## LiCAP Technologies, INC. introduces the Activated Dry Electrode™ for Solid State Battery

**Sacramento, CA – March 12, 2022** – LiCAP Technologies, Inc. expanded a portfolio of technologies compatible with the proprietary Activated Dry Electrode<sup>™</sup> process, unveiling a cost-effective and sustainable pathway for commercialization of the solid-state battery.



LiCAP's engineer holds a sample of a stand-alone Activated Dry Electrode™ developed for solid-state battery.

Solid-state battery (SSB) technology holds the promise of improved safety, increased specific energy, and energy density over conventional lithium-ion batteries (LIB). However, the traditional "wet" coating approaches to electrode manufacturing used in the commercial production of LIBs are not compatible with the dry room processing of moisture-sensitive solid-state electrolyte materials.

LiCAP successfully applied the Activated Dry Electrode<sup>™</sup> technology to manufacturing of solid-state battery electrodes and produced first catholyte samples. Since the start of the trials in February 2022, LiCAP developed several SSB electrode formulations with NMC and sulfide-based electrolyte materials. These materials were processed into stand-alone active layer films and laminated on aluminum current collectors. At the current development stage, LiCAP can manufacture SSB electrode samples with the areal mass loading ranging between 26-60 mg/cm² with high electronic conductivity. Moreover, LiCAP's engineering team determined that the developed

SSB electrodes can be scaled-up to a pilot and large-scale production similarly to the already existing lines for lithium-ion battery and ultracapacitor electrodes.

"The wet coating process is proven in the lithium-ion battery industry, but its compatibility with SSB is limited and the economics are flawed", said Dr. Linda Zhong, the president of LiCAP. "Activated Dry Electrode™ technology can address the shortcomings of traditional slurry coating. We are working on a breakthrough solution, which would open the automotive industry up to the next generation battery. Our preproduction line will produce SSB electrodes at a 60 m/min speed and will be commissioned in 2023".



Dry Electrode™ for solid-state

battery after lamination.

LiCAP's Activated Dry Electrode<sup>™</sup> technology will radically simplify SSB electrode manufacturing and yield dramatic savings and performance improvements over traditional wet coating.

**From Hours to Minutes**: Activated Dry Electrode<sup>TM</sup> process doesn't require drying, solvent recovery or calendaring and removes entire steps in the manufacturing process while increasing the manufacturing throughput.

**Drastic Cost Reduction:** Activated Dry Electrode<sup>TM</sup> process removes energy-intensive manufacturing steps which contributes to lower CAPEX and OPEX. The small manufacturing footprint of Activated Dry Electrode<sup>TM</sup> line enables cost-effective manufacturing of SSB electrodes in a compact dry room.

**Flexible and Modular**: Manufacturers can scale in small steps to match supply to demand and be cost-effective even at a low production volume.

**Safe and Sustainable**: LiCAP's electrode manufacturing platform uses only a very small amount of non-toxic solvent for the activation step and with 100% recyclable electrode trimmings creates the most sustainable SSB electrode ever made.

## Press Release I LiCAP Technologies, INC.

"Our Activated Dry Electrode™ process will help the solid-state battery industry to achieve performance, low-cost targets and, ultimately, pave the path to commercialization", said Dr. Katharina Gerber, Director of Business Development for LiCAP. "Our pilot equipment is now available for feasibility projects on customer's SSB materials at our facility located in Sacramento, CA".

## ABOUT LICAP TECHNOLOGIES, INC

LiCAP Technologies, Inc. is a leading developer of sustainable manufacturing solutions for electrodes used in lithium-ion batteries (LIBs), lithium-ion capacitors (LICs), ultracapacitors (UCs), and, most recently, in solid-state batteries. The core technology, Activated Dry Electrode™ process, is applicable to manufacturing of low-cost premium electrodes for a variety of secondary energy storage applications. Co-founded and led by the original inventor of the "dry electrode" technology, LiCAP is headquartered in Sacramento, California and employs more than 150 people worldwide. LiCAP's ultracapacitor cells and modules are commercialized for a number of power applications. LiCAP's battery electrodes are currently undergoing customer testing with world's largest battery and automotive OEMs. For more information, please visit www.licaptech.com.