

Secondary Applications for Transportation Batteries

This process has the potential to improve economic and environmental performance of battery integrators and resiliency of electric grid, while reducing the overall environmental footprint of transportation batteries.

Keywords: lithium-ion battery modules, reuse, microgrid, sustainability

Process Implementation Readiness



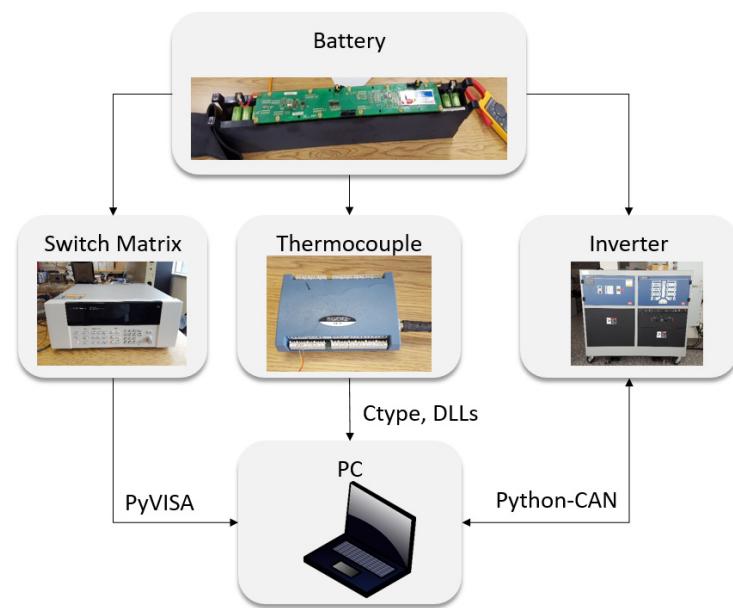
Background and Technology Description

As use of electric vehicles, including hybrid-electric, has grown exponentially in recent years, the problems associated with their end-of-life (EOL) must be addressed. In these applications, lithium-ion battery (LIB) modules typically have 80% capacity left at EOL, which creates high potential value for their reuse. At the same time, there is a significant need for electrical storage on a large scale in order to attenuate the intermittent nature of the renewable distributed energy resources (DERs), viz. wind and solar.

Work performed in the Golisano Institute for Sustainability at Rochester Institute of Technology included the technical evaluation of used LIB modules for grid applications.

Technology Benefits and Value

- The empirical study successfully demonstrated ability of used modules to serve in two specific grid applications: peak shaving and firming the intermittency of renewable DERs.
- Techno-economic analyses for peak shaving applications indicate a much larger demand than available supply of used batteries for both near and far term, substantiating continuation of this research work.



Target Customers

Reforming the Energy Vision (REV) program has received considerable international attention. Companies in smart grid/microgrid domain are relocating to NY from different states to take advantage of this unique opportunity. In order to achieve the New York State clean energy goal that 50% of electricity will come from renewable energy resources, wind and solar renewables will have to increase tenfold compared to current levels. The expected growth of renewables will demand proportional growth of electrical storage. Repurposing automotive LIB modules with considerable residual capacity at EOL will help to fill the gap.

Intellectual Property

This technology is currently not under patent.

Opportunity

NYSP2I is interested in working with qualified parties for technology and product development based on this study.



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Partners

