

ARTICLE

Five “Destination DC” use cases

Sometimes faster-than-AC, but slower-than-DC Fast, is just right



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A guiding principle of right-sized charging is that a vehicle parked is a vehicle that can charge.

A continuum of charging choices has emerged for sites deploying charging stations. Initially it seemed that pure charging power would be the pathway to escalation, but as the market has matured, a need for more charging choices to fill the gap between low and high power has become apparent. This gap is now being filled by “Destination DC” charging technology.

What is Destination DC?

Destination DC offers a faster charging level than what AC chargers can typically achieve, but has a lower power, footprint, installation and investment cost than higher power DC fast charging systems often seen around metro regions and across highways. Destination DC chargers usually offer 20-24kW in power rating, which falls efficiently between the typical 7-11kW charging power delivered by an AC charger yet below the 50kW to 350kW provided by public DC fast charging stations.

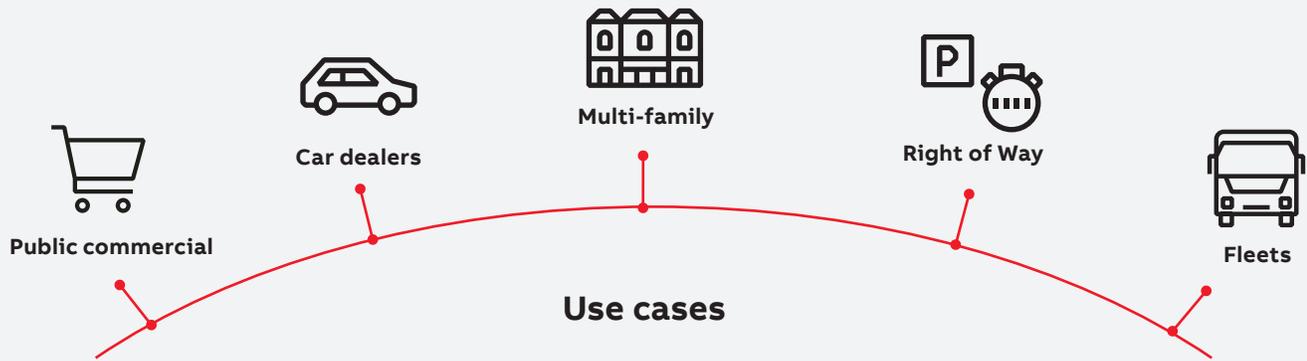
As the Electric Vehicle landscape has evolved from a limited number of passenger models to a large array of vehicle makes, models and types – that have ever-increasing battery packs – charging infrastructure has evolved to keep pace. No longer is it just a choice of AC or DC solutions, whether for public use, private business or fleet locations.

Why Destination DC?

Right-sizing is as important as future-proofing charging infrastructure investments. In some cases, the technology solution needn’t be the biggest, highest or most expensive, but shouldn’t be undersized, underfunded, and therefore inadequate for the EVs of today and tomorrow. Right-sizing means finding the optimal technology to fit the use-case and striking a balance between futureproofing and overdesigning.

Where will Destination DC best fit?

What are the top applications for Destination DC? When it comes to charging use cases, the main principle to remember is: vehicles that are parked are vehicles that can charge. From there, siting experts look more closely at the discernable needs of vehicle owners, the constraints for site owners, and the vehicles themselves.



Public commercial

Shopping, dining and entertainment centers, sports venues and parking complexes.

Car dealers

Vehicle dealer sites with service centers.

Multi-family

Multi-tenant homes, residential communities

Right of Way parking

On-street designated public parking

Fleets

Delivery vehicles, bus depots, car hire and truck

1) Public commercial complexes

These are sometimes called “shopping, dining and entertainment centers” with fashionable stores, restaurants and cinemas, often with multilevel parking structures. These facilities are not “charge and go” parking scenarios as customers stay for a few hours to flex their purchasing power. Similarly, a sports arena where visitors are parked for the length of a match can be charged up by game’s end – while the facility will experience a lower upfront investment and energy bill over time. These sites will attract consumers with charging amenities while being able to monetize the charging service.

2) Car dealers

Car dealers have already been early adopters of 20-24kW charging technology as it offers ‘within the afternoon’ charging speed yet will usually not exceed any power supply limitations of their existing facilities. Dealership facilities may not be capable of supporting a higher power connection to the grid that 50kW and above DC fast chargers require to operate reliably at full power. As more dealers sell and service EVs at increasing rates, they require more on-site charging infrastructure to provide their customers with a fully charged vehicle so they may drive home with zero range anxiety, along with good feelings about their dealer.

3) Multi-family housing

Many multi-family housing needs can be met using just AC chargers. Yet some multi-family housing sites will have space constraints and may not be able to accommodate the number of AC chargers needed to meet demands of many residents; or it may be that they want to cluster charging to

a single location to save installation costs. With Destination DC chargers, multiple vehicles can share fewer chargers that deliver at a fast rate, while lowering footprint to save space, and power demand to save energy demand costs.

4) “Right of Way” charging

Right of way charging refers to charging sites serving on-street parking, often along sidewalks, and usually adjacent to designated public parking. These charging scenarios will often serve EV owners who do not have dedicated garage parking, especially multi-family housing residents. A Destination DC charger will support charging in a much shorter period of time, tailored to metered street parking intervals that eliminate excessive dwell times – and with a smaller profile that does not crowd a right of way that demands accessibility by the general public.

5) Fleets

Fleets are the holy grail of electrification with their high utilization payback and emissions-lowering potential. While fleet vehicles can be of many sizes and serve even more use cases, they will often have larger batteries than typical passenger EV’s, requiring even faster charging. Yet many fleet vehicles are parked overnight and fit perfectly with a lower power DC charging asset. Consider the math for a 200 kWh battery electric delivery truck: with a typical AC charger rated at 7.4 kW, it may take up to 24 hours to recharge that vehicle. A Destination DC charger brings that charge time down to a more realistic 8 hours of overnight charging, allowing goods and services movement throughout the day, every day.



Of additional consideration, many fleet vehicle makers are looking to eliminate the cost and weight of an on-board converter that is required to manage AC charging. These vehicles with large batteries will require DC charging with a high voltage pack – and a well-designed Destination DC charger is prepared to supply that growing need.

What is “Smart” Destination DC?

Smart charging means chargers are always on-line, networked and enable interoperability for a variety of use-case-based software integrations. When connected, chargers become assets to allow for every usage scenario that can authenticate users, service remotely and help manage energy. Additionally, Destination DC chargers with connectivity may enable payment via OCPP network integration, delivering a revenue stream for owners who wish to offer charging as a service.

As electric vehicle adoption continues to grow and new use-cases continue to arise, DC Destination charging can offer an economical approach to fast charging for infrastructure owners that will support both passenger and fleet demands of today and tomorrow.





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