allow the total charging load to react in real time to other site-based considerations for a truly intelligent solution.

In addition, ChargePoint's extensive experience with service fleet and eBus operators has allowed us to further enhance our control systems into fleet optimized solutions, where charging of vehicles is prioritized based on integrations with fleet scheduling, vehicle telematics and state of charge predictions to ensure all vehicles have the energy required to complete their routing.