Charging station energy storage 350 kWh

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By 2025, roughly 11 million electric vehicles (EVs) are expected to be sold worldwide, corresponding to 11% of predicted annual global light duty vehicle sales. [1] The emergence of EVs, however, is not only shaking up the automotive industry. Through the increased electrification of the transport sector, a growing link to the power market is being established, leading to new opportunities and challenges for stationary energy storage players.

In the second of a three-part series on each individual trend, we investigate the emerging market opportunity from battery buffered charging stations and the attractiveness for stationary storage players.

An increasing number of electric cars requires an increasing number of opportunities to refuel. It"s no surprise that IEA expects 54 million charging stations globally by 2025. Depending on the available power capacities of the local grid, the additional power demand can cause expensive and time-consuming infrastructure upgrades, or at least high operational costs due to demand charges [2] billed to the charge point operator (CPO).

In other situations, charging has to be quick and instantaneous, for example, during long-distance traveling. Along highways, DC fast-chargers with up to 350 kW are deployed and used in parallel, causing significant demand peaks. As time is a constraint, flexibility has to be provided differently: Adding a battery to the charging station can help to "buffer" the power required from the grid, thus avoiding peaks and related grid constraints or costly charges - a common stationary energy storage use case called "demand shaping".

As is the case for many energy storage use cases, demand shaping via buffered charging stations represents a true "pocket of opportunity", i.e., a business opportunity depending on an individual, variable local setting.

A general roll-out of buffer storage is therefore not possible. Each situation has to be assessed individually, regarding, e.g., the competitiveness to locally available alternatives or the technical feasibility depending on the current and expected levels of utilization as described above. As competitiveness and utilization evolve over time, the pocket of opportunity can open - but also close - rapidly.

Due to the large number of variables, battery buffered charging stations offer a business opportunity that is hard to quantify. Nevertheless, it clearly has the potential to create a sizeable market volume: If only 10% of the over 14,000 fuel stations in Germany today were equipped with just one battery buffered fast charger, this would represent ~0.5 GWh [3] of additional battery demand - compared to ~1 GWh of stationary storage installed in Germany today.

To "gear up for power on wheels", stationary storage players should make preparations now. To effectively seize the opportunities offered by battery buffered charging stations, they has to be assessed closely along the

mentioned prerequisites and reflected accordingly in the individual business model. As a strategy advisor with exclusive focus on cleantech, Apricum is well positioned to offer support.

In part three of this article to be published next month, we will investigate the emergence of "second-life batteries" and the impact on stationary storage companies.

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