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Figure 1: Cost of Li-ion batteries (LIB) vs. cost of solid state batteries (SSB). Comparison between literature data (Schnell et al., 2020 and Schmuck et al., 2018) and Nissan's cost forecast for 2028 and years beyond. Own illustration.

Based on the projected costs, it can generally be assumed that solid-state batteries will be priced in a similar range to conventional Li-ion batteries. It can therefore be assumed that they will be used in the automotive sector. Whether the batteries will only be found in the premium segment, or whether applications will also arise in the mid-range, will depend above all on how the costs develop in comparison with conventional Li-ion batteries.

There are indicators that speak for more favorable system costs, in particular due to the indications that production could be simplified if components are eliminated at the cell or system level.

While solid-state battery manufacturers certainly agree that cost reductions can be achieved, specific details and evidence on how these savings can be achieved are generally still lacking. Studies in the literature generally do not support the manufacturers' forecasts, although considerable differences can be found here even within the literature. Due to the higher Li requirement of the Li metal anode, at least the pure material costs are higher, whether the higher energy density offsets these extra costs remains to be seen.

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