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Using technoeconomics to guide research in energy storage

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Abstract

The shift to a low carbon economy will require wide-scale deployment of energy storage technologies. Breakthroughs in novel battery materials with higher energy density and longer cycle life will enable greater integration of intermittent renewable generation (like wind and solar PV) and accelerate the adoption of electric mobility. In particular, several post-Li battery chemistries focus on improved performance while using globally available, inexpensive active materials. While significant effort is devoted toward demonstration of the technical figures of merit, the cost component of these systems is often under explored. Technoeconomic analysis provide another viewpoint to technical breakthroughs and can help guide a researcher's effort toward those areas of biggest impact to scale-up and commercialization. In this presentation, we will review examples of how mass balance and material cost analysis was used to highlight commercialization obstacles in scale-up of post-Li chemistries.