Agreement will lead to commercialization of redox flow batteries

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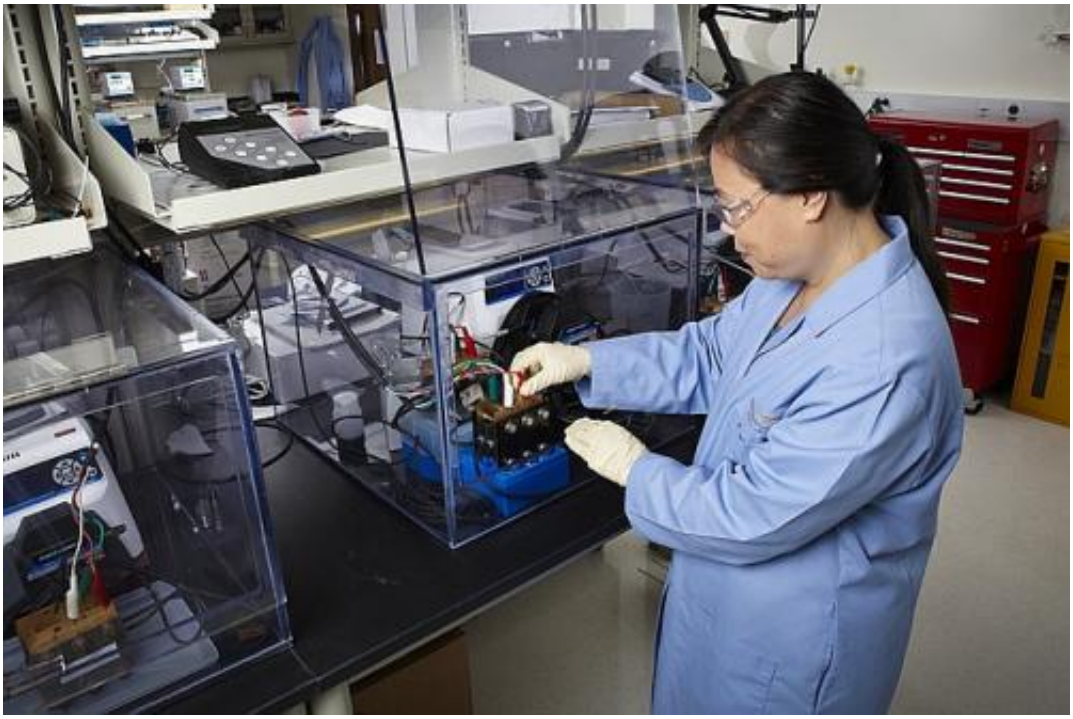

PNNL researchers have recently made significant progress in improving the performance of redox flow batteries, which hold promise for storing large amounts of renewable energy and providing greater stability to the energy grid. A license agreement will allow UniEnergy Technologies LLC of Mukilteo, Wash., to further develop and commercialize the battery technology.

A Washington state firm with a 27,000 square foot manufacturing and design facility in Mukilteo has signed a license agreement with Battelle to further develop and commercialize a type of advanced battery that

holds promise for storing large amounts of renewable energy and providing greater stability to the energy grid.

The agreement with UniEnergy Technologies LLC is intended to advance and commercialize "redox flow" battery technology.

Developing a technology that can smoothly integrate energy from variable and intermittent sources—such as wind and solar power—onto the electricity grid while maintaining grid stability has proven challenging. First developed in the 1970s, redox flow batteries are one type of storage technology that has shown the ability to meet this challenge. But until now, these batteries have been limited in their ability to work well in a wide range of temperatures, their relatively high cost, and their limited ability to store energy, otherwise known as energy density.

Recently however, with funding from the Energy Department's Office of Electricity Delivery & Energy Reliability, researchers at DOE's Pacific Northwest National Laboratory have made significant progress in improving the performance of redox flow technology.

Redox flow batteries are a type of rechargeable battery that stores electrical energy in two tanks of electrolytes, which are then pumped through a reactor to produce energy. The PNNL-developed vanadium electrolytes incorporate two novel approaches to overcome the limitations of previous generations of redox flow batteries. The result is a dramatically improved operating range, higher energy density and lower cost for vanadium redox flow batteries.

The licensing agreement with UniEnergy will lead to enhanced commercial products for utilities, power generators and industry that will enable the energy grid to operate more reliably and efficiently, with better integration of renewable resources, such as energy produced by

wind and the sun.

"The redox flow battery is well-suited for storing intermittent, renewable energy on the electricity grid. The technology can help balance supply and demand, prevent disruptions and meet the grid's varying load requirements," said Imre Gyuk, energy storage program manager at DOE's Office of Electricity Delivery & Energy Reliability in Washington, D.C.

"Redox flow batteries can also help utilities during times of peak demand on the grid, providing additional power when it is needed," he added. "Successful commercialization of DOE-sponsored technology development, such as this, is vital for creating the grid of the future, and sustaining U.S. leadership in advanced technology."

Provided by Pacific Northwest National Laboratory

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