

Redox Flow Cell Component Validation At Sub-Stack Level

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Recent advances in PNNL's redox flow battery research and development utilizing mixed acid electrolytes will be reported. Flow cells consisted of either 1 or 3 cells with active areas of 780 cm^2 , Figure 1. Bismuth nanoparticles deposited on the graphite felt for enhanced electrode performance, lower cost Nafion membranes, and an interdigitated design for lower pressure drop in cells will be presented. Performance of the Fe-V mixed acid electrolyte system will also be presented and compared to the V-V mixed acid electrolyte system. In addition, potential methods to separate electrode performance and processes to enhance electrode performance will also be addressed.



Figure 1. PNNL Redox Flow Battery Test Stand.