

FRED UPTON

6TH DISTRICT, MICHIGAN

**COMMITTEE ON
ENERGY AND COMMERCE**

ENERGY
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CONSUMER PROTECTION



**Congress of the United States
House of Representatives**

November 8, 2019

Daniel Simmons
Assistant Secretary
Department of Energy
Office of Energy Efficiency and Renewable Energy
1000 Independence Ave, SW
Washington, DC 20585

Dear Mr. Simmons:

Western Michigan University has submitted a funding proposal titled, "Enabling Advanced Electrode Architecture through Printing Technique," in response to the Department of Energy —Energy Efficiency and Renewable Energy Funding Opportunity Announcement: DE-FOA-0001980. The findings from this proposed research will have the potential to be a breakthrough to facilitate broader penetration of battery electric vehicles (BEVs) by demonstrating costs lower than the important barrier of \$100/k Wh. The technology will place the DOE and the U.S. in a strong position for cost-effective Li-ion batteries for EV applications.

This project involves researchers at Western Michigan University, Argonne National Laboratory, Brown University, University of North Carolina at Charlotte, Northeastern University, SafeSense Technologies and Nanoramic Laboratories. WMU has received favorable and highly-ranked merit review comments for the proposal, which were submitted in a response letter on November 1, 2019. Thus, the opportunity exists to leverage this academic/industry/national laboratory partnership to benefit the United States.

The main objective of this project is to develop a low cost and high throughput manufacturing process to produce advanced electrodes with precisely controlled architecture for fast charging batteries with high specific energy, long cycle and calendar life. With improved rate capability and cycle life, electrodes manufactured through this novel printing technique will provide competitive advantages to Li-ion batteries through low cost, fast, high rate charge and the long run-time required for consumer electronics, drones, portable devices, and electric vehicles (EVs).

The Principle Investigator (PI), came to WMU with previous experience at Argonne National Laboratory, and thus was well aware of the power of our DOE labs to partner in this work. As PI, Dr. Qingliu Wu and WMU will lead the project team of scientists and engineers researching and developing this innovative printing technique to manufacture advanced electrodes for fast charging Li-ion batteries. The team—representing not just my district, but multiple states—will develop a novel printing process for high volume electrode production, which will boost the specific energy and rate capability of cells with significantly reduced cost. The development of this novel printing process works in concert with the structural design of electrodes for fast charging batteries. When successful, the throughput of the printed electrodes will have a value greater than 300ft/min and reduce the cost of the battery pack to less than \$100/k Wh, breaking the important cost barrier needed to make battery technology competitive.

I look forward to hearing from the Department about this project.

Sincerely,

Fred Upton
Member of Congress

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