

Redox flow battery technology – from vanadium flow battery to next generation systems

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Abstract

Vanadium flow batteries are widely acknowledged as long duration storage for stationary applications. Nevertheless, a huge variety of flow battery technologies have been published in literature during the last recent years.

In this talk the advantages and disadvantages of vanadium flow battery technology and new approaches to circumvent the downsides will be highlighted. The conventional VRFB will be contrasted with different new emerging flow battery chemistries. Examples of current research on iron-iron, hydrogen bromine and zinc slurry air batteries at Fraunhofer ICT will be presented. Each of these emerging systems has one advantage over conventional VRFB, like higher power density ($\text{H}_2\text{-Br}_2\text{-RFB}$), higher energy density (Zn-Slurry Air RFB) and better environmental sustainability (all-iron RFB). Recent findings and typical potential applications for such systems will be provided.