

DOE Awards Ampcera and LLNL \$1.5M to Use 3D Printing for Faster Charging and Higher Energy Density Lithium Batteries

A national lab and industry partnership to innovative manufacturing processes for lithium-ion batteries and reduce time-to-market.

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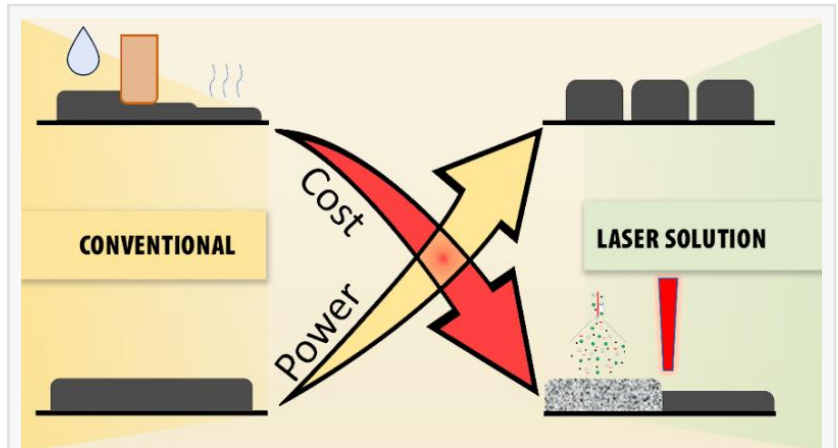
Department of Energy (DOE) has awarded \$1.5 million to [Ampcera Inc.](#) and [Lawrence Livermore National Laboratory](#) (LLNL) to develop a safer lithium battery with higher power and energy densities using a low-cost, high-throughput dry additive manufacturing (3D printing) process.

The joint project between LLNL and Ampcera is one of six Energy Systems projects selected for an award from DOE's Advanced Manufacturing Office to reduce industrial emissions and manufacture clean energy technologies.

“

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Sumin Zhu, CEO and Co-Founder of Ampcera Inc.



Compared with conventional slurry-based film electrode manufacturing methods, dry laser powder bed fusion 3D printing is promising in generating structured electrodes for high power, low cost lithium ion batteries. Image by Jianchao Ye/LLNL

The proposed dry additive manufacturing technology is highly energy-efficient with >10 times the throughput of conventional slurry-based processing, reducing lithium battery manufacturing costs by 50% or more.

“The environmentally benign process allows for thick high-capacity 3D cathode structures to be processed, enabling lithium-ion batteries to reach the fast-charging goal of 80% charge in 15 minutes or less,” said staff scientist and principal investigator Jianchao Ye of LLNL.

As an innovator in developing and manufacturing

advanced materials for solid-state batteries, Ampcera has a vested interest in this project. In addition to developing structured cathodes for lithium-ion batteries, Ampcera also plans to further develop this technology for manufacturing solid-state batteries.



Ampcera logo

“The partnership between LLNL and Ampcera will accelerate the development and commercialization of the ultra-fast and low-cost additive manufacturing technology for high-performance lithium battery manufacturing. After developing 3D-structured cathodes, we expect to expand the technology to anode design and also further explore its application in all-solid-state Li metal batteries with even higher energy and power densities,” said co-investigator Hui Du, Chief Technology Officer and Co-Founder of Ampcera.

“Ampcera is supporting this project as we believe it has the potential to revolutionize the scaled manufacturing of solid-state batteries with intrinsic safety, high energy density >450 Wh/kg, and a low cost of <\$75 per kWh,” said Sumin Zhu, Chief Executive Officer and Co-Founder of Ampcera.

To learn more about Ampcera and opportunities for partnership, please visit [Ampcera.com](https://www.ampcera.com).

About Ampcera Inc.

Ampcera is a U.S.-based innovator in the development and commercialization of high-performance solid-state electrolyte materials and scalable manufacturing processes for next-generation lithium batteries. Ampcera is headquartered in the Silicon Valley in California with R&D and production facilities in Tucson, Arizona.

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