Heading/title

Re-Use of BEV-batteries in a megawatt scale better than recycling?


Abstract

Introduction

The environmental benefits of an electric vehicle face repeated criticism. Along with the use of CO2-intensive, coal-based electricity for vehicle operation, the ecological rucksack of the battery is the primary focus. When the battery is reused at the end of the vehicle's service life, the environmental benefits far exceed those of just regular recycling. The presentation will show two already realized battery plants on a megawatt scale and report the experience in planning and construction. Both systems are used for grid control and can support a smart grid in the future.

Results

Older vehicle batteries still contain many valuable raw materials. For example, lithium batteries with nickel-cobalt-manganese oxide (NCM) as the cathode material still contain high (and therefore valuable) proportions of cobalt, as is the case with the often-used NCM 111. The cobalt content is increasingly reduced in more modern cathode materials such as NCM 622 or 811. Batteries with lithium iron phosphate (LFP) as the cathode material inherently contain less valuable raw materials. In contrast to other types of batteries, recycling will be less worthwhile here in the future as well.

Conclusion

A second-life approach could come into play here rather than immediate recycling. Today's recycling methods are often not economically viable with the current low numbers. Second-Life would offer the advantage here of keeping the batteries in stationary storage for ten years and then increasing the cost-effectiveness of subsequent recycling due to economies of scale.