

Written Statement of Russ Weed of UniEnergy Technologies  
Small Business & Entrepreneurship Committee Field Hearing

April 24, 2014

Thank you, Senator Cantwell, Administrator Contreras-Sweet, and your staffs for the opportunity to speak today on the importance of small business innovation and research, including the SBIR program, driving job growth through commercialization.

My name is Russ Weed, VP of Business Development for UniEnergy Technologies and also its general counsel. UniEnergy Technologies, or UET, manufactures and delivers large-scale energy storage systems for utility and grid, micro-grid, commercial and industrial, and other applications. The core technology is an advanced vanadium flow battery, with its technology origins at the Pacific Northwest National Laboratory here in Washington State, with funding from the Office of Electricity at the US Department of Energy. Because of the critical problems solved by the technology developed at PNNL, and with the support of a multi-national private equity group, the PNNL energy storage program leader and his chief scientist came out from the lab and formed UET in March 2012. UET agreed upon a technology license with PNNL and fortunately with full funding, put in place a world-class engineering, manufacturing, and business team which has designed and delivered a commercial product now available for sale, in just two years. I've brought for you a picture of one of our Uni.Systems, which at the end of this year will be installed at a distribution substation for a Washington State utility. This is a utility-class system, storing a large amount of energy – up to a maximum of 1.8 megawatt-hours - with peak power of 600 kilowatts.

With further research and development, including supported by SBIR and other SBA programs as I will further comment on, we plan for our system's performance measures to grow further in scale. Our constant objective is to increase the cost-benefit effectiveness of energy storage – called the "Holy Grail" for the grid for some years, before the concept of a Smart Grid arrived on the scene. It is imperative for the integration of renewably-generated energy, implementation of the smart grid, and our clean energy future, that our utility and other large-scale energy systems have the ability to buffer energy supply and demand, from millisecond bursts to hours-long, even day-long shifts. In other words, to have utility-class energy storage.

UET has a 67,000 square foot engineering and manufacturing facility in Mukilteo, Washington, about 30 minutes north of here next to Boeing's Paine Field. We are scaling up to produce 100MW of advanced vanadium flow batteries annually. Presently we are forty people, scaling up to about 100 people by the end of 2015. This includes scientists, engineers, technicians, and business people. We are a capital equipment manufacturing company as you can see, with our biggest employment need now being

mechanical, electrical, and other skilled technicians. Thus we are working closely with local community colleges that either have or will have programs producing the technicians we need. UET is very glad and proud to be growing skilled manufacturing jobs in Washington State with family wages and health care.

Of course UET is only one company in the cleantech cluster growing here in the Evergreen State. It is important for us to acknowledge UET has gotten to this point, and only will go further, with the critical help of our “partners in ecosystem” including the DOE, PNNL, the Washington Clean Technology Alliance, the Washington State Department of Commerce, Avista Utilities, Snohomish Public Utility District, Energy Northwest, Puget Sound Energy, and the Trade Development Alliance.

While UET is a manufacturer of large-scale energy storage systems for commercial use, we aim to keep and hopefully extend our technology lead by continuing to press ahead with our R&D efforts. The UET R & D team has 8 PhD’s who are pushing night and day on innovation related to energy storage systems, “stacks” (which are large-scale electrodes in flow batteries), electrolyte for flow batteries, and controls, among other areas. Two research projects we have in mind for SBIR funding are the cost-benefit effective combination of energy storage and solar generation, and the full automation of manufacturing of “stacks” which could enable on-shoring of production in the United States. With real megawatt-sized projects soon in Washington State, UET will have the “iron in the ground” to show we would use SBIR and other SBA funds for a “sound business purpose.” Then we will need to work through some of the Small Business eligibility requirements, such as the size standards of 1,000 employees for “primary battery manufacturing,” but 500 employees for “storage battery manufacturing.” We look forward to that process and would very much appreciate your help as we do so. Thank you again for the opportunity to speak today on behalf of UniEnergy Technologies.