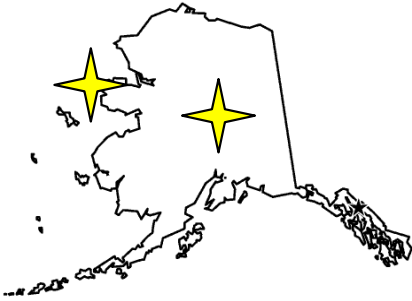




## PROJECT SNAPSHOT: Energy Storage Devices – Flow Battery Testing



**Project location:**  
Fairbanks, Kotzebue

One of the most significant challenges associated with installing renewable energy technologies on small, isolated power grids like those found in many rural Alaskan communities involves integration with the existing diesel generation. This issue is complicated even further by the fact that many renewable resources, such as wind, are available only intermittently and do not always match peak load requirements. This means that it is necessary to have diesel generators available as a constant 'spinning reserve' even when the wind is blowing, limiting the amount of diesel fuel which can be offset by a wind power system in rural Alaska.

A solution to this issue would be to store energy generated from an intermittent renewable resource like wind so that energy generated during times when the wind is blowing can be stored for later use. An example of a potential energy storage device is the VRB battery, a new type of battery which is currently undergoing testing through the Alaska Center for Energy and Power (ACEP). This 'flow battery' is advertised as having high energy conversion efficiencies and extremely long life. The VRB battery could potentially be integrated into wind diesel hybrid systems in rural Alaska to increase the installed capacity of wind power on small, isolated grids.

While the battery has shown real promise, testing through ACEP has demonstrated that there are several manufacturing and technical challenges which need to be addressed before successful installation in a rural community. ACEP is working with the manufacturer to address and resolve those issues, and at the same time is providing an impartial third party assessment of the viability of this energy storage system.



*10kW VRB battery system currently undergoing testing at the University of Alaska*

One of the utilities interested in installing a VRB battery system in conjunction with their wind farm is Kotzebue Electric Association. Hopefully a larger scale version of the VRB battery will be successfully deployed in Kotzebue in the near future. However, the initial testing conducted through ACEP has proved valuable both for assessing the technology as well as the commitment and expertise of the manufacturer.